SERVICE DIFFERENTIATION AND DIMENSIONS OF STRATEGIC ORIENTATIONS IN GERMAN RETAIL HORTICULTURE

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DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of the University of Worcester and is original except where indicated by specific reference in the text. No part of the thesis has been submitted as part of any other academic award. The thesis has not been presented to any other education institution in the United Kingdom or overseas. Any views expressed in the thesis are those of the author and in no way represent those of the University.

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ABSTRACT

This thesis investigates service differentiation and dimensions of strategic orientation using the example of German retail horticulture, an industry in which numerous companies are currently transitioning from retail to service provision. In this industry, the economic situation is strained and strategic orientation often unavailable (Gabriel and Bitsch, 2018).

The differentiation of products and services is a strategy for increasing competitive advantage and enhancing performance, but whereas product differentiation has been adequately explored in the literature (Loy and Weiss, 2019), empirical research on service differentiation is lacking. This is especially true of service variety (Green, Davies and Ng, 2017), which highlights the first research gap. Moreover, the mutual impact of dimensions in service differentiation on dimensions of two related concepts, market orientation and service innovativeness, have remained relatively unexplored. Thus, the challenging task for the author was to create an integrated model that allows the simultaneous application of multiple moderators and mediators (Chen and Hung, 2016).

Drawing on a sample of 222 German retail horticulture companies, hypothesis testing was conducted using covariance-based structural equation modelling (CB-SEM) in AMOS 27. The results revealed that in the interplay of three concepts, service depth and customer preference were the most important dimensions for performance throughout the study, as their indirect effects were significant in almost every analysis. They changed the former direct effects.

As for practical implications, the study can help managers better understand the consequences of service differentiation on performance as a strategic tool, in line with Zghidi and Zaiem (2017). This can help them better manage events such as shifts in the market and unexpected sales collapses, such as those caused by the current coronavirus crisis. On this basis, in future research, more research using constellation designs that involve these simultaneous concepts could be developed to allow managers to get a deeper understanding of strategic orientations.

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TABLE OF CONTENTS

DECLARATION 2
ABSTRACT 3
ACKNOWLEDGEMENTS 4
TABLE OF CONTENTS 5
LIST OF ABBREVIATIONS 11
LIST OF TABLES 14
LIST OF FIGURES 16
LIST OF APPENDICES 20
KEYWORDS 22
1. INTRODUCTION TO THE RESEARCH 23
1.1 Background information 23
1.2 Motivation 24
1.3 Rationale 25
1.3.1 Service differentiation (competitive advantage) 25
1.3.2 Market orientation 25
1.3.3 Service innovativeness 26
1.3.4 Interrelationships between the three concepts 26
1.4 Lack of prior research 27
1.4.1 First research gap 27
1.4.2 Second research gap 28
1.4.3 Research gaps outside hypothesis testing 30
1.5 Research aim 32
1.6 Hypotheses 32
1.6.1 Hypotheses addressing the first research gap 35
1.6.2 Hypotheses addressing the second research gap 37
1.7 Contribution to theory and practice 41
1.8 Structure of the thesis 43
2. GERMAN RETAIL HORTICULTURE 44
2.1 Introduction 44
2.2 Organisation of German horticulture 44
2.3 Economic importance of German horticulture 47
2.3.1 Significant key figures 47
2.3.2 Structure and occupation 51
2.3.3 Classification of German retail horticulture 52
2.3.4 The importance of horticultural services in German retail horticulture 54
2.3.5 Conclusion 54

3. LITERATURE REVIEW 56
3.1 Introduction 56
3.2 Business performance 56
3.2.1 Introduction 56
3.2.2 Measures of business performance 57
3.2.3 Summary of business performance 64
3.3 Competitive advantage 65
3.3.1 Introduction 65
3.3.2 Competitive advantage in German retail horticulture 68
3.3.3 Summary of competitive advantage 69
3.3.4 Service differentiation 70
3.4 Market orientation 87
3.4.1 Definitions of market orientation 87
3.4.2 Defining market orientation 87
3.4.3 Evaluation of market orientation concepts 88
3.4.4 Relationship between market orientation and business performance 90
3.4.5 Customer orientation 90
3.4.6 Competitor orientation 96
3.4.7 Interfunctional coordination 97
3.4.8 Summary of market orientation 100
3.5 Service innovativeness 102
3.5.1 Introduction 102
3.5.2 Innovation and innovativeness 103
3.5.3 Service innovativeness as a distinct discipline in innovativeness ... 104
3.5.4 Service innovativeness in German retail horticulture 104
3.5.5 Relationship between service innovativeness and business performance 108
3.5.6 Summary of service innovativeness 110
3.6 Interrelationship 113
3.6.1 Interrelationship between market orientation and service innovativeness 113
3.6.2 Interrelationship between service innovativeness and service differentiation 115
3.6.3 Interrelationship between market orientation and service differentiation 116
3.6.4 Interrelationship in the triumvirate of service differentiation, market orientation and service innovativeness 117
3.6.5 Conclusion: interrelationships between the concepts and performance, leading to the research gaps 119
3.7 Gaps in the existing research 121
3.7.1 First research gap: direct effects 121

3.7.2 Second research gap: indirect effects 122
3.7.3 Decomposing 124
3.7.4 Multiple performance indicators 124
4. HYPOTHESES AND MODEL DEVELOPMENT 126
4.1 Introduction 126
4.2 Development of hypothesis addressing the first research gap (direct effects) 126
4.2.1 Direct effects between market orientation and business performance 126
4.2.2 Direct effects between service innovativeness and business performance 127
4.2.3 Direct effects between service differentiation and business performance 128
4.3 Development of hypotheses addressing the second research gap (indirect effects) 132
4.3.1 The moderating effects of service differentiation 132
4.3.2 The mediating effects of service differentiation 132
4.4 The entire research model 136
5. METHODOLOGY 138
5.1 Introduction 138
5.2 Research philosophy in the present study 138
5.2.1 Philosophical underpinnings 138
5.2.2 Research approach 142
5.2.3 Critical reflection on the present research 143
5.3 Research design 144
5.3.1 Strategy 144
5.3.2 Choices 145
5.3.3 Time horizon 146
5.3.4 LimeSurvey Professional 147
5.3.5 Covariance-based structural equation modelling using AMOS 27 .. 147
5.3.6 Questionnaire development 149
5.4 Measurements 150
5.4.1 Scales 150
5.4.2 Independent variables 151
5.4.3 Dependent variables (business performance) 159
5.4.4 Moderating and mediating variables 162
5.5 Pre-testing 166
5.6 Data collection 169
5.6.1 Effect size 169
5.6.2 Power effects 170
5.6.3 Population 170

5.6.4 Sample ... 171
5.6.5 Sample size ... 172
5.6.6 Measures to support participation ... 174
5.6.7 Ethical considerations regarding the General Data Protection Regulation (GDPR) ... 174
5.7 Data analysis ... 176
5.7.1 Model fit ... 176
5.7.2 Exploratory and confirmatory factor analyses as a two-stage approach 177
5.7.3 Hypothesis testing and effects of sample ... 178
5.7.4 Demonstrating and ensuring rigour ... 182
6. DATA SCREENING ... 188
6.1 Introduction ... 188
6.2 Missing values ... 192
6.3 Detecting outliers using Mahalanobis distances ... 194
6.4 Test for normality using Shapiro–Wilk and Kolmogorov–Smirnov tests 195
6.5 Test for linearity using ANOVA ... 198
6.6 Test for multicollinearity of the independent variables using linear regression ... 199
6.7 Summary of data screening ... 200
6.8 Descriptive statistics ... 201
6.8.1 Introduction ... 201
6.8.2 Skewness and kurtosis ... 201
6.8.3 Standard deviation ... 202
6.8.4 Statistical mean ... 203
7. RESULTS ... 208
7.1 Data analysis ... 208
7.1.1 Exploratory factor analysis using principal components analysis ... 209
7.1.2 Confirmatory factor analysis (measurement model) using AMOS ... 213
7.2 Hypothesis testing: direct effects of each concept on business performance ... 217
7.2.1 Introduction ... 220
7.2.2 Comparing the models with direct effects ... 230
7.2.3 Addressing the hypotheses ... 235
7.2.4 Conclusions ... 237
7.3 Hypothesis testing: indirect effects of service differentiation with moderation analysis ... 242
7.3.1 Introduction ... 242
7.3.2 Model test ... 244
7.3.3 Addressing the hypotheses ... 251
7.3.4 Conclusions ... 260

7.4 Hypothesis testing: indirect effects of service differentiation with mediation analysis ... 262
7.4.1 Introduction ... 262
7.4.2 Model test ... 267
7.4.3 Addressing the hypotheses with the bootstrap method ... 271
7.4.4 Specific indirect effects ... 273
7.4.5 Comparing the results of the bootstrap method with those of the causal steps method ... 274
7.4.6 Conclusions ... 275
8. DISCUSSION ... 282
8.1 Introduction ... 282
8.2 The first research gap (direct effects) ... 282
8.2.1 The direct effect of market orientation on business performance ... 282
8.2.2 The direct effect of service innovativeness on business performance ... 284
8.2.3 The direct effect of service differentiation on business performance ... 286
8.2.4 Summary and addressing the first research gap ... 288
8.3 The second research gap (indirect effects) ... 290
8.3.1 The moderating effects of service differentiation on market orientation and business performance ... 290
8.3.2 The moderating effects of service differentiation on service innovativeness, and business performance ... 295
8.3.3 The mediating effects of service differentiation on market orientation and business performance ... 297
8.3.4 The mediating effects of service differentiation on service innovativeness and business performance ... 300
8.3.5 Summary and addressing the second research gap ... 301
8.4 Discussion on multiple performance indicators ... 304
8.5 Achieving the research aim ... 305
9. CONCLUSION ... 307
9.1 Introduction ... 307
9.2 Theoretical contributions ... 308
9.3 Practical contributions ... 312
9.3.1 Addressing direct effects ... 312
9.3.2 Addressing indirect effects ... 315
9.4 Limitations and future research ... 322
REFERENCES ... 325
APPENDIX 1 ... 362
APPENDIX 2 ... 368

APPENDIX 3 375
APPENDIX 4 378
APPENDIX 5 380
APPENDIX 6 382
APPENDIX 7 497
APPENDIX 8 499
APPENDIX 9 520
APPENDIX 10 536
APPENDIX 11 539
APPENDIX 12 540
APPENDIX 13 541
APPENDIX 14 542
APPENDIX 15 543
APPENDIX 16 547
APPENDIX 17 549
APPENDIX 18 550
APPENDIX 19 551
APPENDIX 20 552
APPENDIX 21 553

LIST OF ABBREVIATIONS

A, α	Alpha
B, β	Beta
AMOS	Analysis of moment structures
AGFI	Adjusted goodness-of-fit index
ANOVA	Analysis of variance
AVE	Average variance extracted
BP_2018	Objective business performance in 2018
BP_5	Objective business performance in the last five years
CB-SEM	Covariance-based-structural equation modelling
CFA	Confirmatory factor analysis
CFI	Comparative fit index
CMB	Common method bias
CMIN/D	Chi-square statistics (χ2/df)
CoO	Competitor orientation
CR	Composite reliability
C.R.	Critical ratio
DV, Y	Dependent variable
EFA	Exploratory factor analysis
Exploi	Exploitative innovation
Explor	Exploratory innovation
Explor_x_Exploi	Ambidextrous innovation
Full, FM	Full mediating effect
GFI	Goodness-of-fit indices
GRH	German retail horticulture
H	Hypothesis
GVA	Gross value added
HRM	Human resource management
IFC	Interfunctional coordination

IV, X	Independent variable
Km	Kilometre
KMO	Kaiser-Meyer-Olkin measure
M	Mediator, moderator
ML estimation method	Approximate maximum likelihood estimation
MO	Market orientation
MSV	Maximum shared variance
MV	Moderating, mediating
n/s	Not significant
Partial, PM	Partial mediating effect
PCA	Principal component analysis
PR_2018	Profit in 2018
PR_5	Profit in the last five years
RBV	Resource-based view
RMSEA	Root-mean-square error of approximation
S	Significant
ST	Strength of mediation
Specific	Specific, indirect effect
SBP	Subjective performance
SD	Service differentiation
SD_Breadth	SD measured by service breadth
SD_CoP	SD measured by competitor preference
SD_CuP	SD measured by customer preference
SD_Depth	SD measured by service depth
SD_Level	SD measured by level of differentiation
SD_Number_BT	SD measured by number of business types
SE	Standard error
SI	Service innovativeness

Exploi	Exploitative innovation
Explor	Exploratory innovation
Explor_x_Exploi	Ambidextrous innovation
SMC, R^2	Squared multiple correlations
SR_5	Sales revenues in the last five years
S-W	Kolmogorov-Smirnov and Shapiro-Wilk
VAF	Variance accounted for
VIF	Variance inflation factor

LIST OF TABLES

Table	Title	Page
Table 1	Structure and key figures of the German horticulture industry.	50
Table 2	Characteristics (SWOT profile) of German retail horticulture.	53
Table 3	Overview of marketing performance items.	59
Table 4	Overview of all hypotheses.	135
Table 5	Contrasting research perspectives and paradigms.	141
Table 6	Overview of the pre-testing process.	167
Table 7	Ex-post statistical techniques in the data analysis.	184
Table 8	Overview of the concepts, constituent dimensions (strategies) and abbreviations employed in modelling.	189
Table 9	Factor loadings of all items in market orientation after principal components analysis.	210
Table 10	Path coefficients (β-value) of the measurement model.	214
Table 11	Convergent and discriminant validity.	216
Table 12	Path coefficients (β-values) addressing direct effects (1).	222
Table 13	Path coefficients (β-values) addressing direct effects (2).	229
Table 14	Overview of Hypotheses 1–3.	232
Table 15	Path coefficients (β-values) addressing direct effects.	233
Table 16	Overview of Hypothesis 4.	244
Table 17	Path coefficients (β-values) of Hypothesis 4a and 4b after bootstrapping.	245

Table 18	Overview of Hypothesis 5.	267
Table 19	Bootstrap method: Path coefficients (β-values) of Hypothesis 5a and 5b in the mediation analysis.	268
Table 20	Profitability of identical companies (in euros), in five-year development.	285

LIST OF FIGURES

Figure	Title	Page
Figure 1	The research gaps in the strategic concepts.	31
Figure 2	The entire proposed research model addressing both research gaps.	34
Figure 3	The proposed research model addressing the first research gap with direct effects.	36
Figure 4	The proposed research model addressing the second research gap with indirect, moderating effects.	38
Figure 5	The proposed research model addressing the second research gap with indirect, mediating effects.	40
Figure 6	Structure of the thesis.	43
Figure 7	Structure of service portfolio in German retail horticulture over time.	45
Figure 8	Distribution of gross value added, modified.	48
Figure 9	Development of gross value added, modified.	48
Figure 10	Structure of the literature review.	56
Figure 11	Three generic strategies.	66
Figure 12	Overview of core services in German retail horticulture.	75
Figure 13	Overview of added services in German retail horticulture.	77
Figure 14	Proposed research model addressing the direct effects of service differentiation and its six dimensions.	86

Figure 15	Systematisation of customer integration.	94
Figure 16	Proposed research model addressing the direct effects of market orientation and its three dimensions.	101
Figure 17	Proposed research model addressing the direct effects of service innovativeness and its three dimensions.	112
Figure 18	Overview and how to address the research gaps.	120
Figure 19	Proposed research model addressing the first research gap.	131
Figure 20	Proposed research model addressing the second research gap.	134
Figure 21	The entire proposed research model addressing both research gaps.	137
Figure 22	Differences between deductive and inductive approaches.	142
Figure 23	Statistical model of the moderation process.	163
Figure 24	Statistical model of the mediation process.	164
Figure 25	Procedure for hypothesis testing via a two-stage approach.	206
Figure 26	The proposed research model addressing direct effects of the first research gap.	219
Figure 27	Overview of the hypothesised research model with direct effects in the moderation analysis.	221
Figure 28	Overview of the hypothesised research model with direct effects in the mediation analysis.	228

Figure 29	Results of the entire hypothesised research model section addressing all direct effects due to the first research gap.	241
Figure 30	The entire proposed research model section addressing the indirect, moderating effects of service differentiation.	243
Figure 31	Plotting model with service differentiation_depth as moderator of the relationship between competitor orientation and objective performance_5.	253
Figure 32	Plotting model with service differentiation_CoP as moderator of the relationship between competitor orientation and objective performance_5.	254
Figure 33	Plotting model with service differentiation_CuP as moderator of the relationship between competitor orientation and objective performance_2018.	255
Figure 34	Plotting model with service differentiation_depth as moderator of the relationship between interfunctional coordination and subjective performance.	256
Figure 35	Plotting model with service differentiation_Breadth as moderator of the relationship between exploratory innovation and subjective performance.	257
Figure 36	Plotting model with service differentiation_Number_BT as moderator of the relationship between exploratory innovation and objective performance_2018.	258
Figure 37	Results of all moderating effects of service differentiation addressing the second research gap.	259

Figure 38	The proposed research model addressing the mediating effects of service differentiation.	266
Figure 39	Results addressing all mediating effects of the second research gap.	279
Figure 40	Results addressing all indirect effects of the second research gap.	280
Figure 41	The entire hypothesised, structural model, with all results addressing the direct and indirect effects of both research gaps.	315

LIST OF APPENDICES

Appendix	Title	Page
Appendix 1	English questionnaire	362
Appendix 2	German questionnaire	368
Appendix 3	Text in the cover letter (e-mail)	375
Appendix 4	Reminder letter (e-mail)	378
Appendix 5	Test for normality	380
Appendix 6	Test for linearity	382
Appendix 7	Test for multicollinearity	497
Appendix 8	Covariances between all independent variables	499
Appendix 9	Correlation matrix	520
Appendix 10	Descriptive statistics	536
Appendix 11	Scree plot	539
Appendix 12	Measurement model (confirmatory factor analysis)	540
Appendix 13	Structural model section addressing direct effects of the first research gap	541
Appendix 14	Structural model section addressing indirect, moderating effects of the second research gap	542
Appendix 15	Path coefficients (β-value) of all mediating effects (causal steps method)	543

Appendix 16	Path coefficients (β-value) of all mediating effects (bootstrap method)	547
Appendix 17	Structural model section addressing indirect, mediating effects addressing of the second research gap (first condition)	549
Appendix 18	Structural model section addressing indirect, mediating effects addressing of the second research gap (second condition)	550
Appendix 19	Structural model section addressing indirect, mediating effects of the second research gap (third condition)	551
Appendix 20	Structural model section addressing indirect, mediating effects of the second research gap (fourth condition)	552
Appendix 21	Structural model section addressing specific, indirect effects of the second research gap	553

KEYWORDS

STRATEGIC ORIENTATION, COMPETITIVE ADVANTAGE, SERVICE DIFFERENTIATION, MARKET ORIENTATION, SERVICE INNOVATIVENESS, BUSINESS PERFORMANCE

1. INTRODUCTION TO THE RESEARCH

1.1 Background information

When the traditional structures of an entire industry are changing, it can present companies with a significant challenge. To continue operating successfully, they must be attentive to market shifts to be prepared for the future (Booth, 2015). A strategic orientation can help management support change-management processes (Hayes, 2018). Even though strategic orientation forms a prominent part of the academic field of strategic marketing, to date no universally accepted definition has been formulated for it (Obeidat, 2016). However, several approaches to strategic orientation exist. For example, some scholars have understood strategic orientation as an essential element of a company's principles that supports its performance (Psomas and Jaca, 2016). Others have described it as an element of cultural behaviour that interacts with the company's environment, or as 'broad outlines for the organisation's strategy while leaving the details of strategy content and strategy implementation to be completed' (Acar and Ösazhin, 2018, p. 2). In this understanding, strategic orientation helps a company gain a superior market position. It is thus an important factor in the company's long-term success (Chernev and Kotler, 2018), especially in turbulent times (Hayes, 2018), such as during the current coronavirus crisis, when structural changes are expected (Meristö, 2020).

In the German retail horticulture (GRH) sector, a subdivision of the horticulture industry which is characterised by diverse structures and similar products and services, distribution and organisation (Bundesministerium für Ernährung, 2013a), structural changes have taken place over the last four decades. Traditional core businesses are shifting their focus from retail to services, which are becoming increasingly important. Consequently, the horticulture sector is transitioning from manufacturing to services, a trend many companies are adopting (Meyer-Aurich *et al.*, 2019).

From an economic perspective, the situation of the GRH has remained all but constant over the years, and a considerable gap exists between the larger and smaller companies in terms of turnover (Zentrum für Betriebswirtschaft im

Gartenbau e.V., 2019). Hence, more successful companies have a larger sales volume. Unfortunately, most GRH companies are rather small (Gabriel and Bitsch, 2018), which has led to a significant number of 23.9% closures between 2010-2017 (Landesbetrieb IT.NRW Statistik und IT-Dienstleistungen, 2017).

1.2 Motivation

As the owner of a family-run horticultural company, the author has observed the structural changes in the GRH industry for many years. Section 2 illustrates how the industry has developed over time. It was not only the worrying economic developments but also how the trend towards service provision has developed and spread in this industry which motivated the author to conduct this research. Moreover, he was interested in how companies interact with this new trend in their organisations. The author's personal impression was that the refinements required to address new developments in the market often take too much time to realise and implement. Hence, he assumed a lack of strict control, which is a well-known phenomenon in small and medium-sized enterprises (SMEs; (Abdul-Halim *et al.*, 2018).

SMEs have unique characteristics, and numerous publications have discussed these characteristics explicitly in terms of change management processes (e.g., Broekaert, Andries and Debackere, (2016). A central problem is that managers often lack the capacity to implement change. The reasons for this are manifold, but often managers lack the time and personal distance for strategic thought: they focus too closely on the operation of the business. In an earlier quantitative survey conducted by the author, 34% of the owners who participated rated themselves as practitioners, and 56% stated that operating the business dominated their daily work load (Engelke, 2017b). This is not a new phenomenon, given the central role of the manager (Oliveira *et al.*, 2015), who often seems irreplaceable (Terziovski, 2010). Additionally, this is often combined with a lack of the management skills and capacity to address those shifts in the market, as these skills are not taught at technical school.

In summary, the objective, economic facts represent a shift of the market to the provision of services, which corresponds with the personal, subjective experience of the author. As strategic concepts can assist in strategy implementation (Indiparambil, 2019), the present thesis aimed to explore three different but related concepts in GRH and their impact on business performance.

1.3 Rationale

The key concepts related to GRH that affect business performance are service differentiation, market orientation and service innovativeness.

1.3.1 Service differentiation (competitive advantage)

According to Porter (2000), a company's competitive advantage drives its performance, and gaining and maintain competitive advantage involves three strategies: cost leadership, focusing on target markets (niche segmenting) and differentiation. Effectively implementing these strategies can improve performance through gaining a competitive advantage. From this perspective, competitive advantage serves as a precursor to business performance (Braunscheidel and Suresh, 2009).

This study concerns differentiation strategy, which is generally designed to gain competitive advantage and satisfy customers' needs by differentiating the company's products or services from those of other providers (Guajardo and Cohen, 2018). Differentiation is the design of a product or service that offers a different value to the customer or the development of a service strategy that offers improved customer value over that offered by competitors (Tjahjono *et al.*, 2019). Sufficient evidence exists of a positive relationship between competitive advantage and performance (Davcik and Sharma, 2016); (Junior *et al.*, 2020).

1.3.2 Market orientation

Puspaningrum (2020, p. 21) described, in a quantitative analysis of SMEs, the importance of market orientation: 'Along with the increase in competitiveness and changes in customer needs, market orientation plays a vital role, because all companies realise that customers are assets that can improve company performance.' Moreover, market orientation combines different marketing activities from a strategic perspective (Gotteland, Shock and Sarin, 2020). Narver and Slater’s (1990) original model incorporates three dimensions: customer orientation, competitor orientation and interfunctional coordination, which amounts to central market requirements (Bhattarai, Kwong and Tasavori, 2019). This creates a holistic view.

As market orientation is much simpler to adapt to an individual company’s organisational structure (Rose and Shoham, 2002), it is a particularly popular concept, as measured by the many publications on the topic since the 1990s. Most of this prior research found market orientation to have positive effects on performance (Cacciolatti and Lee, 2016).

1.3.3 Service innovativeness

Service innovativeness has long been considered a central driver of business success and has thus been extensively examined in the strategic marketing literature. According to McDermott and Prajogo (2012) and Lin (2019), a major area of study in service innovativeness is its positive effect on business performance. Here, three strategies are available: exploratory innovation (new products and services), exploitative innovation (the refinement of existing products and services), and the associated interaction of exploratory and exploitative innovation, called ambidextrous innovation. As these strategies differ in terms of performance, they are characterised by ambiguity: although each can positively contribute to business performance when implemented individually, as a body of research has shown (e.g., Suhartanto, 2017), ambidextrous innovation strategies are more likely to support performance.

1.3.4 Interrelationships between the three concepts

All three strategies have been long accepted in marketing research, and numerous prior studies involved single relationships between the three concepts. For example Puspaningrum (2020), in a study on SMEs, found that competitive advantage, specifically a product differentiation strategy, is more successful for companies focused on customer orientation, competitor orientation and interfunctional coordination when they develop or innovate new products in parallel.

The present study focused on differentiation strategy (Leonidou *et al.*, 2015). A wide range of publications relating product differentiation to market orientation and performance is available (Kamboj, Rahman and Zillur, 2017). A comprehensive market observation can aid innovation activities, which in turn can evoke structural changes in the organisation (Tang, 2014). Hence, delving into differentiation through market orientation and innovation is a related method, and, accordingly, it establishes a connection between all three concepts (Baron, 2020), which underpins the research rationale in the present study. Unfortunately, most previous research was conducted on product differentiation; few studies have focused on service differentiation strategies. This has revealed two major gaps in the existing literature.

1.4 Lack of prior research

1.4.1 First research gap

Whereas the horizontal and vertical differentiation of products have been explored thoroughly, gaining a competitive advantage through differentiation is often reduced to product differentiation, for example, improving the existing innovation of products. Consequently, limited knowledge exists about services; thus, there have been calls for a more nuanced understanding of service differentiation (Song, Nason and Di Benedetto, 2008; Gebauer, Gustafsson and Witell, 2011; Ralston, Grawe and Daugherty, 2013; Junior *et al.*, 2020). Particularly when analysing this strategy from the perspective of a company's portfolio variety, a holistic examination of the company's resources becomes necessary (Fließ and Luxett, 2019).

Service provision is becoming increasingly popular. Unlike product differentiation, service differentiation must consider certain service characteristics – for example, customer participation – because the provision of services involves a different understanding of the customer, who is always present. The customer participates in every service production, and without the customer, it is impossible to provide the service (Kumar and Reinartz, 2018). This is a major difference between service and product differentiation (Islami *et al.*, 2020). In this light, Junior *et al.*

(2020) have called for more investigation into the service differentiation–performance relationship through the behaviour of the participants, particularly the customer. As the customer is central to this thesis, all three concepts were relevant throughout the research process.

Wan (2011) and Wan, Evers and Dresner (2012) speculated about whether service differentiation could increase profitability. Since the publication of these works, only limited research has been carried out, to the author's knowledge. For example, in this context, Davcik and Sharma (2016) have called for additional investigation into the effect of single marketing resources on performance, specifically market orientation and innovativeness and their effect on companies service portfolios. This follows Röd (2016), who called for greater attention to portfolio management with different types of service innovativeness in family businesses. Both calls are productive, as was that of Bustinza *et al.* (2015, p. 63), who requested an exploration of 'other aspects of advanced services that may support higher performance'. Advanced services are new services in the portfolio due to an expansion of the service's breadth and depth.

Within these arguments, each concept individually addresses an important field in terms of strategic orientation, as all are in favour of performance. Furthermore, as there is an interrelationship between them, more research not only on service differentiation but also on market orientation and service innovativeness is needed. Thus, this thesis endeavoured to identify the direct effects of each concept on performance, which implies that the first research gap is a single-factor design (Selvamuthu and Das, 2018).

1.4.2 Second research gap

The interaction in the triumvirate of the three concepts relating to business performance has been only partially explained because previous research concentrated mostly on product differentiation, whereas service differentiation has remained relatively unexplored. This lack of prior research on the interrelationships between the three concepts regarding performance is the second gap, within which, unlike the first gap, the indirect effects of service differentiation on the relationships between both other concepts and performance were examined using a multiple-factor design.

Individual strategic concepts are often isolated (Williams and McGonagle, 2016). Some authors have argued that this isolation is not solely the result of a reduction in the model's complexity (Brunetti *et al.*, 2020). Nevertheless, it is clear that in data analysis, especially structural equation modelling, complexity increases with the number of factors, and parsimony in the research design is useful (Hair and Patel, 2014). Complex constellations have the advantage of increasing informative value (Hair, 2017); therefore, multiple frameworks are valuable.

Against this background, there have been calls for more research simultaneously exploring multiple complex strategic concepts (Laukkanen *et al.*, 2016). This follows Katsikeas *et al.* (2016, p. 16), who, in a market-orientation study, requested that more potential 'factors that may affect the strength' of performance relationships, be identified. This concurs with Tomaskova (2007) and Rossiter (2012), who advocated embedding more factors within the concept of market orientation. Regarding service differentiation, Gebauer, Gustafsson and Witell (2011) argued that there was a need to adapt this concept for other strategic concepts. Junior *et al.* (2020), in a study on service differentiation, embedded more internal and external factors into their service differentiation frameworks. Thus, the challenging task for the author was to create an integrated model that allows the simultaneous application of multiple simultaneous moderators and mediators (Preacher and Hayes, 2008); (Chen and Hung, 2016).

The research topic was promising because the mutual impact of service differentiation on two other concepts could shed new light on it. Likewise, further investigation was promising as it could lead to answers about the integrated relationships between single dimensions. The combination of three related concepts created acceptable grounds for finding answers to address the research gaps identified for this research. Both gaps held great promise for improving the current understanding of strategic orientation.

More generally, and without hypothesis testing, two other important gaps were also identified. These concern methodological aspects.

1.4.3 Research gaps outside hypothesis testing

1.4.3.1 Decomposing

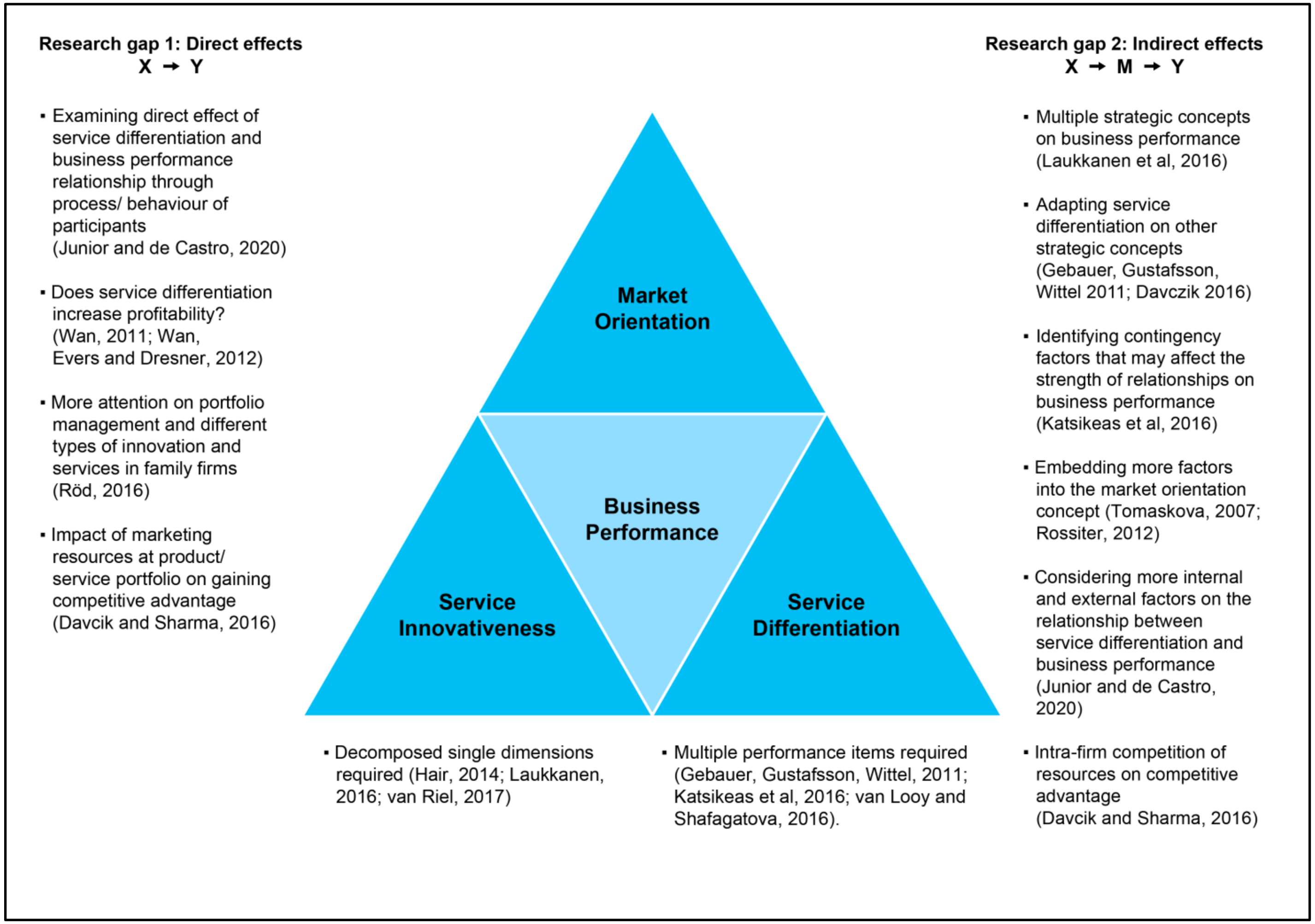
In several studies, only composite factors – these are the three concepts – were applied. As they incorporate single dimensions, such as customer orientation, but are measured as a whole factor, they are called composite factors (van Riel *et al.*, 2017). The single dimensions of each composite factor in turn are called decomposed factors. They have seldom been applied, due to simplification (Hair and Patel, 2014).

Like multiple-factor design, however, using single dimensions seems promising because fuller theoretical information can then be located regarding what really drives business performance, and informative value can be increased (Laukkanen *et al.*, 2016; Hair, 2017). Nonetheless, the decision to apply composed or decomposed factors depends on the research constellation (Selvamuthu and Das, 2018). Throughout this thesis, only decomposed factors, called dimensions or strategies (these are identical terms), have been strictly applied.

1.4.3.2 Multiple performance indicators

In marketing research, single performance measurements often incorporate either financial or non-financial outcomes (Bustinza *et al.*, 2015). Yet there is consensus in the literature that a combination of both indicators is sensible because the information value will increase as a result (Miller, Washburn and Glick, 2013). On the other hand, there is disagreement regarding whether objective and subjective indicators should be combined (Goshu and Kitaw, 2017). Accordingly, there have been calls to include multiple performance indicators, including not only financial and non-financial items but also objective and subjective items (Katsikeas *et al.*, 2016; Laukkanen *et al.*, 2016). To date, most advocates have preferred objective indicators (van Looy and Shafagatova, 2016). Thus, the present study applied more than one performance indicator.

Figure 1 provides an overview of the research gaps from the perspective of these three concepts.



Note: X = independent variable, Y = dependent variable, M = moderator/mediator variable

Figure 1: The research gaps in the strategic concepts.

1.5 Research aim

The overall aim of this research was to explore the direct and indirect effects of service differentiation on strategic dimensions in market orientation and service innovativeness by addressing business performance. The example used was the diversely structured GRH industry, and moderation and mediation analyses were applied. Identifying the positive impact of service differentiation on the interplay of a simultaneous constellation of two related concepts led to the study highlighting the most important dimensions responsible for these effects.

This is new explicit knowledge in the field of strategic marketing, where an integrated model with the simultaneous application of multiple simultaneous moderators and mediators (Preacher and Hayes, 2008; (Chen and Hung, 2016) has remained relatively unexplored. This could help managers to develop a better understanding of a strategic organisation and to develop a sound foundation to address potential shifts in the market.

The research aim was achieved by solving the following hypotheses.

1.6 Hypotheses

Research based on a positivist research paradigm involves a deductive approach, testing general existing knowledge via hypotheses with predictions for specific cases (Patton, 2015; see Figure 22). Thus, a quantitative analysis is favoured. The literature review in Section 3 creates the theoretical foundation of the three strategic concepts and performance, which in turn were tested via 16 hypotheses. In this light, the first concept is market orientation, and its decomposed dimensions were tested with H1a–H1c. The second is service innovativeness (H2a–H2c), and the third is service differentiation (H3a–H3f). These 12 hypotheses represent the direct effects of each concept on performance, addressing the first research gap.

Hypotheses 4 and 5 were used to test the indirect effects of service differentiation, whereas H4a–H4b were used to test the moderating effects and H5a–H5b the mediating effects on the relationships between market orientation, service innovativeness and performance. These four hypotheses address the second research gap.

The researcher theorised that if the decomposed dimensions of service differentiation have any significant effect on either the direct or indirect path to performance, the combination with market orientation and service innovativeness would be a promising combination for economic success. Consequently, a strategic orientation would be available for GRH.

Figure 2 presents an overview of the research model addressing both research gaps. The figure shows the three strategic concepts and business performance with its single, decomposed dimensions in circles. The assumptions are illustrated by arrows leading in the direction of the causes. In the subsequent subsections, each research gap is illustrated in three separate model sections in terms of the direct effects, moderating effects and mediating effects.

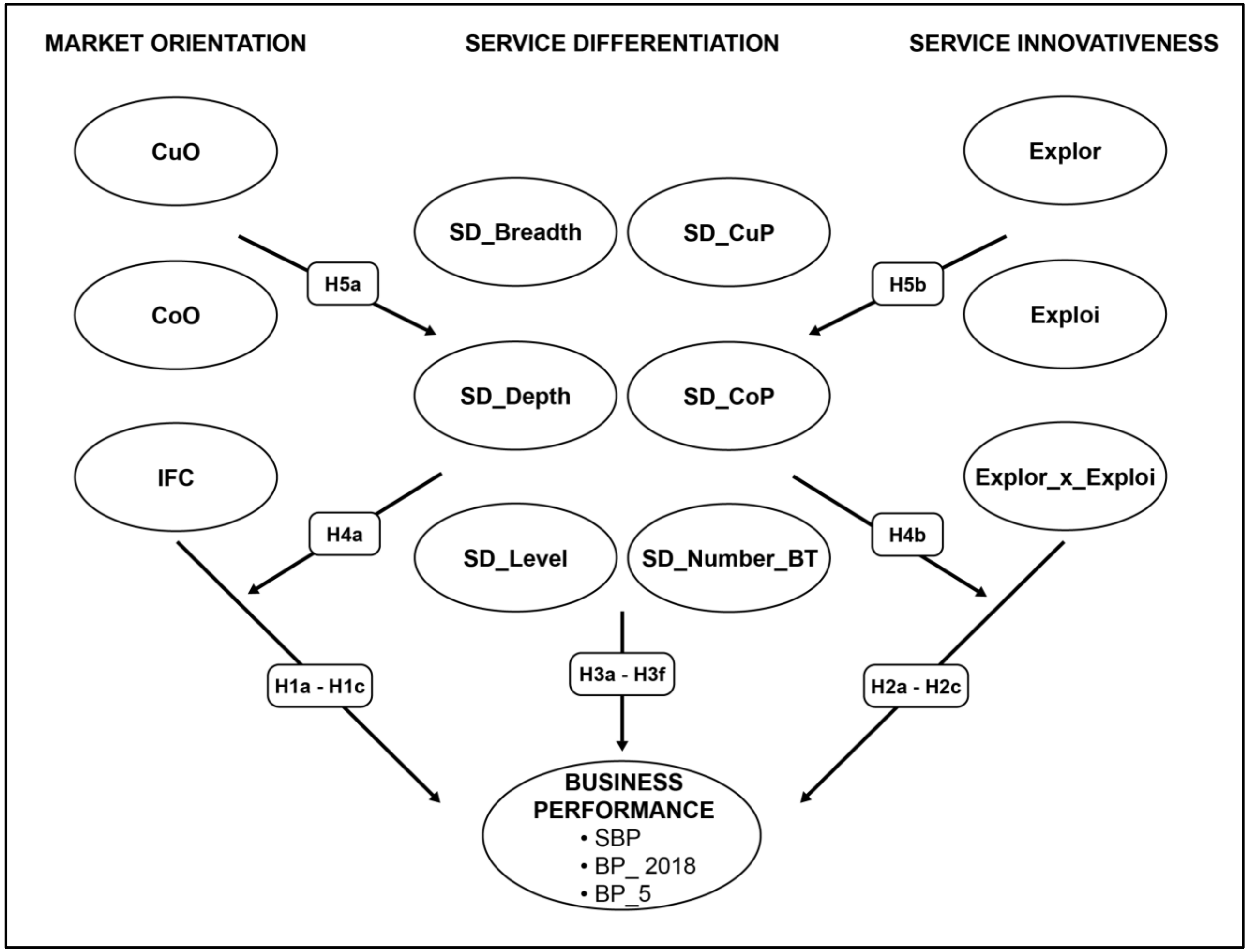


Figure 2: The entire proposed research model addressing both research gaps.

1.6.1 Hypotheses addressing the first research gap

H1: Direct effects of market orientation and business performance

- **H1a**: Customer orientation has a positive effect on business performance.
- **H1b**: Competitor orientation has a positive effect on business performance.
- **H1c**: Interfunctional coordination has a positive effect on business performance.

H2: Direct effects of service innovativeness and business performance

- **H2a:** Exploratory innovation has a positive effect on business performance.
- **H2b:** Exploitative innovation has a positive effect on business performance.
- **H2c:** Ambidextrous innovation has a positive effect on business performance.

H3: Direct effects of service differentiation and business performance

- **H3a**: Horizontal differentiation (service breadth) has no significant effect on business performance**.**
- **H3b**: Vertical differentiation (service depth) has a positive effect on business performance.
- **H3c**: The level of service differentiation has a positive effect on business performance.
- **H3d**: The number of business types, assuming a higher level of departmentalisation, has a positive effect on business performance.
- **H3e**: Service differentiation by customer preference has a positive effect on business performance.
- **H3f**: Service differentiation by competitor preference has a positive effect on business performance.

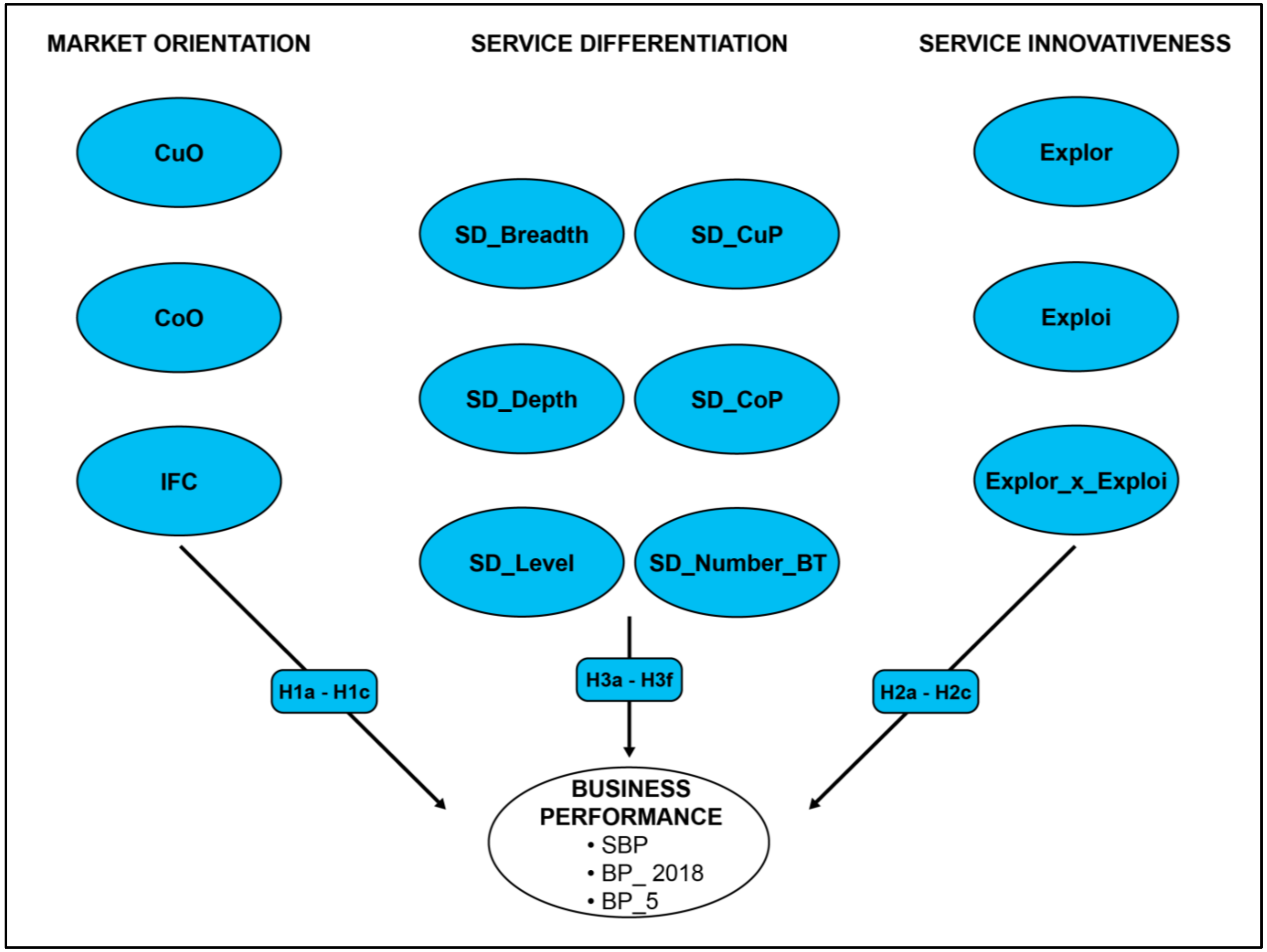


Figure 3: The proposed research model addressing the first research gap with direct effects.

1.6.2 Hypotheses addressing the second research gap

H4: Moderating effects of service differentiation

- **H4a**: Service differentiation has a partial moderating effect on the relationship between dimensions of market orientation and business performance.
- **H4b**: Service differentiation has a partial moderating effect on the relationship between dimensions of service innovativeness and business performance.

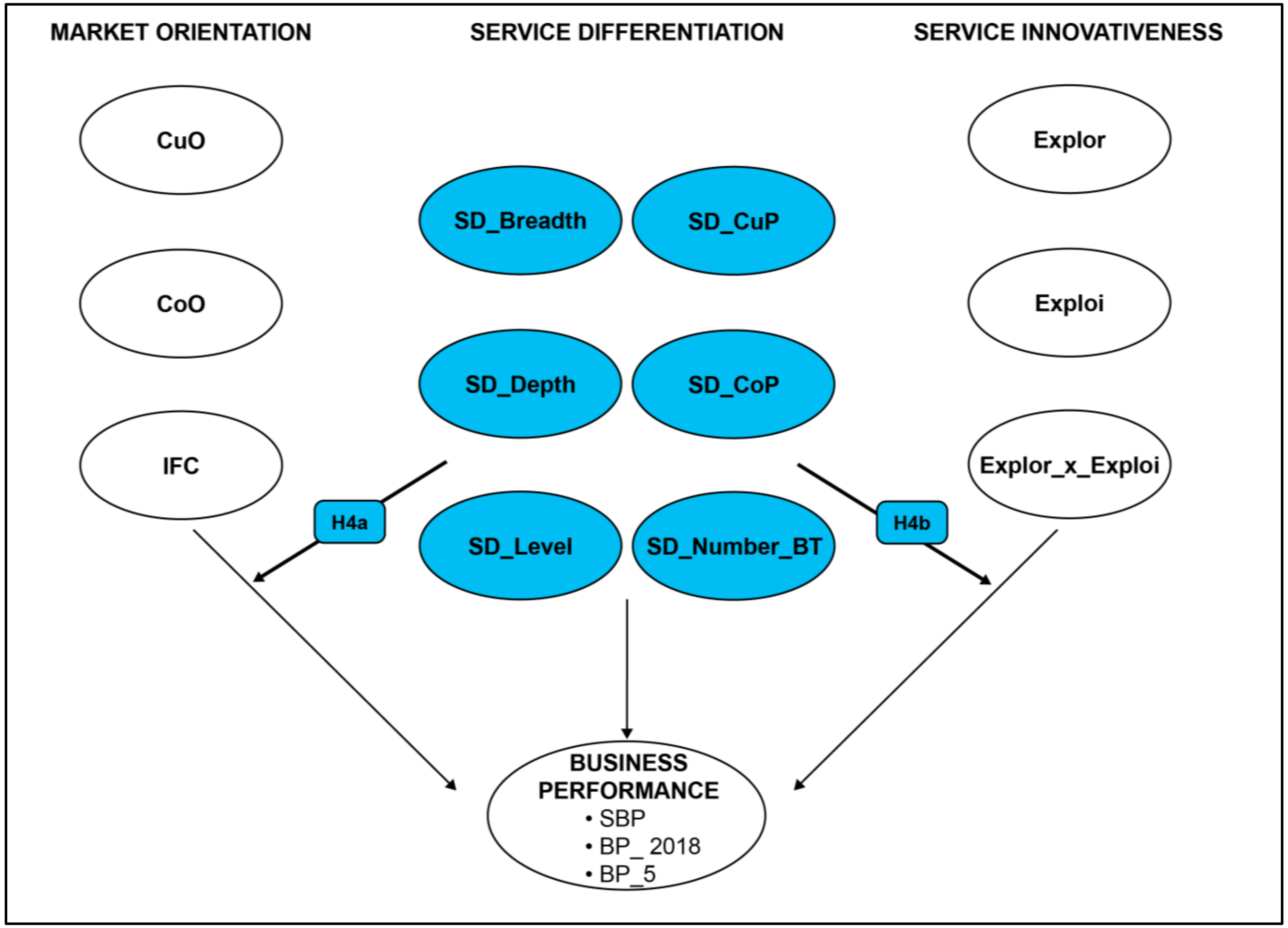


Figure 4: The proposed research model addressing the second research gap with indirect, moderating effects.

H5: Mediating effects of service differentiation

- **H5a**: Service differentiation has at least a partial mediating effect on the relationship between dimensions of market orientation and business performance**.**
- **H5b**: Service differentiation has at least a partial mediating effect on the relationship between dimensions of service innovativeness and business performance.

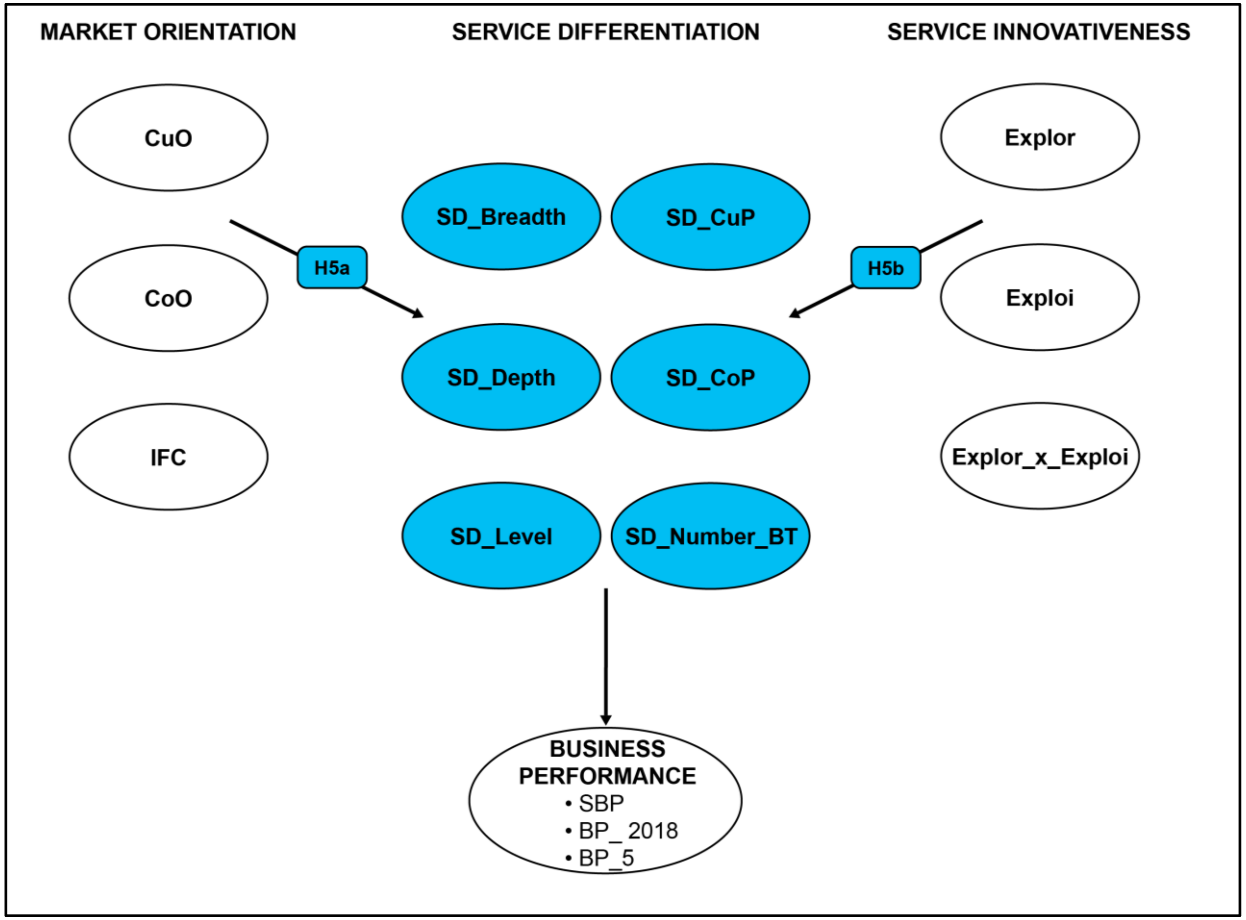


Figure 5: The proposed research model addressing the second research gap with indirect, mediating effects.

1.7 Contribution to theory and practice

The thesis contributes to both theory and practice, creating new explicit knowledge by delving into service differentiation. While both horizontal (Zhao *et al.*, 2020) and vertical differentiation (Baron, 2020) have been examined, researchers have focused predominantly on product differentiation. Differentiation strategies for services, however, have not been comprehensively researched, which is the initial motivation for the research. Thus, the first research gap sheds light on both strategies due to its focus on the variety in a company's service portfolios (Kleinaltenkamp, 2006). The other four strategies reveal not only new potential in organisational structure (e.g., level of differentiation, specialisation) but also the relationship with customer preference and competitor preference. As no deeper examination of these concepts had occurred to date, the researcher had high expectations at the outset of the present research, particularly because the factors under study may have a significant impact because of their central role in market orientation and service innovativeness.

Examining service differentiation in combination with market orientation and service innovativeness as a three-dimensional concept is unique. Therefore, the multiple interactions of the three strategic concepts correspond to the first research gap, where the direct effects on performance were measured. Moreover, there are multiple advantages to using multiple concepts by decomposing the concepts into single dimensions. This helps to pinpoint the potential causes and effects of the factors. In contrast, when only composite factors as a whole are examined, the outcomes cannot be determined. As a result, single dimensions are more useful for informative value (Laukkanen *et al.*, 2016).

Regarding the second research gap, the importance of service differentiation becomes clear: besides direct effects, service differentiation is also embedded as a third variable. These are moderation and/or mediation analyses (Baron and Kenny, 1986), and only a small number of previous studies have employed service differentiation on indirect paths in this combination. Other scholars

(Gebauer, Gustafsson and Witell, 2011; Davcik and Sharma, 2016; Junior *et al.*, 2020) have claimed, given this background, that more research on service differentiation should provide new insight into this strategic concept. This addresses the research and is in line with the thesis author's motivation.

Accordingly, in addition to the advantage of using multiple concepts, also important is the application of multiple performance indicators. Whereas most studies have applied only one (typically objective) indicator (van Looy and Shafagatova, 2016), there have been calls to apply multiple performance indicators (Katsikeas *et al.*, 2016). With three additional performance indicators, the holistic approach of the study becomes apparent, enhancing its informative value.

This new explicit knowledge will make sense when it is ultimately put into practice. Often, only a low level of strategic alignment with encountering potential change-management processes exists; for example, towards service provision. Companies that are transitioning from manufacturing into service provision are well advised to consider implementing differentiation strategies, as special characteristics must be considered when providing services, such as the participation of the customer, who is always present (Kumar and Reinartz, 2018). The practical contribution of the thesis is that management within GRH will be able to realise the advantages of a strategic orientation and have the tools to implement statistically effective strategic concepts in their organisations.

Furthermore, the application of single dimensions can be a starting point for creating the individual constellation of a company, which helps management move from running an operational day-to-day business to planning holistically and for the long term. This could suggest that, in future, the focus of market activities will evolve from single strategies, such as niche segmenting, to an interplay of related concepts. This study provides managers with new approaches in their decision-making processes towards a strategic orientation.

Ultimately, on closer examination, the interplay of all three concepts and uncovering the network of relationships between the single dimensions can possibly bring a new understanding for managers. At least with new knowledge, it is expected that more efforts will be made to develop a market-oriented organisation. Then, a sound foundation will be built to weather potential shifts in the market.

1.8 Structure of the thesis

The thesis comprises nine sections (Figure 6). Section 1 introduces the thesis; Section 2 explains GRH and its constellation in the context of the horticulture industry. As structural changes in the last decades have been directed to service provision, this section highlights the importance of horticultural services from an economic perspective. Section 3 offers a critical review of the existing literature and highlights the two research gaps identified.

Section 4 transfers the theoretical foundations of the literature review into model building and hypothesis formulation. This is followed by sections presenting the methodology (Section 5), data screening and descriptive statistics (Section 6), data analysis and hypothesis testing (Section 7), discussion (Section 8), conclusion, limitations, and suggestions for future research (Section 9) and, finally, references and appendices.

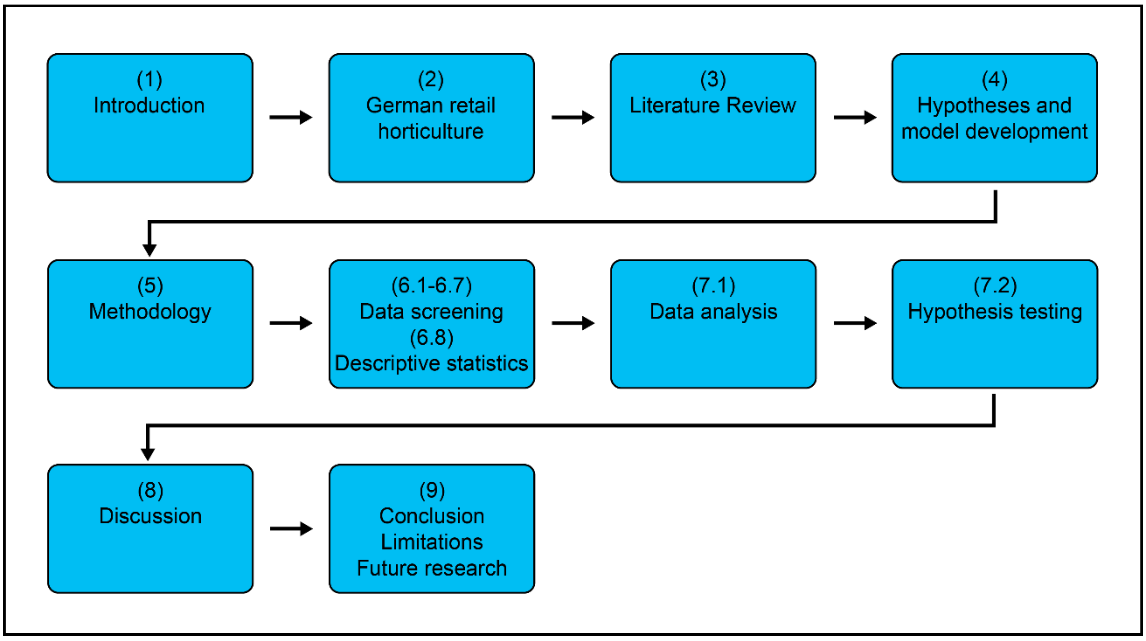


Figure 6: Structure of the thesis.

2. GERMAN RETAIL HORTICULTURE

2.1 Introduction

GRH is a subsector of the German horticulture industry. The industry is characterised by diverse structures and similar products and services, distribution and organisation.

2.2 Organisation of German horticulture

German horticulture is an independent subindustry within agriculture. While agriculture concentrates on farming (e.g., cereals, large areas under crops), horticulture is an intensive branch of agriculture, producing fruit, vegetables, spices, herbs, functional foods, plants for medicinal use and ornamental species employed for aesthetic purposes (EPSCO, 2014). In the relevant literature, ‘agribusiness’ is used as a generic term, combining the activities and businesses of agriculture and therefore horticulture (Iff and Joras, 2015). The term was first used in 1955 at the Boston Conference on Distribution and is internationally acknowledged (Rieping, 2004). The following sections use the term ‘German horticulture’.

From a national economic view, German horticulture is subdivided into crop production and horticultural services – two economic sectors within one industry. Crop production is classified in the agricultural industry as a governing body, and it combines four subsectors: the production of ornamental plants (potted flowers, cut flowers and shrubs), vegetable gardening, fruit growing and tree growing (BMEL, 2014a).

Two predominant horticultural services are cemetery horticulture and landscape building, with gardening and interior gardening as important subsections. Additional services are also offered, such as added and hybrid products, which include a physical product and an associated service (Watson *et al.*, 2018). These are minor but critical services in German horticulture in terms of changing markets, as companies often follow a differentiation strategy to gain competitive advantage (Porter, 2004). Accordingly, the structure of the service portfolio is also changing (Ziegler, 2009). This is supported by the quantitative survey conducted by Engelke (2017a). Figure 7 presents a timeline of the average number of core and added services. The left column shows the average number of services offered in the past, the middle shows the offerings in the present and the right the projected offerings.

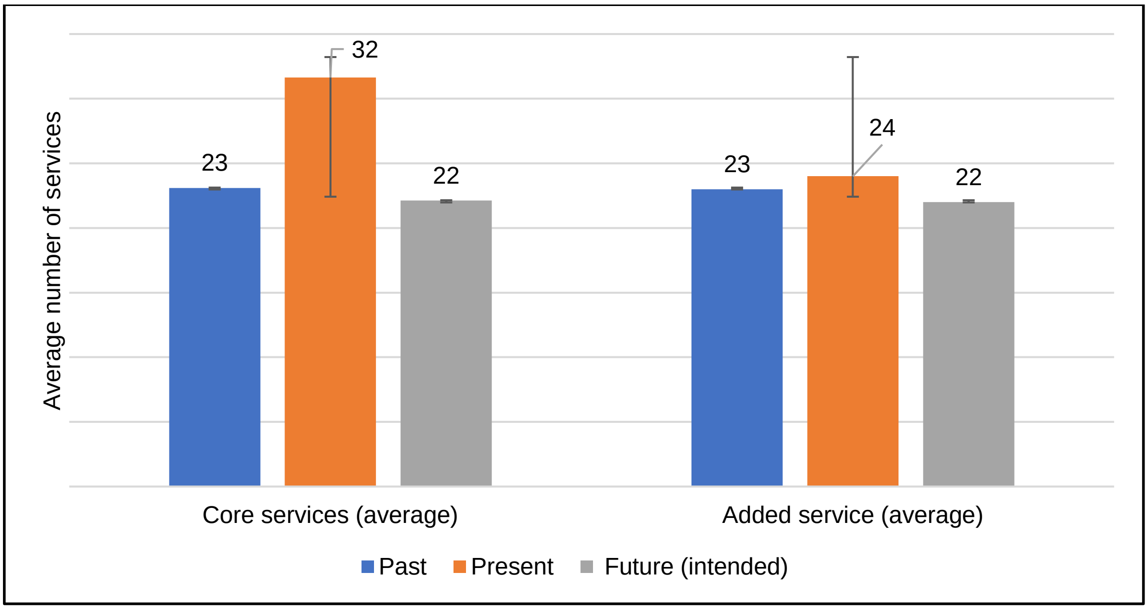


Figure 7: Structure of service portfolio in German retail horticulture over time. (Source: Engelke, 2017a; data from 2016)

From this, two observations can be made:

1) A broad spectrum of service offerings is appearing, increasing from an average of 23 to 32 per company. In contrast, a decrease is predicted for the future. These are core businesses.

2) The portfolio variety is indeed changing. Added services on the right are constant, with an average of 23 different services.

In sum, both core and added services indicate a high level of service provision in GRH.

In addition to crop production and horticultural services, the horticultural trade is a third important subsector in the horticulture sector from an economic perspective. Whereas wholesaling describes the business relationship between the grower and the commercial buyer, the retail trade involves the grower and the end customer.

Against this background, over the last four decades, a seventh type of business has developed: retail horticulture. This combines different subsectors, such as crop production, retailing and servicing, and floristry, and is therefore a mix of services. These companies are heterogenous, with diverse structures but similar products and services, distribution and organisation (Bundesministerium für Ernährung, 2013a). The retail and crop-production subsectors often have in common multiple distribution channels, such as wholesaling and retailing, which target different types of customers, such as end, business and/or municipal customers (Schwarz, 2008). However, while the product spectrum is broad, services have decreased over the years, indicating specialisation (Engelke, 2017a). Due to a permanently reduced capacity (Landesbetrieb IT.NRW Statistik und IT-Dienstleistungen, 2017), as measured by the number of companies, skills shortages and junior staff, a political discussion has arisen about reducing the number of subsectors from seven to three: crop production, service provision and retail (Klawitter, 2019). This would be a significant change in the organisation of the German horticulture industry.

Another category related to horticulture is floristry, which is offered not only as a single work area in a florist shop but also within the portfolio in addition to other work areas in the company. This is characteristic of GRH. By classification, floristry falls used the Chamber of Industry and Trade (IHK), not the German Federation of Horticulture (ZVG). Thus, the latter does not register related data. As floristry is a core competence in horticulture, however, there is great similarity between them, and some statistics incorporate floristry into GRH, which has serious consequences for interpretation, as the total number of retail companies is unclear. Consequently, to find a fair basis for a classification on which to conduct research, the current study incorporates eight subindustries consecutively. This information illustrates the heterogeneity of the industry.

2.3 Economic importance of German horticulture

2.3.1 Significant key figures

In the current national statistics for Germany (Destatis, 2010), only the crop production subsector is included in the national economy. The other subsectors – retail horticulture and horticulture services – are classified in other branches. Although there is a separation into different classifications from a national economic perspective, all subsectors of the horticulture industry are combined within the value chain of horticultural activities (Dirksmeyer, 2013).

Furthermore, different quantities can be used to measure key economic figures. For example, the output of the horticulture sector is measured by 'production value', a figure that considers turnover, internal consumption and supply changes in inventory. Following the current statistics on German horticulture, 11% of the total production value of the whole agriculture industry is generated from horticultural crop production: €6.3 billion per annum. This stands in contrast to horticulture services, which also generate an annual €6.3 billion. Hence, Germany's total annual production value is €12.6 billion (BMEL, 2014a).

Another key figure is 'gross value added' (GVA), defined as the production value minus the input; thus, more values are included. This means, for example, that the productivity of the upstream suppliers (e.g., the soil or chemical industries) and downstream activities (e.g., the trade industry and services) is considered. This is based on the view that while there are different economic sectors, ultimately all subsectors of horticulture belong together. Therefore, in this analysis, GVA is the most significant key figure.

Referring to the latest census in 2013 ('Horticultural Cluster Analysis', 2013), the GVA of horticulture was €19.4 billion, with a turnover of €78 billion in 2008. This represents 1% of the total GVA of the national economy in Germany. These data are from 2013 and have changed over the years, as shown in Figures 8 and 9. In 1991, horticulture represented 1.2% of the total GVA, in 2013 it was 1%, and in 2019 only 0.9% (marked in red). These decreasing values lead to the conclusion that the relevance of the agriculture sector, including horticulture, is shrinking. On the other hand, the service sector is increasing, and, as it can be expected that horticultural services are similar, other subsectors within the agriculture and fishing industry must be the cause of the decline.

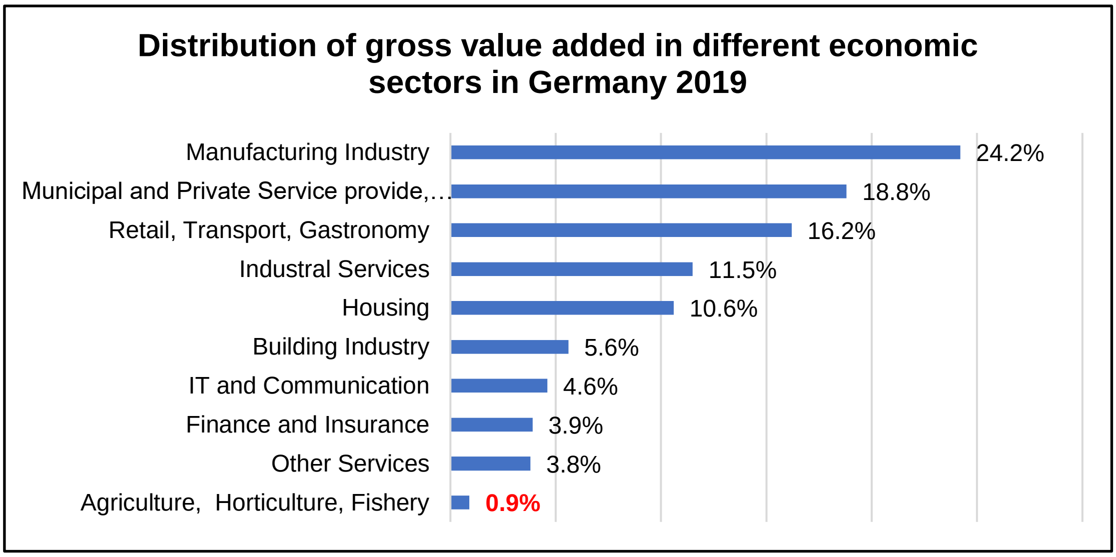


Figure 8: Distribution of gross value added. (Source: modified from Rudnicka (2020b)

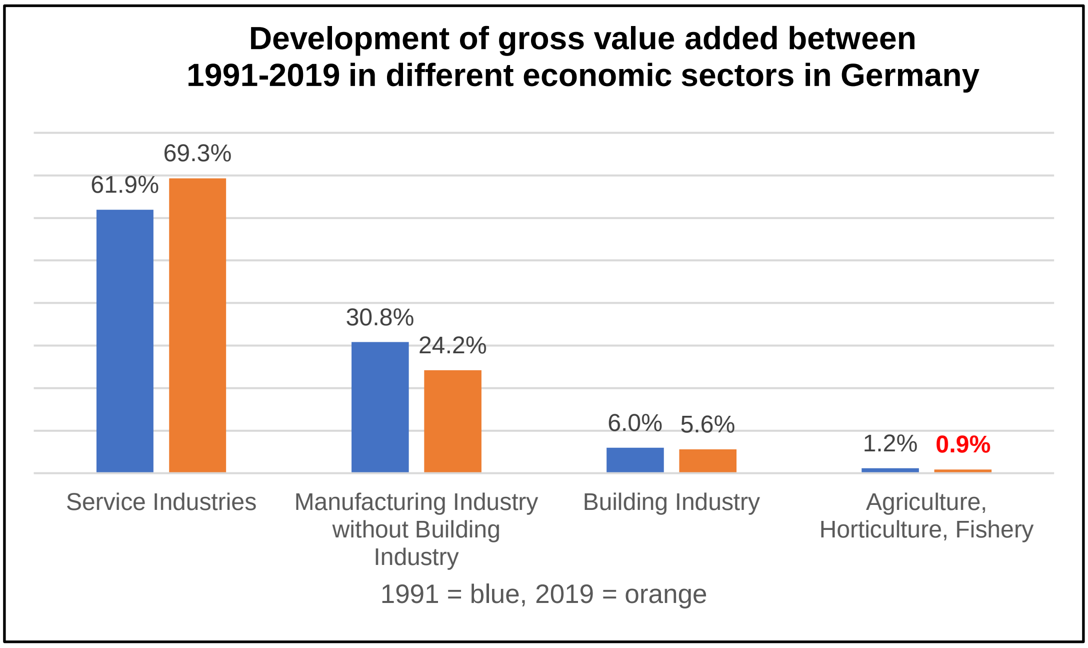


Figure 9: Development of gross value added between 1991 and 2019. (Source: modified from Rudnicka, 2020a).

This figure clarifies the importance of horticultural services and the interruption of the business sector caused by structural changes. Whereas the secondary (manufacturing) sector is of minor importance to the horticulture industry (ZVG Gartenbau Report, 2009), the change from the primary sector (initial production) to the tertiary sector (service) in the last four decades is much more relevant to this industry. Accordingly, this has also changed the diverse structure of the horticulture industry in general and the complex organisation of the horticultural retail industry in particular (Zentrum für Betriebswirtschaft im Gartenbau e.V., 2014). The biggest ratio derives from the horticultural retail industry (€4.2 billion production value; €23 billion turnover).

Table 1 provides an overview of the structure and key figures of the German horticulture industry. The key figures of GRH and horticultural services are in bold. Significant variations are expected, as boundaries between the subsectors are unclear, and floristry is not included because it is classified differently. Gross values differ due to differences in their sources and because of differences in their survey periods (2014, 2016 and 2019). Nonetheless, it is clear that the GVA of horticultural services is higher than that of crop production.

Table 1: Structure and key figures of the German horticulture industry. (Sources: BMEL, 2014; (Zentralverband Gartenbau e.V., 2016); (BMEL, 2019).

	Number of companies[1]	Area of production (ha)[1]	Employment[1]	Turnover (€ million)[1]	Gross value added (€ million)[1]	Gross value added (€ million)[2]	Gross value added (€ million)[3]
Crop production					2,490	4,400	5,300
Ornamental plants	5,300	7,150	22,500	1,500	590		
Vegetables	3,600	110,000	45,000	1,840	930		
Fruits	6,600	65,000	16,500	400	230		
Tree growing	2,000	22,500	14,100	1,200	740		
Horticultural Services					**3,630**	**7,000**	**7,800**
Cemetery horticulture and others	2,000		13,500	630	330		
Gardening and landscaping	16,500		100,000	6,000	3,300		
German retail horticulture	**16,500**		**90,000**	**5,400**	**1,600**		
Total horticulture	52,500	204,650	301,600	16,970	7,720		
Total horticulture incl. up- and downstream sectors			700,000	78,000	19,350		

Note: [1] BMEL (2014), [2] Zentralverband Gartenbau e.V. (2016), [3] BMEL (2019)

2.3.2 Structure and occupation

The importance of the horticultural industry can also be illustrated by the area under cultivation. Despite horticultural crop production representing only 1.3% of the total area in agriculture, its turnover is 14%, which is substantial, explaining its high productivity. This is due to a high demand for horticultural products, especially during seasonal peaks, such as the demand for bedding plants (BMEL, 2019). The biggest ratio is the vegetable-growing subsector (110,000 hectares, 53.7% of the total cultivation area). This sector is popular at the moment, and there is a trend towards self-supply with self-cultivated products (Backhaus-Cysyk, 2020).

As measured by the number of companies, the biggest share is represented by crop production, followed by landscape construction and retail. Most of the companies provide horticultural services (18,500), while 16,500 companies offer gardening or landscape construction and 2,000 are specialised cemetery horticulturists. Furthermore, approximately 52,000 companies employ 700,000 staff, 1.7% of the aggregate employment in Germany, which has a total population of 82.8 million (Zentralverband Gartenbau e.V., 2016). This indicates high labour intensity, which is central to service provision (Moeller, 2016) and hinders recruitment. Thus, wages have steadily increased (Klawitter, 2019).

This effect is strengthened by specialisation, which requires specialist knowledge from employees yet is increasingly suffering from a skills shortage (EPSCO, 2014). The lack of skilled employees is a problem within the horticulture industry and an increasing problem in several German regions, industrial sectors and businesses (Bundesministerium für Wirtschaft und Energie, 2018), and in Europe generally (Boer, 2017). As a result, limitations of capacity and resources are crucial factors in service innovation and future trends (Campbell and Park, 2017; Stewart and Brown, 2020), and in German horticulture (Meyerding, 2015).

As staff numbers and annual turnover are low, the horticultural industry, from this perspective, is rather small and can be classified as consisting of micro, small, and medium-sized enterprises, in line with the existing specialised literature

(Gabriel and Bitsch, 2018; BMEL, 2019). Moreover, the vast majority (90%) are individual enterprises.

Whether the lack of skilled personnel is the main cause of the continuing decrease in horticultural companies and thereby in staff and young practitioners (i.e., apprentices) is unclear. From 2010 to 2017, 23.9% of all horticultural closed, mainly in the crop production subsector, whereas the number of service providers increased in the same period. On the other hand, the area under cultivation has increased (2.5%), especially in fruit and vegetable growing, as the land is becoming concentrated in the hands of fewer companies (Landesbetrieb IT.NRW Statistik und IT-Dienstleistungen, 2017). This is a phenomenon present not only in Germany but also internationally (Carr, 2016). Thus, it can be concluded that the decrease in horticultural companies has multiple causes, initiated by the structural changes in the last four decades, which also impacts value chains (Dirksmeyer, 2009).

2.3.3 Classification of German retail horticulture

As noted, horticulture makes up 1% of the German national economy, and of this sector, GRH represents the largest subsector (22%), as measured by GVA (Dirksmeyer, 2013). This indicates the relevance of this subsector in Germany. There is a trend towards smaller companies or turnover and higher profits for retail and service companies than for crop-growing companies (Zentrum für Betriebswirtschaft im Gartenbau e.V., 2014). Furthermore, GRH has several distinct attributes. *Bundesministerium für Ernährung* (2013b, p. 47) published a SWOT (strengths, weaknesses, opportunities, threads) profile of GRH, summarising the relevant characteristics of this industry (see Table 2).

Table 2: Characteristics (SWOT profile) of German retail horticulture. (Source: modified from (Bundesministerium für Ernährung, 2013); not statistically verified; data from 2013)

Strengths	**Weaknesses**
▪ Service oriented	▪ Restricted service portfolio
▪ Wide and deep product or service portfolio	▪ Lack of economic knowledge
▪ Additional products	▪ Qualifications of sales staff
▪ Close connection to and good consulting service for the end consumer	▪ Inadequate range of products (physical products, hybrid products)
▪ Good density of companies on the map	▪ Opening time
▪ High quality	▪ Ability to invest
▪ Expertise on different levels	▪ Reachability
Opportunities	**Threats**
▪ Individual services required	▪ Competition outside sector
▪ Market classification and marketing to focus groups	▪ Closure due to missing profile
▪ Demand for individual products and services	▪ Stress of competition
▪ The cultural interest for nature in the society	▪ Internet sales
▪ Marketability	▪ Skills shortage
▪ Products of the region are popular	▪ Not customer oriented and similar product portfolio
▪ Strategic alliances	
▪ More attraction with refining products and events	

The weaknesses and threats listed in Table 2 relate to this study's research gaps and the three strategic concepts under study: in service differentiation, restricted service portfolio and inadequate range of hybrid products; in customer orientation, not customer oriented and similar product portfolio; and in competitor orientation, stress of competition and competition outside the sector. The lack of empirical evidence supporting the SWOT analysis aside, the factors identified were a welcome entry into the present study and help address the research aim.

2.3.4 The importance of horticultural services in German retail horticulture

Over the last four decades, service provision has become popular in Germany due to the prevailing focus on the provision of services (Schafran *et al.*, 2018). Services constitute on average 68% of the German GDP to date, which is significant (Institut der deutschen Wirtschaft Köln Medien GmbH, 2018). This includes the horticulture sector, of which services have been an inherent part for years (Agreste, 2012). Its annual production value and GVA (see Section 2.1, 'Introduction') underscore the significance of horticultural services to German value creation from an economic perspective. This aligns with this author's experiences as an insider researcher observing the ongoing process of decreasing retail turnover of physical goods and an increase in horticultural services (Engelke, 2017b).

Therefore, a reorientation towards service provision has taken place, but many companies' financial situation has remained strained. Thus, other factors must be involved: external or environmental factors (Keong and Choong, 2014) or internal factors, such as the structural organisation of services, and in particular how to interact with horticultural services according to market requirements. Therefore, the study intended to take a holistic approach to service provision by involving three strategic concepts which all relate to economic performance.

2.3.5 Conclusion

German horticulture is a complex industry owing to structural changes in the last four decades. Against this background, different types of companies have evolved, with blurred borders between the seven (plus floristry) subsectors, which impedes a clear classification (Bahnmüller and Hintze, 2011). GRH should be the most diverse subsector of agriculture (BVE, 2020) because multiple subsectors and fields of activities are combined, accompanying a wide range of horticultural products and services. At this point, the present thesis explores three strategic concepts which are all closely related not only to service provision but also to economic performance.

3. LITERATURE REVIEW

3.1 Introduction

This section reviews the theoretical background of the thesis to create the foundation for the subsequent empirical study. The first section describes previous research on the central role of business performance (3.2). The three strategic concepts and their direct effects on performance are presented in Sections 3.3–3.5, addressing the first research gap. In Section 3.6, interrelationships between the concepts are debated, addressing the second research gap. Section 3.7 examines gaps in the existing research.

Figure 10 provides the structure of the literature review.

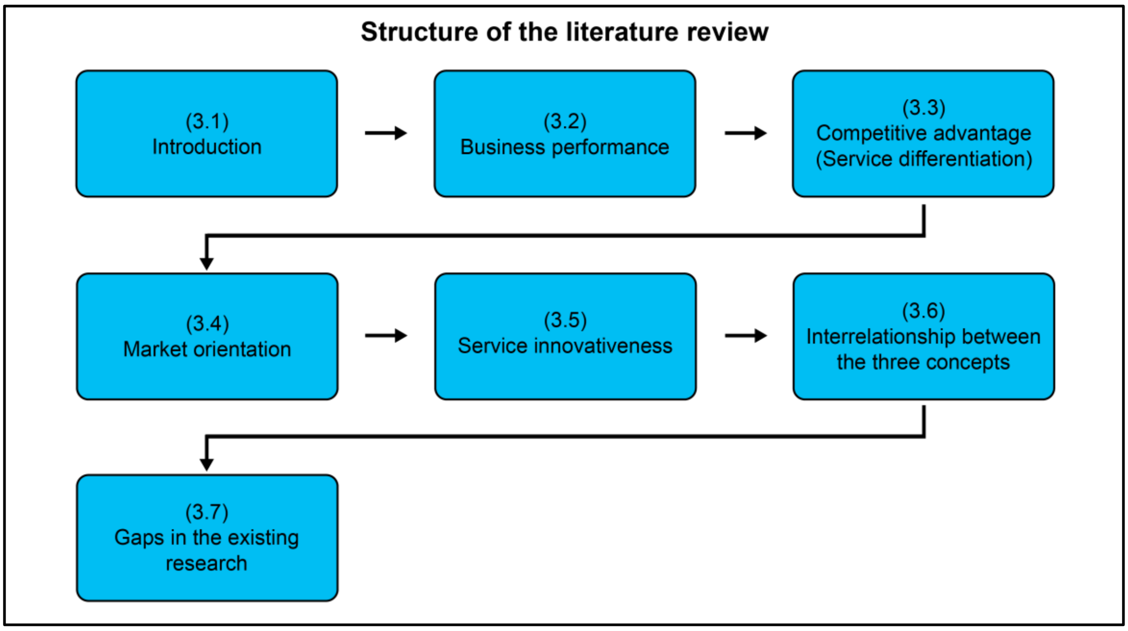


Figure 10: Structure of the literature review.

3.2 Business performance

3.2.1 Introduction

Measuring business performance has drawn great interest from both academics and business practitioners. In light of the growing interest in measuring performance in terms of improved sustainability and competitiveness (Ganiyu, Barbara and Paul, 2018), this is the subject of the present thesis.

In process controlling, a key purpose is to measure and verify the outcomes of the company's actions, irrespective of whether they are in 'accordance to the organisation goals and objectives or not' (Goshu and Kitaw, 2017, p. 382). This is due to the importance of efficient, target-oriented resource management (Andersén and Samuelsson, 2016). Moreover, 'measuring the performance of business processes has become a central issue in both academia and business, since organisations are challenged to achieve effective and efficient results' (van Looy and Shafagatova, 2016, p. 1).

Van Looy and Shafagatova (2016) provided key findings on performance, and their insights provided the starting point for this thesis. They are presented in 3.2.2 and rely on the early insights of Kaplan and Norton (1997), who developed the balanced scorecard as a prominent organisational performance measurement model which has been employed in both theory and practice ever since. The logic of the scorecard relies on linking long-term objectives with short-term aims, and finding a balance between financial and non-financial outcomes and four perspectives on internal and external factors. These must be collected first. Ultimately, these relationships create a network of interrelated factors. The strength of the scorecard comes not only from its visibility and transparency but also from the alignment between the company's strategies, operations and vision. This contributed to its popularity. Since its initial development, permanent refinements with more factors have been added, and sustainability in particular has become a critical component (Kalender and Vayvay, 2016).

3.2.2 Measures of business performance

3.2.2.1 Choice of performance items

Different tools are available for performance measurement, and in business management two measures often applied are market and financial performance (Gök and Peker, 2017). Whereas market performance typically includes items corresponding to the market requirements of the customer or competitor, such as customer satisfaction, customer retention and sales revenue, financial performance items include, for example, return on investment, cost and profitability. The latter category defines the ratio of output minus input, for example, revenue minus costs. Profitability has high informative value for a company’s success and is thus often applied. Table 3 provides an overview of market and financial performance.

Table 3: Overview of marketing performance items. (Source: modified from Katsikeas *et al.*, 2016)

Market performance (customer based)
Customer mindset
Satisfaction, perceived quality, perceived value, attitudinal loyalty, brand equity, other
Customer behaviour
Acquisition, retention, word of mouth, other
Customer-level performance
Share of wallet, profitability, customer lifetime value, other
Market performance (product market)
Sales related
Unit sales, unit sales growth, other
Share related
Market share, market share growth, other
Product related
Product performance, new product success, new product introduction and development, new product time to market, other
Brand related
Revenue premium, other
Financial performance (accounting)
Revenue related
Sales revenue, sales revenue growth, other
Profit related
Profit and profitability, growth of profit and profitability, profit margin, ROI, ROA, return on equity, return on sales, return on capital, other
Cost related
Cost control, cost reduction, other
Cash flow–related
Cash flow, cash flow growth, cash flow volatility, other
Financial performance (financial market)
Returns based
Tobin’s q, short-term abnormal stock returns, long-term abnormal stock returns, total shareholder returns, market-to-book ratio, other
Risk based

Systematic equity risk, unsystematic equity risk, other
<u>Company</u>
Company growth, company image and reputation, overall performance, other

These four perspectives present several items that were frequently employed between 1981 and 2014. Potential measures according to the research context include 'product market', which includes some items relevant to the thesis, namely services and customers. In the service innovativeness literature, a company's performance is often compared to that of its competitors (Tsai and Yang, 2013). In addition, several studies have compared a company's performance to its performance in previous business years (Tajeddini, Altinay and Ratten, 2017), such as its growth rate. Regarding financial performance, which is mostly applied in marketing research (Morgan, 2012), the revenue-related category includes sales revenue and sales growth. Similar are profit-related items.

The choice of the right performance variables depends on various factors, such as the type of organisation (van Looy and Shafagatova, 2016; Raffoni *et al.*, 2018) and the conditions under which the organisation operates (Choong, 2014). Choong (2014) stated, for example, that if a company's environment changes, managers will be pressured to strengthen the company's competitive situation. New measurements, then, must concentrate on customer and competitor factors. Additionally, new conditions for the measurement systems must also be considered, such as the features, roles and processes (Franco-Santos *et al.*, 2007). Choong (2014) additionally claimed to have found through a systematic literature review that, in terms of finding the right measurement, only a few things have changed; the problems remain largely the same. These arguments pose the question of how research on business performance could correspond to academic requirements when there are such fundamental weaknesses in the performance-measurement systems.

In sum, the choice of the right performance variables is subject to ongoing discussion, and numerous criteria are used to evaluate performance. Therefore, the literature provides different approaches to evaluation and, critically, interpretation. Goshu and Kitaw (2017) stated that there was no shortage of discussion on metrics. As every metric affects organisational actions and decisions, it is crucial to find the right outcome variable to measure correctly. They criticised the lack of attention paid to measurement issues and the internal inconsistency in their application – and therefore the difficulty of effectively interpreting the research. They concluded that business performance is a general phenomenon with an essential, implicit meaning.

3.2.2.2 Market performance

Examining business performance in marketing management, Katsikeas *et al.* (2016) performed a meta-analysis of marketing studies. As mentioned, the choice of adequate performance items is important and depends on the underlying research context. In marketing management, the customer is key because all marketing activities aim to satisfy the customer (Bristow *et al.*, 2017). Thus, customer performance items, such as customer satisfaction, must be chosen. Consequently, Bristow *et al.* (2017) developed a theory-based performance-evaluation framework that synthesises operational and organisational performance. While the operational performance includes the primary activities of the product–market variables – predominantly customer influence – organisational performance includes economic attributes (e.g., accounting and financial outcomes), such as actions and environmental factors.

Accordingly, not all marketing activities can be measured from a single perspective but must be regarded within a chain of activities with several stages and consequences for others. This creates complexity, and one facilitator of the organisation of the interrelationships is the organisational performance measurement or business performance management (i.e., business performance). These are performance systems which themselves are highly cited.

Van Looy and Shafagatova (2016) performed a systematic review of articles published up to 2015 concerning the business process to find patterns and trends in business performance. The final measurement settled upon a pool of 140 items in 11 categories. The data pool was derived from different management disciplines, such as innovation and service-portfolio management. In contrast to the categorisation done by Katsikeas *et al.* (2016), there were, in addition to the financial and customer perspectives, internal business processes and learning and growth perspectives; however, the product and accounting perspectives were not included.

In Katsikeas *et al.*'s (2016) study, the business processes were more interactive, interfacial and meaningful because they described associations. Moreover, the broad spectrum of attributes created by the large scope of reviews, and the resulting large number of items, are of interest in this research. In particular, the study reflected a holistic view of the observed performance items. With this, Katsikeas *et al.* (2016) made an important contribution regarding the lack of adequate items or metrics in the field. Despite the structured classification model, intersections among the categories, such customer and learning perspectives, were becoming visible, as, for example, learning also includes innovation aspects, which are in turn closely connected to the customer (Alpkan, Şanal and Ayden, 2012).

3.2.2.3 Financial performance

Despite its popularity in research, there is disagreement about whether financial measures have an objective or subjective nature (Francescucci, 2014). It has been argued that profitability is a function of the actions previously taken by a company, and hence it is difficult to use this as an objective performance variable, but it is more than a historical view, as it also reflects what is possible in the future. Thus, the literature is conflicting, as other scholars use it regardless as a basis for objectivity (Taouab and Issor, 2019).

The financial items in the context of the study are illustrated by example of the annual inter-factory comparative study of German horticulture (Zentrum für Betriebswirtschaft im Gartenbau e.V., 2017). Its main task is to compare companies of the same type of business, such as those producing ornamental plants and growing trees, in terms of a body of organisational performance measures. This includes absolute data (e.g., sales revenue, profitability, investment, human resource management, area of holding, investment, assets) and operating ratios, which show the productivity of a business as output divided by input. These ratios include revenue (e.g., operating revenue, net income, profit–sales revenue ratio) in relation to labour, area or capital, resulting in labour productivity, area productivity or capital productivity. The advantage of the productivity items is that their input is purposed for cost reduction. The general guideline is to find adequate items depending on their intended purpose (Moutinho and Vargas Sánchez, 2018), such as operational control or a conceptual framework.

As business performance has several facets in terms of measurements, multiple indicators also exist, such as financial versus non-financial items. Different performance models and classifications are also available, for example, organisational, operational and process performance (Dumas *et al.*, 2013). All depend on the organisation's underlying research context, with an individual choice of items. Against this background, several studies lack such systematic patterns and practicability considering multiple indicators (van Looy and Shafagatova, 2016), and a number of scholars have conducted meta-analyses with the aim of finding the most suitable classification. Meta-analysis is a statistical technique that combines a number of different studies (Cooper, 2015). In terms of business performance, some relevant systematic reviews are presented.

The meta-analysis from Katsikeas *et al.* (2016) addressed another category of items: the mode of assessment. This is a critical issue of business performance that must find a place in this discussion. The mode of assessment means evaluating subjective and objective performance items, and scholars disagree on different definitions. Whereas subjective performance tends to rely on managerial perceptions of how well the company has performed in terms of standard performance items, such as sales, return on investment and profitability, objective performance comprises the actual data related to these items (Rojas-Méndez and Rod, 2013). Therefore, business performance is conceptualised as a global subjective measure of a company's performance as perceived by its managers, compared to its competitors' performance.

Rojas-Méndez and Rod (2013) followed another argument: they supported the importance of drawing attention to the manner (context) in which performance is measured. A rough distinction between these modes of assessment is that subjective performance requires interpretation to increase its informative value (Schachter, 2010). There are in fact more items in conceptualisation: for example, qualitative and quantitative items (Shepherd and Günter, 2006), where the former requires interpretation to have informative value, whereas the latter can defy interpretation.

There is a gap in the literature, as scholars disagree on whether objective and subjective items should be combined (van Looy and Shafagatova, 2016). As yet, only a few studies have used both items of performance in one concept. The advantage of a combination is apparent, because more factors are considered, such as both shareholders' and stakeholders' interests, and financial and non-financial performance items. Both can increase informative value, as scholars have argued. Nonetheless, as all meta-analyses to date have indicated, objective items alone are preferred by most researchers. Finally, there is also evidence that distinguishing between subjective and objective measurements is outdated, owing to evidence regarding the contextual subjectivity of all performance items (Schachter, 2010). On the contrary, other studies have shown a strong correlation between subjective (perceptual) and objective items of performance (Singh, Darwish and Potočnik, 2016). As a result, there is also heterogeneity.

3.2.3 Summary of business performance

The different performance measurements all contribute to business performance, the most important of all performance measurements (Zhao, Libaers and Song, 2015). To the benefit of the current thesis, business performance closely relates to marketing management, and the classifications of Katsikeas *et al.* (2016) and Morgan (2012) are thus appropriate performance systems. While there is consensus in the literature that a combination of financial and non-financial performance indicators is required (Miller, Washburn and Glick, 2013), there is disagreement about whether objective and subjective indicators need to be combined (Goshu and Kitaw, 2017). Therefore, deficiencies in the existing research became clear regarding the need for multiple performance indicators, including financial and non-financial items, and objective and subjective items. To date, most advocates have preferred objective indicators (van Looy and Shafagatova, 2016).

In conclusion, the choice of items for the present study relies on (a) strategic marketing management, (b) a mix of market performance and financial or accounting measures and (c) a combination of different modes of assessment, including subjective and objective items, as well as financial and non-financial items. By explaining the principles and measurements of business performance, a solid foundation has been created from which to explore the relationship of business performance and competitive advantage.

The next section presents the three strategic concepts informing the study. Moreover, it analyses the relationship of each individual strategic concept with business performance based on previous research conducted by other scholars. Thus, both research gaps are addressed.

The three concepts are introduced in turn, and then their direct relationship with business performance is explored. These concepts are competitive advantage (3.4), market orientation (3.5), and service innovativeness (3.6). Interrelationships between the three concepts are explored in Section 3.7, and then gaps in the existing research are explained (3.8).

3.3 Competitive advantage

3.3.1 Introduction

A company must create clear goals, strategies and operations to build competitive advantage. In the 1980s, Porter noted that competitive advantage makes an entity’s goods or services superior to a customer’s other choices. Hence, sustainable profits require sustainable competitive advantages. Several scholars have built on the insight that business performance is interchangeable with competitive advantage (Ma, 2000). These strategies, illustrated in Figure 11, work for any organisation, country or individual in a competitive environment Accordingly, much research has been conducted to find a relationship between business performance and competitive advantage, and there is agreement that both are closely connected (Varadarajan, 2020).

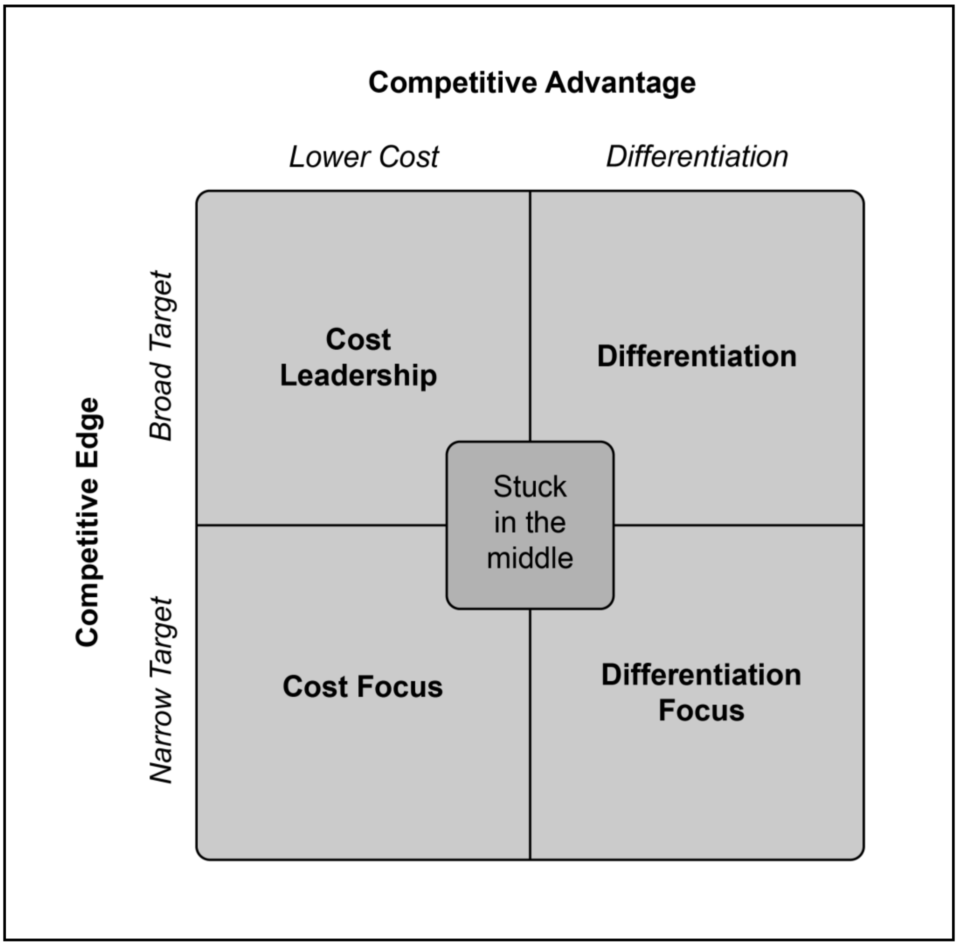


Figure 11: Three generic strategies. (Source: modified from (Porter, 2000)

A company's competitive advantage drives its performance, which includes three business strategies (Porter, 1997): cost leadership, focusing on target markets (niche segmenting) and differentiation. When these strategies lead to competitive advantages, performance increases. From this perspective, competitive advantage serves as a precursor to business performance (Braunscheidel and Suresh, 2009). All strategies should be anchored in the company's planning and monitoring (Saeidi *et al.*, 2015), and, as they are a high priority in terms of the planning process's priorities, they are tasks for top management.

For cost leadership strategies to result in lower final prices, an optimal process flow is required (Hitt, Ireland and Hoskisson, 2016). Companies following this strategy must steadily optimise their processes to minimise input. Usually, a sufficient area of production is necessary, which is more likely in large companies. SMEs with an inferior organisational structure, such as GRH businesses, generally do not match these conditions, but this result is not precluded (Inderhees, 2007).

Niche segmentation, or focused strategies, means the company focuses on a small but lucrative target group of customers. This is customer or market segmentation. Niche segmenting is accompanied by target-oriented marketing activities such as advertising and promotion. This is a popular strategy in GRH, where only a few companies dominate the market (Schwarz, 2008) and which lack the capacity or resources to target all customers (Ouma and Oloko, 2017). Differentiation strategies aim to gain a competitive advantage in the target segment by satisfying customers' uncommon needs, which competitors cannot fulfil and which differ from other target markets. The high level of product substitution in most customer markets often makes it difficult to match supply with demand, especially in mature, saturated markets (Bustinza *et al.*, 2015) due to intense competition and a high degree of product differentiation.

While competitive advantage can lead to improved business performance, the reverse is also possible: when great business success is accompanied by a significant amount of the company's own capital, competitors can be suppressed, and this may enhance the company's market position in terms of competitive advantage (Evans, 2016). From this perspective, business performance is an antecedent of competitive advantage. The literature is mixed in this regard.

Whatever strategy is chosen, it is important not to concentrate on all strategies at once, for there is a risk of being stuck in the middle, with no proper strategy visible to the customer and thus no competitive advantage for the provider (Islami, Mustafa and Topuzovska Latkovikj, 2020). In this light, there is no strategy that should clearly be chosen over another. Especially in heterogeneous industries, such as GRH, where different sectors and departments have a rigid organisational structure (Engelke, 2017c), it may be necessary to use not just one strategy but a combination of several strategies. In either case, management must be cognisant to avoid losing sight of the corporate image (Martín-de Castro, 2020).

3.3.2 Competitive advantage in German retail horticulture

As measured by the number of staff, the GRH sector is rather small (Bundesministerium für Ernährung, 2013a). This means that its companies are less likely to expand into mass production for reasons of restricted capacity. Thus, cost strategies are unlikely. In turn, differentiation and segmentation are common approaches taken in this sector (Schöps, 2013), but it was unknown at this stage whether they are followed as explicit strategies, as strategic orientation is only a minor concern for most GRH firms (Gabriel and Bitsch, 2018). It was therefore assumed that differentiation and segmentation are only partially associated with long-term planning. The literature (Zentralverband Gartenbau e.V., 2018a), however, shows that there are excellent approaches to selected products or services and innovation, as well as target-oriented markets.

In GRH, which is currently experiencing an ongoing trend of moving into service provision, an example of these approaches is service differentiation. Differentiation from managers' perspectives often means that more variety is desirable (Botz, 2019). Hence, portfolio variety is expanding for most businesses in this sector (see Figure 7), but the consequences in the context of the companies' market orientation and service innovativeness remain unexplored, which led to the development of the research aim. Niche segmenting is also popular; for example, horticultural tree climbing. This subsector is highly specialised, and only a few providers are available, so there is little competition in a small but growing market (Dujesiefken, 2019).

Although a core business typically involves products or services, the two are often comparable, especially in saturated markets with high levels of product substitution or luxury goods. This is characteristic of the German horticultural industry (Hodges *et al.*, 2016), where flowers, plants, accessories and services are luxury goods for many. Hence, it is always a challenge to reach the customer, especially when the national economy is struggling.

During economic peaks, like those of 2020, customer spending is satisfactory, but this changes, in the author's experience, when the market consolidates or in times of market saturation, when growth in market share is limited because there are limited possibilities for new sales. In such times, 'green products' are often substituted for goods in other industries. Companies' strategic task is to develop a perpetually attractive range of services to increase customer demand. Companies that follow a continuous marketing plan and have active public relations are successful in this context (Beeck, 2018a). Under these conditions, the risk of saturated markets can effectively be minimised. Another possible company reaction in hard economic times is capturing existing market share from competitors.

3.3.3 Summary of competitive advantage

Strategic orientation is essential but often non-existent in SMEs (Simpson, Padmore and Newman, 2012) and in the horticultural industry generally (Gabriel and Bitsch, 2018). Most companies in this sector have few employees and a relatively flat organisational structure. One advantage is that they are quite flexible with respect to market demand, which supports their competitive advantage and sustainable growth (Potjanajaruwit, 2018). Awareness of this advantage is growing in the sector as these companies seek to distinguish themselves from their competitors and stand out in a saturated market, so all strategies must be considered. Thus, a competitive advantage can assist in the creation of a long-term orientation and therefore economic success. 'Since competitive advantage is a term associated with the strategic management literature' (Evans, 2016, p. 15) and 'the pursuit of competitive advantage is an idea very much at the heart of the strategic management literature' (Ismail, Rose and Abdullah, 2010, p. 159), analysing GRH with respect to either strategy or both strategies can help the market position be understood more fully.

Following Figure 11, Porter's (2000) three generic strategies simplify the application of the most suitable strategy to generate a competitive advantage. In GRH, this occurs predominantly through differentiation, for example, innovation or improvements, but also through market focus strategies (niche segmenting) for selected customer types. It rarely occurs (although it is not precluded) through cost leadership, as only a few horticultural companies grow crops on a large scale (Dirksmeyer, 2013).

As interrelationships are expected, depending on the level of departmentalisation, a combination of multiple strategies is possible, such as the improvement of existing services in niche segments. Still, management must be careful not to become stuck in the middle, for then no proper strategy will be visible to the customer, and thus no competitive advantage will be procured for the provider (Islami, Mustafa and Topuzovska Latkovikj, 2020).

Both internal and external factors are represented in the three concepts, which are essential in the underlying framework of the present study. As the overall research aim was to explore the direct and indirect effects of service differentiation on strategic dimensions in market orientation and service innovativeness, both research gaps are addressed.

3.3.4 Service differentiation

Service differentiation is the first strategic concept of interest in the current study, and ‘for a service provider, service differentiation represents the main strategic priority, built on the company’s customer-centricity and innovativeness’ (Gebauer, Gustafsson and Witell, 2011, p. 7). Service differentiation is the design of a service that offers a different value to the customer and it is achieved by developing a product or service strategy that offers improved customer value over that of competitors (Tjahjono *et al.*, 2019).

The literature presents several approaches to categorisation. From a resource-based view, Junior *et al.* (2020) defined ‘people’, ‘process’ and ‘environment’, a company’s internal and external capacities. In particular, the customers, branding and features of services are often mentioned in the literature (Guajardo and Cohen, 2018), as is variety (Li, 2020a), which is central to the present study. Because it touches on the company’s portfolio variety, some background information regarding differentiation is provided in this context.

The process of distinguishing the company's portfolio from that of others to improve its market position varies (Zehir, Can and Karaboga, 2015). In the past, differentiation was conducted primarily in the manufacturing industry, when new products were developed or existing products refined. Thus, there is a relationship between service differentiation and innovation. Later, when services became increasingly popular, differentiation concentrated not only on the physical product but also on added services. Hence, it was the manufacturing industry that first realised that product differentiation and product innovation could distinguish a provider from its competitors (Gebauer, Gustafsson and Witell, 2011). As a result, service provision became increasingly popular.

Direct effects on performance were found to be positive in a study by Junior *et al.* (2020), in which they analysed hotel companies in Brazil, which confirmed the findings of Halliday (2000). Junior *et al.* also discovered mediating effects in the interrelationship of market orientation and performance in one of the few studies in this context.

The indirect relationship of service differentiation with market orientation and service innovativeness has not been researched recently, although some earlier studies exist. Song, Nason and Di Benedetto (2008), in a cross-national study of manufacturing companies, found positive effects on some market orientation dimensions, whereas Bustinza *et al.* (2015, p. 53) showed 'that increasing differentiation and high customer satisfaction are fundamental to achieving competitive advantage and superior performance with services'. This concurs with the findings of Wan (2011), who found direct and indirect effects of both product differentiation and service differentiation on performance through distributor channels.

Likewise, this is consistent with the findings of Gebauer, Gustafsson and Witell (2011), who found interrelationships with customer orientation and service innovativeness in manufacturing industries that were transitioning into service provision, which is an extremely common movement within organisational structures (Rajala *et al.*, 2019). In this context, Kowalkowski, Gebauer and Oliva (2017) examined the service transition process on market-oriented manufacturers. They determined that innovation has a significant effect on sales performance when service differentiation is embedded as a mediator. Recent research from Baron (2020) also found positive links with both concepts.

In a systematic review of the literature on servicing, Raddats *et al.* (2019) identified five major streams for categorising industry services. One is product–service differentiation, where products and services are combined as augmented products to distinguish them from similar products offered by other providers. This includes, for example, a generous return policy or free cooking classes when buying kitchenware. They argue that both the product and service are similar and gain the company an advantage over competitors because the services are predetermined to support the core product sales and customer loyalty. Both target increasing customer value (Kowalkowski, Gebauer and Oliva, 2017).

An exhaustive study on business performance found positive effects on both market orientation (Davcik and Sharma, 2016; Talaja *et al.*, 2017) and service innovativeness (Hult, Hurley and Knight, 2004; Verhees and Meulenberg, 2004; Liu, 2013). Service differentiation in combination with market orientation and service innovativeness, however, has been only partially explored.

3.3.4.1 Strategies in service differentiation

A central strategy in service differentiation is variety, which aims to increase the quality of both customer value and product (Islami *et al.*, 2020). Often employed is the dichotomy of either pure products or services in the company's portfolio (Bruhn and Stauss, 2007). Added (i.e., supplementary) services are another distinction; these are services related to the product (Watson *et al.*, 2018). Hybrid products are popular in retailing, including in GRH, because the added value of the product can be increased with adjacent services; this increases product comparability and market saturation (Fließ, 2009). When this product is bundled with an added service, such as wrapping or delivery, the customer receives a hybrid product, which is then only somewhat comparable, and the supplier gains a competitive advantage over its competitors.

This goes beyond the primary benefit (Lovelock and Wirtz, 2007). In retailing, companies often initiate service provision by adding services to their core products. Later, with growing demand for services, the added services are transferred to pure services as a sign of specialisation. Pure services are provided by, for example, specialists in landscape building or interior gardening. In the specialist horticultural literature, there is extensive discussion on specialisation in core competencies and on more services and added products (Botz, 2019). This is against the background drive to open new markets.

The central characteristic of service differentiation is variety. This includes the company's portfolios and thus addresses the research gaps. In the few studies in this context, two established categories are horizontal and vertical differentiation (Li, 2020b). Variety is understood throughout this thesis from the perspective of gaining a superior market position over competitors through service breadth and depth (i.e., horizontal and vertical differentiation).

3.3.4.2 Horizontal differentiation

By definition, horizontal differentiation provides new and unrelated products or services – in the context of this research, services – to existing consumers (Fließ *et al.*, 2015; Zhao *et al.*, 2020), often as an extension of the company's services. They often meet different customer demands (Li, Chen and Zhang, 2020). To address the research context, horizontal differentiation in a company's service portfolio should be explored in more detail. When management decides to enhance variety of the portfolio with new, unrelated services, this is called 'service width' or 'service breadth'. These are often independent core services, such as landscape building or retailing, and they often come with the establishment of independent departments, which is a sign of superior organisational structure (Ozdemir, Kandemir and Eng, 2017).

The horizontal differentiation strategy is advantageous because it offers all-inclusive solutions to customers but on different product lines (Kleinaltenkamp, 2006). For example, a commercial customer orders interior gardening in its offices and also wishes to redesign its exterior facilities. Both services are related in that they are horticultural services, but, as they are not on the same service line, they are independently positioned in the portfolio. Some scholars have equated horizonal differentiation with diversification (Wu and Ma, 2018) or diversity more generally (Manoharan and Singal, 2017), and others have argued that horizontal diversification entails services that are themselves diverse (Bruhn and Blockus, 2011). Hence, there is no consistency between the terms. The following section uses the term ‘service differentiation’ alone.

Availability means the relative number of companies who offer this service. In Figure 7, the data from recent research by the author (Engelke, 2017a) show the great variety of core services not only at present but also in the past and predicted future. Hence, this is a timeline. Availability varies within the timeline, proving that the structural changes in German horticulture since the 1970s have changed the core business and thus the portfolio variety.

Figure 12 provides an overview of the available core services in GRH.

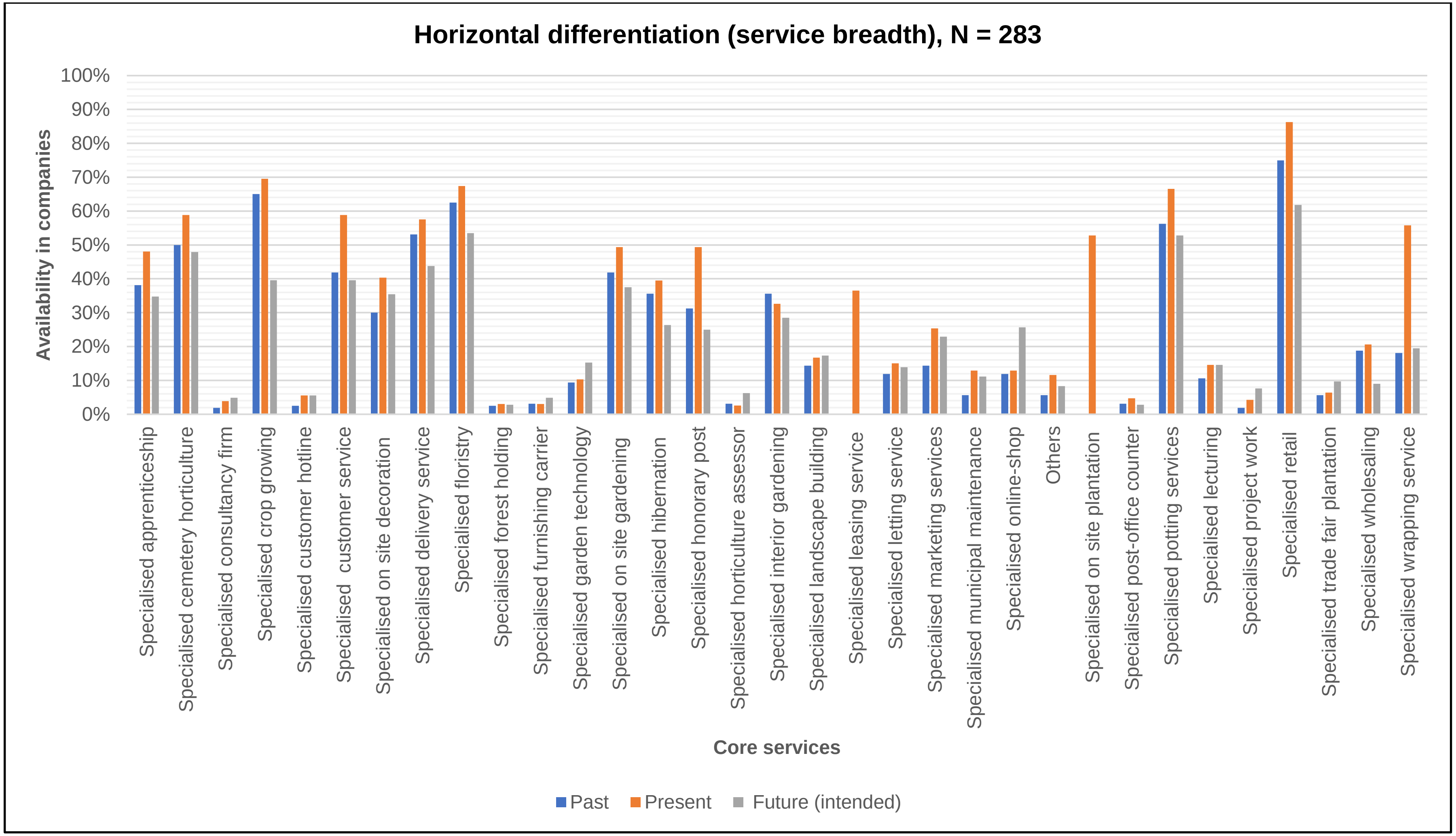


Figure 12: Overview of core services in German retail horticulture. (Source: modified from (Engelke, 2017a); data from 2016)

3.3.4.3 Vertical differentiation

A vertical differentiation strategy reflects the number of distinct items in a product line related to the core service. Thus, it is called ‘service depth’ (Fließ et al., 2015). Hybrid products are also classified as vertical differentiation. A simple example from the horticulture industry is the combination of a potted plant with a delivery service. The literature reflects low levels of horizontal differentiation but higher levels of vertical differentiation (Belvedere, 2014).

Some sources substitute ‘service differentiation’ with the synonyms ‘servicing’, ‘servitisation’, ‘service variety’, ‘service offers’ and others in different contexts (Wan, 2011; Bustinza *et al.*, 2015; Manoharan and Singal, 2017; Castaldi and Giarratana, 2018; Raddats *et al.*, 2019). All these terms are employed more or less identically.

Figure 13 provides an overview of added services in GRH. Besides the great variety of core services, companies’ portfolios also contain numerous added services in combination with physical products. The diversity of both types of services necessitates good service portfolio management, in line with the research aim.

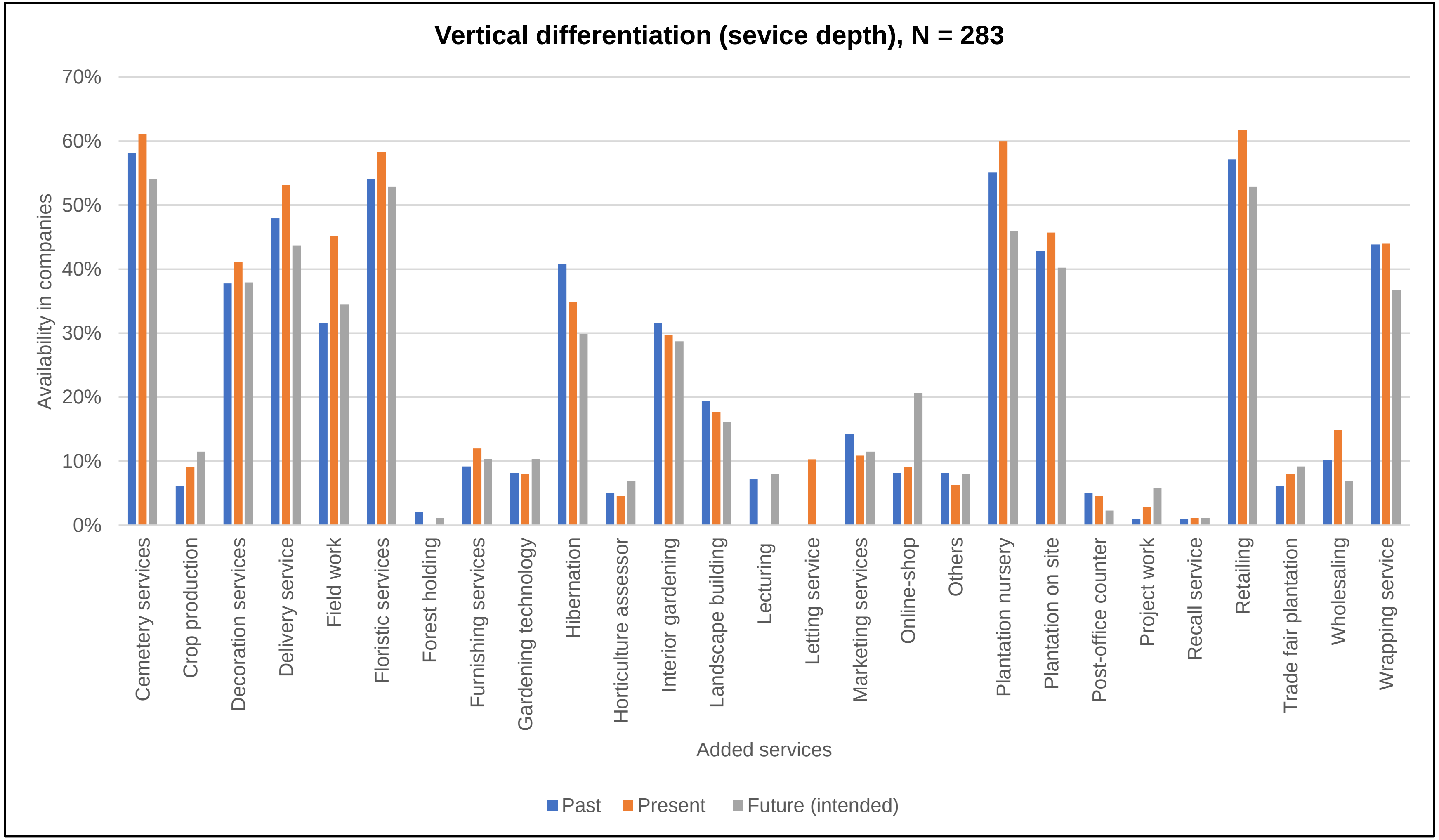


Figure 13: Overview of added services in German retail horticulture. (Source: modified from (Engelke, 2017a); data from 2016)

The impact of vertical differentiation on performance is inhomogeneous and dependent on the industry and research context. In a study by Baron (2020), both positive and negative performance is possible.

These two prominent strategies have been comprehensively explored, but the literature also briefly presents additional strategies for service differentiation.

3.3.4.5 Level of differentiation

Level of service differentiation was applied using the guidelines used by Lynch, Keller and Ozment (2000) and Ralston, Grawe and Daugherty (2013) in logistics services, where a company's service differentiation was scored on a 7-point Likert scale. An overall question regarding this level is the extent to which it is integrated into the processes. Caution is advised when using it, as it is general, but, in the author's opinion, it can reveal how the provider performs service differentiation.

3.3.4.6 Differentiation by number of business types

In this context, service differentiation refers to specialisation as a grade – the extent to which self-contained departments have been established. Specialisation accompanies departmentalisation and is regarded as a more hierarchical organisational structure (Wilson, Perepelkin and Di Zhang, 2019). There is no literature on this subject, but, as it is intended as a request for a company's industrial classification, it is a welcome side effect. Hence, the number of business types is a new factor in the analysis.

3.3.4.7 Differentiation by customer preference

Service differentiation by customer preference has a subjective nature. It means that customers' preferences determine whether a company sells physical products or services, which are at the centre of the provider's portfolio, as Gebauer, Gustafsson and Witell (2011) determined in their work with manufacturing companies. This study also focused on service differentiation and innovativeness, as well as customer orientation ('centricity'). The results showed a positive relationship between all three strategies, but in the presence of service differentiation the effects were stronger. Hence, service differentiation plays a moderating role. Service differentiation by the customer is in line with another categorisation by Junior *et al.* (2020), who identified people, processes and the environment as appropriate components of service differentiation.

3.3.4.8 Differentiation by competitor preference

Service differentiation by competitor preference focuses on the market and a company's competitors, which are considered carefully to gain a competitive advantage. This applied in the work of Ralston, Grawe and Daugherty (2013), who combined service differentiation with innovation in their research on US logistics services. The authors determined that this strategy has a positive relationship with performance, and they employed structural equation modelling to detect latent relationships with performance.

Also relevant are the findings of Davies (2004), who examined service differentiation and customer orientation from a resource-based perspective. Davies (2004) recommended not focusing only on services but rather implementing integrated solutions with a view to expanding the company's capabilities, which are the key factors in its success. These findings support the argument presented from Ralston, Grawe and Daugherty (2013).

Both Davies (2004) as well Ralston, Grawe and Daugherty (2013) concluded that studies on service differentiation in the context of other strategic concepts do exist, but these studies concentrated on larger firms, whereas small companies, such as those in GRH, were excluded due to their inferior strategic capacities. Small companies are characterised by their unique features (Andersén and Samuelsson, 2016), for example, their organisational structure, which in turn has a central effect on performance (Hutzschenreuter, 2009; Tang, 2014). Accordingly, it makes sense to consider this.

In sum, there are six service differentiation strategies, but, with the exception of horizontal and vertical differentiation, the other four strategies are subjective and rely on research participants' self-assessment (Loy and Weiss, 2019). Thus, they are hypothetical approaches. Accordingly, there is risk in terms of common method bias (Podsakoff *et al.*, 2003; Haghani and Sarvi, 2018), which must be prevented in terms of multicollinearity. All measures targeting the improvement of a company's offerings should earn it advantages over its competitors and improve economic performance.

3.3.4.9 Relationship between service differentiation and business performance

When a company decides to focus on service provision, it undergoes a transformation (transition) process that turns it into a service provider. Hence, transforming from a producer into a service provider requires new focus, especially on processes and organisational structure (Oliva and Kallenberg, 2003), for example, through departmentalisation as a central term in organisational structure.

Departmentalisation is important, as it optimises the division of work, enables the creation of independent departments and supports internal outsourcing, ancillary departments and external outsourcing, as Engelke, Lentz and Stützel (2016) determined in an exploratory study on GRH. Engelke, Lentz and Stützel (2016) noted that the horticultural industry has been in such a transformation process for years, moving from a crop-growing production industry in the last 50 years to an industry with diverse profiles and a broad service portfolio since the 1990s. A diverse portfolio of services, as in GRH, often accompanies horizontal differentiation (Ozdemir, Kandemir and Eng, 2017), where core competencies are bundled in independent departments, but only on a low level.

Heterogeneity has the disadvantage of leaving a company's image less clear from the perspectives of both customers (Iglesias *et al.*, 2019) and business performance (Dunlap, Johnson and Zinkhan, 2015). Furthermore, under these circumstances, the operational emphasis on core competencies is missing, as Engelke (2017c) determined with GRH firms. In contrast to pure retail or manufacturing companies, highly diverse full-service providers show superior organisational structure, a narrower span of control, lower control intensity, higher formalisation and, critically, higher divisional configuration and division of labour (Eckardt and Skaggs, 2018).

Therefore, structural differences between manufacturing and service companies are becoming visible. This aligns with the findings of Belvedere (2014), who conducted three case studies in different service industries. She found that service differentiation and organisational structure are connected, specifically the compounding of the portfolio, as all activities in processing are combined. Despite the small sample size in her study, which limits generalisation, she additionally found that only a few samples were highly diverse, and most were positioned between pure products and pure services. Nonetheless, hybrid products were present in most firms.

Over the last decade, there has been an ongoing debate in the horticultural community regarding how to navigate shrinking customer frequency and turnover (Botz, 2019). As noted, the trend has moved in the direction of service provision, and services have become increasingly important to the German economy (Landesbetrieb IT.NRW Statistik und IT-Dienstleistungen, 2017). In response, the latest articles from Berentzen (2019) in the specialist horticulture literature have recommended enhancing service differentiation to secure a larger market share. The consequences of uncontrolled service expansion, however, include the risk of complexity within the organisational structure (Jacobs and Swink, 2011) when capacities are not sufficiently adjusted. The problem of complexity has been described, and management must formulate an individual fit to guarantee unhindered processes. This can be achieved by establishing adequate portfolio management, which addresses the research aim.

Quantitative research on product differentiation has been broad, and a positive interrelationship between competitive advantage and business performance has been supported by a number of scholars (Wang, Chen and Chen, 2012; Kowalkowski, Gebauer and Oliva, 2017). In product differentiation, the strategic priority for pure goods providers contrasts with that of full-service providers, where facilitation occurs mainly through customer orientation and innovation. Service differentiation is not solely restricted to customer services, but the physical product is often offered in combination with an added service (Wassmus, 2014). Thus, the intangibility of services to fulfil customer needs becomes visible in contrast to physical products (Fließ *et al.*, 2015). Hence, the individual service package, not the number of services in the portfolio, is crucial.

In the context of product differentiation, Wan, Evers and Dresner (2012) examined manufacturing companies in the United States to determine the extent to which product variety can enhance sales revenues; for example, operational or market performance but not financial performance (Morgan, 2012). The results show that market performance is negatively associated with product variety at a diminishing rate in a yield curve. With increasing variety, sales revenues increase to a defined quantity but then decrease, because cannibalisation effects limit the performance rate. This is 'too much of a good thing', as Wan, Evers and Dresner (2012, p. 316) claimed, and more research is necessary on business performance with profitability (financial) measures. Wan, Evers and Dresner (2012) also suggested adapting the findings from other related disciplines to service management. This addresses service differentiation, according to Wang, Chen and Chen (2012).

In the context of service provision, in a study of manufacturing companies in the United Kingdom, Bustinza *et al.* (2015) found a positive interrelationship between service differentiation and business performance: the greater the service differentiation, the higher the business performance. They criticised the lack of empirical research in this context, which is relevant to the present study. In addition, Wan (2011) conducted quantitative research on service differentiation with soft drink manufacturers in the United States and derived positive results for sales performance but not financial business performance. Gebauer, Gustafsson and Witell (2011) examined various manufacturers in Europe that were in a transition process. They found a positive interrelationship between service differentiation and financial business performance. In this context, Katsikeas *et al.* (2016) argued that the contingency factors that affect business performance the most must be considered. All these calls address the first gap in the research.

Gebauer, Gustafsson and Witell (2011) proposed further future research on service differentiation and financial performance, on subjective measures such as customer satisfaction, and on other industries. The present study responds to all these calls, which are central to the research aim.

In terms of expanding portfolio variety, management must consider the additional costs incurred when new services are implemented. From an economic viewpoint, these must not overrun the potential sales revenue (Fließ, 2009). Consequently, portfolio variety must be provided with permanent monitoring to maintain, for example, financial control. This is a high priority for companies with high diversification (Meffert and Bruhn, 2009).

In terms of these arguments, in service differentiation, all potential factors along the value chain must be considered to secure a superior market position. If a company is doing well, imitation and substitution from competitors are prevented and competitive advantages are accordingly supported (Hoopes, Madsen and Walker, 2003). As services by their nature require specific behaviour from the participants, this is a major difference compared to product differentiation. Moreover, several researchers have recommended considering service differentiation as a bundle of strategic operational activities from a resource-based view (Davcik and Sharma, 2016; Sugiono *et al.*, 2018). Several scholars have also suggested adapting the findings to other industries with diverse conditions (Wan, 2011; Wang, Chen and Chen, 2012).

The studies by Wan (2011) and Wang, Chen and Chen (2012) are of the few relevant to the present study, as they cover both market orientation and innovativeness, but they have two disadvantages:

1) Case studies were used as a research method, with no large-scale data collection.

2) These case studies considered only the manufacturing industry; no service companies were included in the sample.

There are underlying differences between the industries at the heart of the two studies. From a market-orientation viewpoint, greater customer focus is present in service provision (Oliva and Kallenberg, 2003). In innovation processes, manufacturers have a greater tendency to innovate technologically (Castro, Montoro-Sanchez and Ortiz-De-Urbina-Criado, 2011), but, in service provision, innovation often improves organisational structure, which is of major relevance, as labour (and, accordingly, work productivity) is often the highest cost centre (Campbell, 2017). Thus, an interconnection between the three concepts is revealed, and service differentiation must be regarded differently in service companies.

To address the problem of sample size, a large-scale survey on publicly traded manufacturing firms was conducted by Fang, Palmatier and Steenkamp (2008). They examined transition processes (Baines *et al.*, 2017) from manufacturing to servicing. The authors found a positive effect of service differentiation strategies only after a certain point of turnover; smaller service companies with low performance were not affected.

3.3.4.10 Summary of service differentiation

All three strategies have long been accepted in academic research, and in the present thesis, the research focused on the product-related area of differentiation strategies (Leonidou *et al.*, 2015). A wide range of publications relating product differentiation to market-orientation and performance is available (Kamboj, Rahman and Zillur, 2017), and as proper market observation can aid innovation activities, this in turn can evoke structural changes in the organisation (Tang, 2014). Hence, delving into differentiation through innovation and market orientation is a related method, and, accordingly, a connection between all three concepts has been established, which explains the research rationale, even though services were used more often than products. Therefore, service differentiation is the appropriate competitive advantage strategy throughout the thesis.

The term ‘differentiation’ is related to the commonly employed terms ‘diversity’ and ‘diversification’. Nonetheless, in the context of this thesis, ‘service differentiation’ is the appropriate term, considering the six different strategies: horizontal differentiation, vertical differentiation, level of differentiation, differentiation by number of business types and differentiation according to customer and competitor preferences. Whereas horizontal and vertical differentiation have been explored relatively thoroughly in the literature, the other types have not. As they fall under the umbrella of service characteristics, however, especially with respect to customers and organisational structure, the current research focused on them. Figure 14 illustrates the six dimensions of service differentiation.

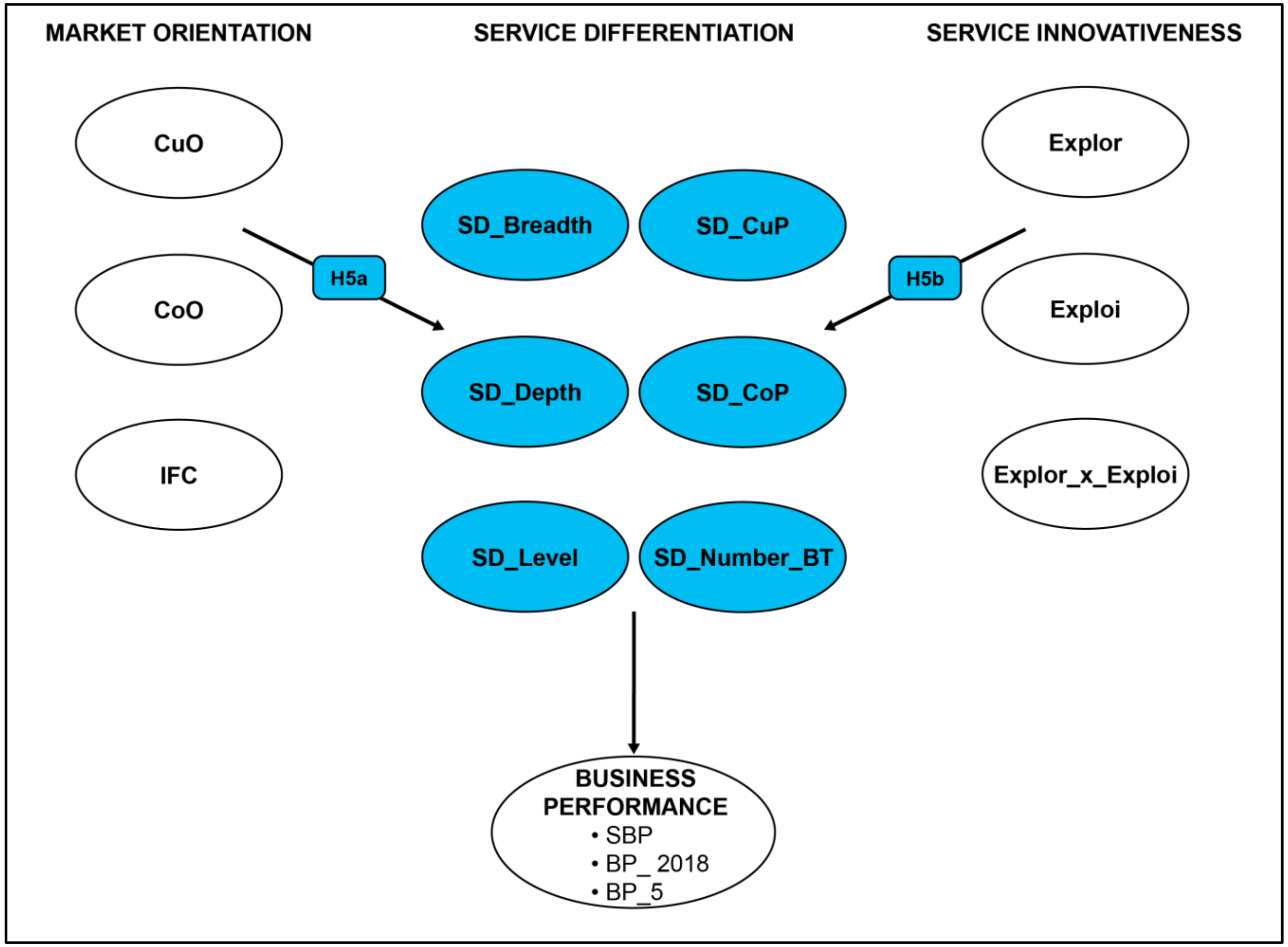


Figure 14: Proposed research model addressing the direct effects of service differentiation and its six dimensions.

3.4 Market orientation

3.4.1 Definitions of market orientation

Market orientation, which follows strategic orientation, is a prominent marketing concept, as measured by the number of publications on the subject. As it contributes to business performance according to previous research (Verhees and Meulenberg, 2004; Liu, 2013; Talaja *et al.*, 2017), the present study assumes that it is a key strategic asset for success.

Several definitions of market orientation exist. For example, it is sometimes defined as the true understanding of the market and customers' demands and an adoption of the right process that is responsive to market development (Hajipour, Rahimi and Hooshmand, 2013). The term has evolved since the 1920s. In the 1990s, 'market orientation became the widely accepted term to [refer] to the implementation of the marketing concept' (Gheysari *et al.*, 2012, p. 544). The concept of marketing is a marketing management philosophy for achieving organisational goals, which depend on the needs and wants of the target markets and deliver the desired satisfaction better than competitors do (Chernev and Kotler, 2018). This means that market conditions are the stimulus for all a company's marketing activities. When management is aware of the prevailing market conditions, target-oriented activities are fostered (Minchin and Alpert, 2017). In particular, two definitions, discussed in Section 3.4.2, were developed in the 1990s.

3.4.2 Defining market orientation

In an exploratory study, Narver and Slater (1990) observed three essential behavioural dimensions (components) of market orientation: customer orientation, competitor orientation and interfunctional coordination. These criteria comprise the understanding of target customers by understanding their needs with the support of customer orientation to produce sustainably higher value, become familiar with alternatives and gain the long-term upper hand in the competitive market while maintaining a view of customers' current desires and perceptions because they greatly influence the market. Furthermore, a company must identify and scrutinise its competitors, their strengths and weaknesses, and its own present or future actions and strategies (Gheysari *et al.*, 2012). As all information regarding customers and competitors must be transferred within a company's departments or functions to enable strategic development, information flow, called 'interfunctional coordination', is the third dimension (Tomaskova, 2018).

The second definition is the behavioural concept put forth by Kohli, Jaworski and Kumar (1993), who implemented an information-based view of market orientation. This also encompasses three dimensions: the organisation-wide generation of market intelligence pertaining to current and future customer needs, the dissemination of this intelligence across departments and the organisation-wide responsiveness to it (Kohli and Jaworski, 1990). 'Responsiveness' means that when information is collected and disseminated, only then are response designs (strategies) and response implementations (operationalisation) in the company enabled (Delbaere *et al.*, 2017).

Both concepts are based on two criteria with which a company must comply: long-term focus and profitability. In both concepts, three single dimensions are incorporated to achieve these goals. Additionally, the definitions differ in their associations with and understanding of behavioural and cultural aspects.

3.4.3 Evaluation of market orientation concepts

Despite the differing definitions of market orientation, both definitions have in common that the information (of the customers, competitors and information processing) must be generated (collected) and disseminated within the organisational structure and finally applied to the development of strategies that affect business performance. Whereas the Narver–Slater model is more specific regarding the three dimensions, especially the customer and competitor (Rojas-Méndez and Rod, 2013), the Jaworski–Kohli model attempts to understand a more general perspective with a combination of customer focus, coordinated marketing and profitability (Hadcroft and Jarratt, 2007).

Some of the arguments described above should be critically evaluated because both models overlap with the earlier definitions, especially that of interfunctional coordination, which conforms to organisational structures, as the dissemination of knowledge is inevitably connected to organisational structure. Accordingly, in the present paper, organisational structure and interfunctional coordination are considered identical.

Not least because of these underpinning philosophical logics, both models contribute more than most previous literature reviews on marketing orientation research. Narver and Slaters' concept, however, is preferred based on four arguments in the underlying research context. First, its cultural perspective (Becker and Homburg, 1999) emphasises the attitudes and values of the company's participants in generating customer value (Helfert, Ritter and Walter, 2002). Second, this concept strongly identifies both internal factors, such as innovativeness, and external (environmental) factors, such as service differentiation (Grolleau, Mzoughi and Pekovic, 2013).

These arguments respond to the criticisms that a body of market orientation studies is reduced to only the customer and competitor dimensions, while the factors that affect them are not considered (Rossiter, 2012). This gap will be closed, as one of those factors is service differentiation, as discussed. Incidentally, embedding new variables forms the basis for successful differentiation strategies (González-Benito, González-Benito and Muñoz-Gallego, 2014) because the analytical character of Narver and Slaters' model opens new perspectives on the company's market position in terms of the present study.

Third, in terms of complexity, Narver and Slaters' definition is easier to use (Rose and Shoham, 2002; Kazakov, 2016). Fourth, their scales offer greater precision than those of Kohli and Jaworski (Esteban *et al.*, 2002) and superior statistical reliability than MARKOR, the market orientation measure developed by Kohli and Jaworski (Pelham and Wilson, 1996). Therefore, Narver and Slaters' definition forms the basis for the following sections.

3.4.4 Relationship between market orientation and business performance

Complexity origins not least because of the right mode of assessment (see 3.2.2, and 5.4.1), and therefore many research constellations have been produced. These constellations have included a wide range of contingency factors (Cadogan, Souchon and Procter, 2008) in either direct or indirect (e.g., moderating, mediating) relationships to business performance (Dong *et al.*, 2016). The effect of the three strategies on performance are presented separately.

3.4.5 Customer orientation

3.4.5.1 Terms and definitions

Customer orientation is regarded as a strategic orientation that reflects a firm's ability to create and deliver superior customer value (Racela, 2014). The advantages of incorporating the customer into the company's processes are extensive and have long been discussed in the scientific discourse, but overall, creating superior value for the customer is the most important factor in long-term profitability (Slater and Narver, 1998). From this understanding, integrating the customer into the working process can be a key to success (Bruhn and Stauss, 2009). In fact, there is no consistent definition of customer orientation, but similar terms have been applied.

For example, customer integration is closely connected with customer orientation. Some researchers have discussed 'customer participation', when the customer either supportively cooperates with the employee or acts autonomously (Meuter *et al.*, 2000). Others have used the term 'customer co-production' (Bendapudi and Leone, 2003), when the customer more actively participates in the performance process. Still others have spoken of a 'partial employee' (Bitner *et al.*, 1997), a customer who is involved in only some processes, or 'prosuming' (Kotilainen and Saari, 2018), a combination of production and consumption. In the German literature, the term 'integration of the external factor', called 'Externer Faktor' (Geigenmüller, 2012), is widely employed. This means it is impossible to disconnect the production of the service from its consumption (Bessant, Lehmann and Moeslein, 2014).

Following Kurzmann and Reinecke (2009), customer integration is expressed in different forms, of which customer orientation is the weakest. In an exploratory study, they showed that successful customer orientation depends on the degree of customer involvement. Bruhn and Stauss (2009) classified customer orientation into different process levels – planning, decision-making, performance and control – and innovation processes. In their opinion, customer orientation acts mainly on the internal organisation, and as there are central processes, the consequences, for example, the workflow, should be carefully considered. From this understanding, customer orientation requires greater involvement than only client acquisition and servicing.

Ultimately, all terms mean essentially the same thing: integrating the customer into manufacturing or service production to support business performance. Thus, in the following section, the term ‘customer orientation’ is employed as a catch-all term for any type of customer involvement.

3.4.5.2 Effect of customer orientation on business performance

Studies have shown the positive influence of customer orientation on performance data (Liao *et al.*, 2011), which can be influenced by other factors, such as company size and industry sector, a view confirmed by Kajalo and Lindblom (2015). Against this background, many scholars have examined potential differences in the effects of customer orientation in manufacturing and service production on business performance. A stronger effect is more likely in manufacturing than in service-oriented companies (Silvestro *et al.*, 1992; Bustinza, Vendrell-Herrero and Baines, 2017) and during a transition from manufacturer to service provider, as is the current trend in service provision, given the large number of publications on the subject (Baines *et al.*, 2017). This is important for the study as far as in GRH, most firms’ origins are in crop growing, with firms transforming into service providers in the last few decades. As this requires increasing the attention paid to both the customer and service offerings, companies are more successful that can ‘change the focus of customer interactions from transaction- to interrelationship-based', as Oliva and Kallenberg (2003, pp. 167–168) found in a qualitative study of manufacturing companies.

In a quantitative survey of multinational companies in Turkey, Kirca (2011) found a highly positive interrelationship between customer orientation and financial business performance in diverse and complex economic, cultural and political environments. It is notable here that the direction of customer orientation followed a route via customer satisfaction, customer loyalty and other factors as mediators. Hence, customer orientation was indirectly related to business performance. Other factors, such as organisational culture, have been found that affect the processes and behaviours of the participants (i.e., the management, workforce and customers; Huff and Kelley, 2005).

The positive interrelationship between customer orientation and business performance was confirmed by Racela (2014), who performed an integrative literature review from the disciplines of marketing, innovation and organisation studies that included both manufacturing and service companies. The results also showed that customer orientation has a supporting effect on innovativeness, in contrast to earlier results indicating that customer orientation constrains certain innovation processes. The study further revealed that customer orientation and innovativeness are related.

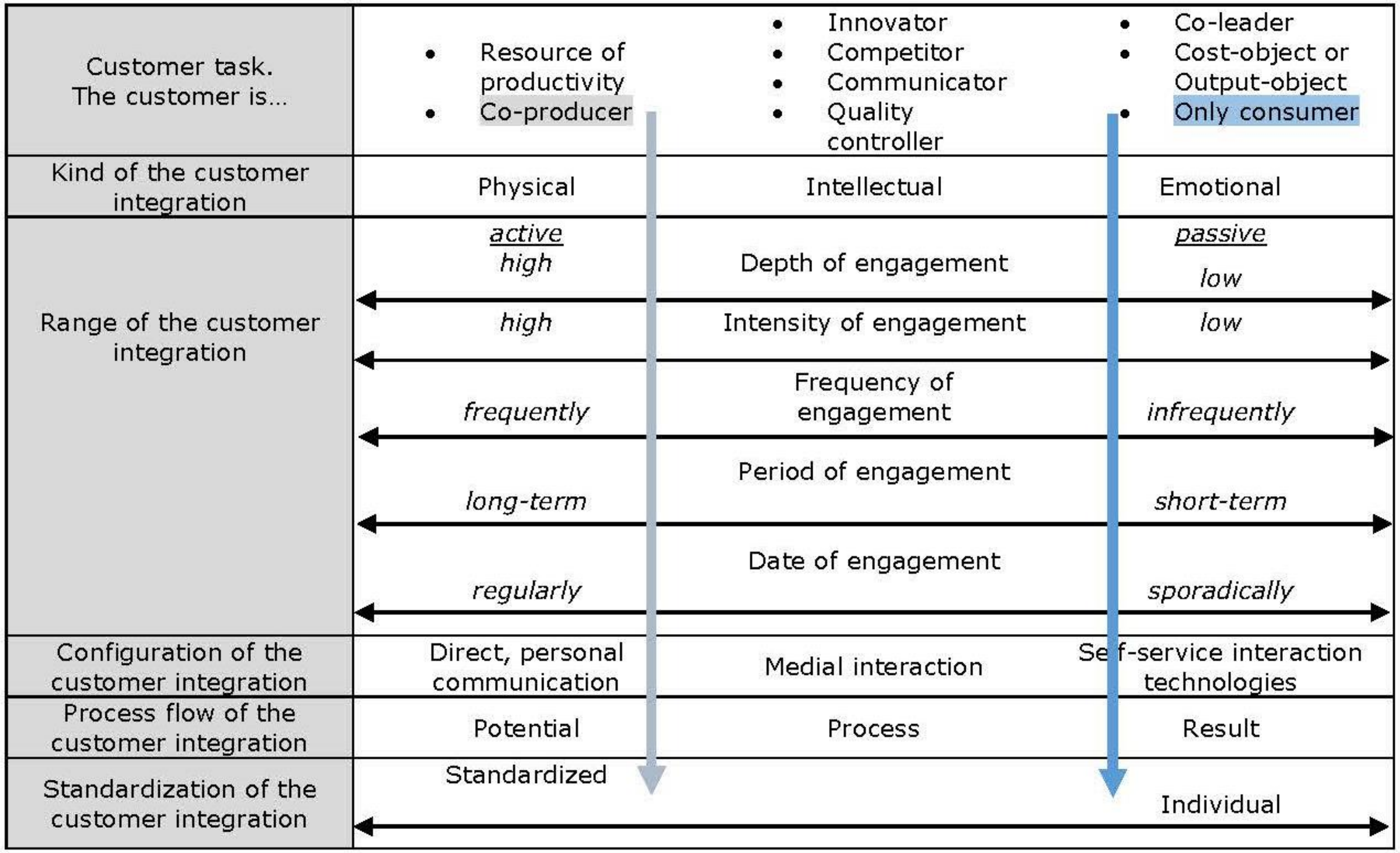
Thus, the author supports customer orientation as a business philosophy in which the customer is first in the value chain, but this idea must truly be learned and absorbed to be effective for all participants, and the consequences for the organisation must be considered, because the customer is central to all business activities. The initial impulse in customer orientation is to gain and disseminate relevant knowledge throughout the company's hierarchies, inevitably changing the corporate culture and therefore the behaviour of the participants. Again, all these activities occur in the customer's direction. If done well, long-term interrelationship, competitive advantage and profitability are enhanced.

Despite its general application, there are indeed heterogeneous outcomes of customer integration. For example, Chang (2018) discovered that incorporating activities into the innovation process can lead to improved results, but these depend on customers’ knowledge and hence knowledge management within the company’s organisational structure. There is no guarantee, however, of a synergistic improvement with customer orientation because multiple processes, such as collecting and testing ideas, must be considered. These experiences confirm that multiple factors are responsible for the outcomes of customer orientation, depending on the underlying context of the research.

For example, Fernandes, Rozenfeld and Costa (2016) examined both manufacturing and service industries with the aim of identifying specific methods of product development. Along the individual process chains of each industry, a clustering of homogeneous factors was found that showed that, among other factors, factors such as strategies, processes and culture climates were significant to business performance. More importantly, customer integration is of major relevance to product development and innovativeness, which confirms the findings of Racela (2014).

3.4.5.3 Customer orientation in German retail horticulture

In GRH, in the author’s experience, cooperation with the customer is essential in several business processes. For example, in landscape building, the customer often intends to do the planting on his or her own, and service providers do the planning and provide architectural resources. Figure 15 illustrates different kinds of customer participation.



Note: Blue = customer is only consumer; grey = customer is a co-producer.

Figure 15: Systematisation of customer integration. (Sources: modified from (Büttgen, 2007); (Bruhn and Stauss, 2009)

Through the example of the two model cases, different forms of customer integration are illustrated. The blue line shows the customer as a consumer only, and the grey line as a co-producer. The blue line uses the example of few interactions in the gardening industry through the one-time order of creating a new garden. Here, the customer is solely a consumer with a purely physical aspect, only ordering a service (building the garden), while an emotional, possibly intellectual, aspect is probable. The range of integration is therefore rather passive, with self-service or medial interaction, and he or she is predominantly interested in the outcome of the services. The end of the process is the payment of the seller’s bill. Standardisation is hindered, as this procedure is individualised.

The grey line provides another example, this time of high integration through check-in at an airport. Here, the consumer is actively involved in not only ordering but also facilitating the delivery process as a co-producer. From the seller’s perspective, the customers’ potential in the manufacturing process is outsourced to the customer, and standardisation is hence enabled. This illustrates the fact that several different characteristics can be applied, especially in the left column.

An example of knowledge conversion in GRH in terms of customer integration is in landscape building, where a skills shortage had become noticeable by the early 2010s, the beginning of the economic boom. At the same time, the standard wages of employees were rapidly increasing. Problems occurred when simple duties, such as lawn mowing, could no longer be carried out because prices grew too high for customers. This resulted in a competitive disadvantage compared to other providers outside of a particular sector of the industry, such as caretakers.

In 2009, a horticultural expert symposium (Future Symposium, 2020) was held to discuss the development of and future trends in the horticultural industry (Bundesministerium für Ernährung, 2009). Practice and science came together to engage with current and potential problems. One topic was the conflict between increasing standard wages and the company’s service portfolio variety, as well as which products or services could still be profitable. The debate among the experts was based on experience and thus tacit knowledge. Afterwards, however, these experiences were collected, summarised, recorded and externalised.

The horticulture industry, which undertakes technical innovation, used this information to produce the first lawn robot in the early 2000s. At present, it is a standard product on the German market. Modern customer service entails proposing that the customer buy a lawn robot from a preferred dealer, and the tending of the garden, which requires special skills, will subsequently be conducted by the service providers.

The second market orientation strategy, competitor orientation, is presented in the section that follows.

3.4.6 Competitor orientation

Competitor orientation is defined through various measures, such as market or environmental turbulence and competitive intensity (Kirca, Jayachandran and Bearden, 2005), and various studies on business performance have been conducted. For example, in a meta-analysis on Japanese manufacturing companies regarding interrelationships, Takata (2016) found a direct effect of elevated competition on increasing business performance. Didonet *et al.* (2012) support these findings through their work with small retailers in Brazil, which yielded a positive interrelationship under conditions of high environmental turbulence. These interrelationships are also supported in high-export industries (Navarro-García, Arenas-Gaitán and Rondán-Cataluña, 2014).

On the other hand, González-Benito, González-Benito and Muñoz-Gallego (2014) examined SMEs in areas of the European Union that are disadvantaged by a high level of competition. They found that interrelationships are inhibited by competitive intensity, which contrasts with the existing findings. A possible explanation could be that competitor orientation was considered a moderator, making it an indirect effect, which changes the effects significantly.

General statements on the competitive situation in GRH are difficult to make because of the diversity in company structures and portfolio variety, which hinders a clear classification; as detailed in Section 2, there is not only one type of GRH. The problem is that when there is no clear profile visible to the outside world, customers' perceptions can differ from those of the provider (Bacouel-Jentjens and Yang, 2019). Therefore, there is a risk that the customer will not be aware of the offerings, thereby strengthening the effect of competition. Hence, it is critical for management to sharpen their company's profile to remain visible to the customer (Killgus, 2008).

Competition is significant between both retailing providers and service providers.

3.4.6.1 Retailing providers

Considering that stationary retail nurseries are sparsely distributed, there is no real competition between them because their catchment area is quite large, with average distances of 10–20 km (Engelke, 2017a). For companies outside a particular industrial sector, however, such as do-it-yourself stores or gas stations, there is strong competition, and many companies struggle to gain market share (Bundesministerium für Ernährung, 2013b).

3.4.6.2 Service providers

Regarding intangible products, competition in service provision differs, as there are many sole proprietorships doing low-level gardening, such as lawn mowing, but professional full-service providers are also ubiquitous, with great portfolio variety. In this time of a booming German national economy that lasts for years, the trend towards services has also been visible in GRH, whose full-service providers are growing steadily in terms of market share and staff (Landesbetrieb IT.NRW Statistik und IT-Dienstleistungen, 2017). There are several more examples in GRH of companies that also conduct landscaping in offices, such as commercial cleaning companies, but only as a minor product, not as their core business.

3.4.7 Interfunctional coordination

Interfunctional coordination represents a significant dimension of market orientation and has been the subject of numerous studies. Interfunctional coordination is the communication and sharing of information and resources and the integration and collaboration of different functional areas or departments (Narver, Slater and MacLachlan, 2004). This is consistent with the work of with other scholars, who have made adjustments depending on the individual context. For example, in an international business-to-business survey of sales managers, Narver, Slater and MacLachlan (2004) analysed organisational units on entrepreneurship, customer-oriented sales and business performance, finding that the synchronisation of communication and dissemination of information were responsible for generating customer value.

On the topic of service innovativeness, extensive coordinated internal efforts by different units are necessary to achieve the corporate goals and objectives of introducing new products and services (Defee and Stank, 2005). In this context, hotel managers in Japan were analysed by Tajeddini, Altinay and Ratten (2017). They supported these findings through quantitative analysis and emphasised the positive association of organic structure and service innovativeness. These become stronger 'when all [a] company's functions make an attempt to cooperate and contribute to disseminating customers' and competitors' information' (Tajeddini, Altinay and Ratten, 2017, p. 100).

Other definitions are similar but vary based on the underlying context of the research. For example, Tomaskova (2018) investigated Czech manufacturing companies' interfunctional coordination and customer performance. Despite the small sample size, she found that interfunctional coordination can be responsible for economic success. She emphasised that interfunctional coordination aims to harmonise all processes and functions within an organisation to effectively spread and coordinate information both within and outside of the company. In accordance with others' definitions, interfunctional coordination is the connector between internal and external dimensions (e.g., customers, competitors) and thus is of central importance.

The effect of interfunctional coordination emerged in early research by Kohli and Jaworski (1990), and subsequent scholars have equated interfunctional coordination with interdepartmental connectedness, which is highly relevant to success. They postulated that sharing and disseminating knowledge across different departments through the intra-organisational structure is key. For example, Vieira (2010), in meta-analyses of different Brazilian and international sectors, found positive and stable relationships between them, whereas the strength of the effect can depend on various factors, such as the use of information. Following this argument, interfunctional coordination is an antecedent to performance.

The indirect effects of interfunctional coordination have also been comprehensively researched. In a cross-sectional online survey, Becker and Brettel (2017) examined learning orientation as a mediator. They identified both direct and indirect positive effects on performance and argued that, with market orientation, the basis for a learning orientation culture would be enabled. Hence, when direct and indirect effects occur, this is partial mediation (Jose, 2013).

In sum, without interfunctional coordination, market orientation cannot be implemented (Jangl, 2016), irrespective of a company's size (Tomaskova, 2018). Whilst SMEs differ from large companies in that they may have less complex structures, flat structures, little hierarchy, few management-control systems and a low degree of functional organisation (Hutzschenreuter, 2009), the dissemination of information, and hence knowledge transfer within the company, is important to all companies (Doran, McCarthy and O'Connor, 2019).

The effect of interfunctional coordination on improved performance can be argued with improved cross-functional teamwork irrespective of headcount but with more effective coordination (Dezso, Grohsjean and Kretschmer, 2012). Additionally, as interfunctional coordination is essential to organisational structures, it is also linked to strategic orientation (Tomaskova, 2018). A reason for improved performance with interfunctional coordination might be its close connection to innovativeness, and the combination of concepts often has positive outcomes (Alpkan, Şanal and Ayden, 2012). Accordingly, interfunctional coordination is central to business performance.

In a quantitative study, Engelke (2017c), found a predominantly lower level of employment and thus flat hierarchies in GRH firms. Nevertheless, as a significant portion of companies have more than one department of responsibility owing to their diverse structures, these companies achieve greater economic performance. This is not least because, due to their large portfolio variety, these departments require effective coordination and make clear the necessity of proper interfunctional coordination between departments.

3.4.8 Summary of market orientation

The review has revealed that all three dimensions – service differentiation, market orientation and service innovativeness – have a predominantly positive interrelationship with business performance, supporting the assumption that market orientation is in fact a strategic key driver that often, given the literature, contributes to business performance, on either direct paths (Liu, 2013) or indirect paths (Talaja *et al.*, 2017). Figure 16 shows the three strategies of market orientation.

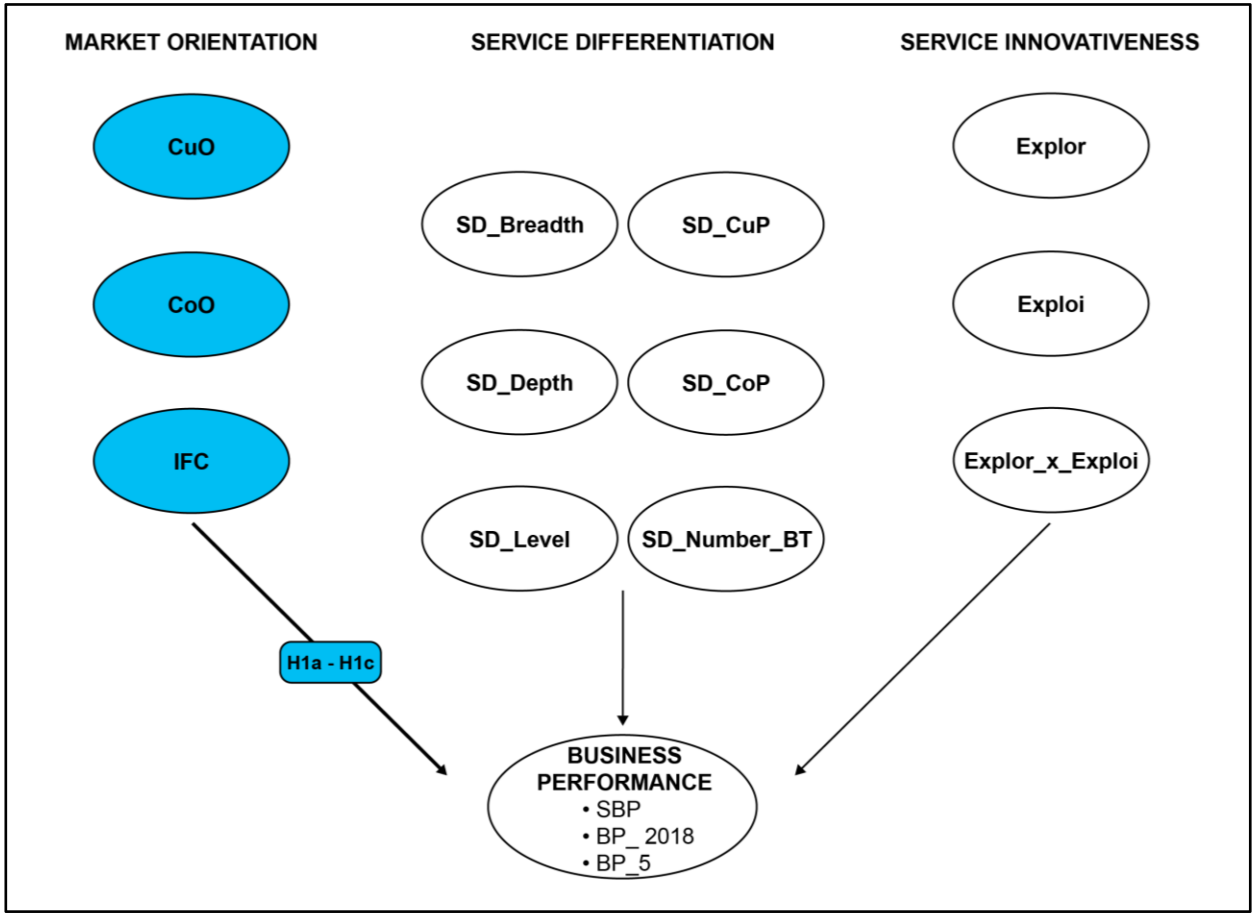


Figure 16: Proposed research model addressing the direct effects of market orientation and its three dimensions.

3.5 Service innovativeness

3.5.1 Introduction

As market competition increases, innovation becomes increasingly important to a company's survival (Nybakk *et al.*, 2009). Innovation is another strategic concept identified in previous research as a contributor to business performance (Alpkan, Şanal and Ayden, 2012; Talaja *et al.*, 2017; Acar and Ösazhin, 2018). Thus, service innovation is the second strategic concept focused on in the present study. Being innovative can make a company's structures more flexible, making it easier for the company to adapt to its business environment and enabling it to leverage opportunities more effectively than its competitors (Leal-Rodríguez and Albort-Morant, 2016).

Innovation is, generally, an important factor in economic development, for both the company's and social well-being. According to Kamaruddeen, Yusof and Said (2010, p. 67), 'innovation gives the organisation the ability to adapt and evolve to meet the changing market conditions and customer demands'. Moreover, 'it is generally and widely acknowledged as a key ingredient of productivity success and involves people, process and product' (Kamaruddeen, Yusof and Said, 2010, p. 67). Early research in innovation was conducted by Schumpeter in the 1930s; he described innovation as, among other things, the introduction of new products and processes, and the development of existing products, which opens up new markets (Gërguri-Rashiti *et al.*, 2017). Since these insights from Schumpeter were also something new, this was likewise innovation.

As markets require constant enhancement (Leal-Rodríguez and Albort-Morant, 2016), research in innovation remains popular not only in academia but also in management and practice. The aim is typically to conceptualise the condition of the company, with the factors relating to that condition occupying a large space in the field of organisational innovation. In the nascency of innovation research, several factors were identified as improving business performance. These occurred mainly on the product and process levels, owing to the dominance of manufacturing in that era, but a different understanding of marketing at that time was also a reason for product innovation. Services were considered inferior to products only when explicit knowledge was lacking. The advent of the service era (Schafran *et al.*, 2018) in the late 1920s ushered in economic structural changes. Since then, increasing attention has been paid to services, and the literature has described innovation not only in products but also in services, an advancement as well as an innovation in a wider sense. As innovation is a broad field, it must be distinguished from a similar term: innovativeness.

3.5.2 Innovation and innovativeness

In the literature, the terms 'innovation' and 'innovativeness' frequently appear, and there is ongoing disagreement about whether innovativeness is the antecedent or successor to innovation (Kamaruddeen, Yusof and Said, 2010). Kamaruddeen, Yusof and Said (2010) defined innovativeness as something new in the capacity or propensity to create new processes. Innovation, in their opinion, is the actual implementation of newly introduced or created processes. Thus, innovation is an outcome that follows innovativeness, when a foundation, for example, capacity or resources, is laid. The distinction between the arguments, however, is quite narrow and depends on the underlying context.

Given that 'innovativeness' is often employed with terms such as 'tendency', 'capability' or 'resources to adopt', or 'the degree of adoption of', 'new ideas' and 'innovations' (Davcik and Sharma, 2016), it is therefore an antecedent rather than an output of innovation. This aligns with the views of Acar and Ösazhin (2018). Conversely, Alexiev, Volberda and van den Bosch (2016) described innovativeness as the outcome of the innovation process, specifically the capacity of the provider to develop and introduce new products or services.

The necessity of innovation results in permanent changes to the business environment and contributes to business performance and hence competitiveness (Dodgson, 2017). Moreover, the distinction between innovation and innovativeness also depends on different organisations' perspectives, such as the technology, behaviour and culture of their participants (Kamaruddeen, Yusof and Said, 2010). The customer is one participant, and Hansen *et al.* (2006) emphasised that innovation is meant to increase customers' value, effectiveness and business performance. In their understanding, innovation and innovativeness can be treated either as interchangeable or separate. Whereas the former accords with most of the arguments above (e.g., new ideas or products), the latter describes the mean number of innovations over time, the mean time to innovation adoption and how regularly the company produces new ideas (Hansen *et al.*, 2006). Here, innovativeness is superordinate and has a more general description. Innovativeness is a characteristic of an individual or an organisation.

3.5.3 Service innovativeness as a distinct discipline in innovativeness

With the growing popularity of services and innovativeness, a distinct area of research was created, called 'service innovativeness'. In a general sense, it 'acts as society's engine of renewal and provides the necessary catalyst for the service sector's economic growth', according to Snyder *et al.* (2016, p. 2402). Nevertheless, disagreement exists in certain areas, such as regarding the different distinctions. A major uncertainty is whether only new products and processes, as in the Schumpeterian view (Toivonen and Tuominen, 2009), are incorporated or existing products are incorporated too (Ordanini and Parasuraman, 2011). In addition, some studies make no distinction (OECD/Eurostat 2018).

When innovation, innovativeness and service innovativeness relating to the research context are discussed in this study, 'service innovativeness' is employed as the overall term. Different innovation strategies exist – exploratory, exploitative and ambidextrous innovation – as noted in the literature (Jansen *et al.*, 2006; Kollmann and Stöckmann, 2014; Sackmann, 2017).

3.5.4 Service innovativeness in German retail horticulture

Only a few GRH studies on innovation exist (Klawitter, 2018). The horticultural industry is small, and innovation is limited but manageable (Bundesministerium für Wirtschaft und Energie, 2018). Nevertheless, there are still some activities that companies undertake in response to the projected needs of the markets in predominantly niche segments.

The situation differs for specialist horticultural literature, as innovation is popular in this segment. From a general horticultural perspective, innovation focuses on new technologies to improve company processes, such as industrial engineering, and to increase the attraction of the selling organisation. Indeed, the federal ministry, a higher-level industry association, frequently calls for more horticultural innovation from horticultural scientists and practitioners (Zentralverband Gartenbau e.V. 2018b). Financial support for leading innovations is also provided regularly through competitive awards from trade associations (e.g., the Taspo Award; Beeck, 2018b).

Such appeals from industry associations are generally lobbying to represent the interests of their paying members, for example, GRH firms. Here, both sides have an interest in investment: for the company, financial support drives innovativeness and improves its future prospects. The association benefits from the marketing effect: attractive innovations enhance public relations, drawing more members and, finally, strengthening the association. In this light, innovation makes sense, but investment depends primarily on management's readiness to believe in the company and industry. The company must also have the capacity to manage sufficient financial resources.

The reality is that, in times of increasing market challenges, to receive credit, horticultural companies need enough of their own capital to spend on research. When prospects are positive, creditors become more willing to supply credit. This is supported by interest rates, which have been low for the last decade due to an improving economic situation. Additionally, horticultural consultancies, such as Gartenbauberatungsring, offer advisory services spanning several disciplines: marketing, production planning and economic support. Gartenbauberatungsring has an agenda of assisting with key operating figures as a basis for bank advisers. This is important because to borrow capital, the borrower requires sufficient capital of their own. Irrespective of the individual financial situation, one argument should bring the importance investing home to management: continuing investment is critical to a company's long-term existence in the market (Gitman *et al.*, 2011).

Minimal explicit knowledge exists about GRH, and the predominantly implicit knowledge from practitioners prevails and is published in professional rather than academic journals. Nevertheless, some academic studies on the field do exist. For example, in a quantitative survey, Roper and Love (2002) examined the effect of innovation level on export performance in manufacturing plants in the United Kingdom and Germany. They assumed that the higher the level of innovation, the stronger the export performance, and this positive interrelationship did indeed exist in both countries, though there were differences.

Roper and Love (2002) argued that different levels of innovation intensity and the differing readiness of market performance depends on the individual market, the type of product and the industry specifics. They called for future research on other products. Following this, the type of product is an influencing factor in the innovation–export performance link. In German horticulture, however, portfolio variety is diverse, as both products and services are offered but with an increasing tendency towards services (Engelke, 2017c). Adapting the results from Roper and Love, then, for GRH is unsatisfactory, as services are not considered in their model.

In a literature review, Klerkx, Aarts and Leeuwis (2010) systematised different innovation systems in the agricultural industry. Agriculture is superordinate to horticulture, which is one subsection, among others. They called for future research that pays more systematic attention to explicit and implicit paradigms which influence innovation level, as agricultural and industrial innovation differ significantly. Furthermore, socio-technological trajectories must be considered, including target markets, such as niche segmenting.

Explicit knowledge on innovation in German horticulture currently focuses on digitalisation and artificial intelligence (Taspo, 2019), especially on products from the crop-growing (i.e., manufacturing) perspective, such as automatisation, sensorics and plant breeding. General innovation systems target big data and energy conservation (ZVG Gartenbau Report, 2019), and service innovativeness is only a minor focus, apart from research on processes, which encompasses services and manufacturing. For example, in a broader sense, robotics in vertical gardening aims to support the regular maintenance of manufacturing plants, which to date remains manual (Weik, 2019). Accordingly, this is an exploratory innovation that improves operational processes. In addition, innovation in GRH has not been routinely analysed in recent years. Nevertheless, in terms of digitalisation, exploitative innovations have indeed arisen, with new merchandising management systems, the presentation of products, online marketing and pricing. These are promising areas regarding horticultural services (Schnalke, 2019).

Another exploitative process innovation is the modernising of the interior of the selling organisation – for example, product carriers to optimise the sales area. Furthermore, another important innovation is expanding portfolio variety with services such as interior cafes (Beeck, 2018b). Apart from the enhancement of the store's attraction, it draws more customers, which enables the implementation of new cross-selling strategies to improve business performance (Clauss, 2017). From an organisational perspective, establishing a new product such as a restaurant, which is an exploratory innovation, is not a core competence of GRH. The record of such radical innovations in recent years shows that companies did well by creating catering as an independent department within the company with its own specialised staff and responsibilities. Hence, the organisational structure must adapt to a higher level of departmentalisation and specialisation. This requires organisational knowledge combined with managerial experience (Domínguez Escrig *et al.*, 2019).

Wendebourg (2018) noted that more innovations are performing well in terms of cooperation, business organisation and corporate concepts, which fall under process management and services rather than products. One example from the horticultural industry of a new concept concerning product innovation is a packaged vegetable assortment, called Veggie Sisters, which targets young vegetarians in an increasing niche market. In terms of innovation strategies, the cooperation here is mainly between companies within the same horticultural industry, such as vegetable gardening and horticultural consultancy. Veggie Sisters is a new brand with an existing product (vegetables), but the product is refined in size, layout and application, and hence an exploitative innovation for new markets.

Another example is in cemetery horticulture, with an outright new product called NaturRuh [Rest in Nature]. The motivation originated from a horticultural institution to help nurseries gain new markets in terms of shrinking funerals and changing burial rites over the last decade. As there is also presently a tendency towards alternative burials, such as burial in nature or forests, this new concept incorporates not only the core competencies of caring for burial plots and plants but also the organisation of the burial process, masonry and other related maintenance groups as an all-around no-maintenance package for customers. This is both exploration and exploitation and therefore an ambidextrous innovation strategy.

3.5.5 Relationship between service innovativeness and business performance

Innovation is widely accepted as a major driver of economic growth in terms of competitive advantage. Thus, innovation has been extensively examined. According to McDermott and Prajogo (2012), there are two major fields in innovation studies: innovation from the internal and external perspectives, and the effect of innovation on business performance. In a quantitative analysis of small Australian service companies, McDermott and Prajogo (2012) split innovation into the three dimensions which served as moderator variables. Based on regression, only the associated variables positively related to business performance, with the additional effect of size as a control variable. They also found that environmental factors (uncertainty and hostility) had a moderating effect in all three variations, independent of industry sector.

Associated interaction, also called ‘ambidextrous innovation’, constitutes its own part of the innovation literature. For example, Alpkan, Şanal and Ayden (2012) defined ambidextrous innovations as those using two separate innovation strategies. Given this, they found a positive interrelationship between both exploratory and exploitative innovation in the research context, but these differed between exploitative and exploratory innovation strategies. For example, exploitative innovation prioritises efficiency and customer satisfaction, leading to relatively small changes to existing products and business concepts. The aim is to improve existing product–market positions to respond to the needs of existing customers or markets. Thus, exploitative strategies prefer existing organisational knowledge.

On the other hand, exploratory innovation strategies use new technologies to create new products or services and necessitate new knowledge and departures from existing skills. In a study of newly founded Mexican manufacturing companies (so-called 'global-born' firms), Martin, Javalgi and Cavusgil (2017) found evidence that ambidextrous innovation has a positive, but only moderating, effect on competitive advantage. This means it does not take a direct path, although it does indirectly relate to business performance. Furthermore, with innovation, irrespective of the three strategies, attraction and buying power, and therefore performance, is increasing, as numerous studies have shown (Suhartanto, 2017).

Leal-Rodríguez and Albort-Morant (2016) observed that constant renewal of a company's products and services is necessary, as these quickly become obsolete. In this sense, the organisation's ability to renew its knowledge base provides it with an advantage over its competitors in the innovation competition and hence improves its performance. In a survey of SMEs in the Spanish automotive sector, Leal-Rodríguez and Albort-Morant (2016) found a positive interrelationship between innovation and business performance. Innovation improves a company's capacity to face uncertainty in currently competing fields.

In services, the employee plays a central role, as personnel costs are the biggest cost pool in the business assessment of the organisation (Eckardt and Skaggs, 2018). In a longitudinal survey of service companies in Italy, Cainelli, Evangelista and Savona (2004) found that innovative companies outperformed non-innovative companies in terms of productivity levels and economic growth. But highly innovative products do not automatically imply highly innovative companies, as García Álvarez-Coque, Alba and López-García Usach (2012) determined, concluding that there was no automatism in this respect.

3.5.6 Summary of service innovativeness

This literature review provides a wide spectrum of relevant information from innovation via innovativeness to service innovativeness. Despite disagreement regarding the correct classification of innovation and innovativeness, service innovativeness, in the researcher's opinion, is a company's capacity to create a new innovation, following Acar and Ösazhin (2018), but also the tendency, capability and resources to adopt, and the degree of adoption of, new ideas (Davcik and Sharma, 2016). Thus, only when some of these conditions have been met does innovation occur. From this viewpoint, the underlying framework of the present study supports the view that service innovativeness is an antecedent to innovation and not vice versa.

The three innovation dimensions differ in terms of performance, and ambiguity exists among them. More precisely, although each can positively contribute to business performance on direct paths, as a body of research has shown (e.g., Suhartanto, 2017), ambidextrous innovation strategies are more likely to support performance. Divergence will occur, as the narrative literature review has not covered all the innovation literature. It seems clear that innovativeness in services is positive in terms of gaining competitive advantage, but often only when more contingency factors are embedded, following an indirect path to performance.

From this viewpoint, the assumption that innovation is generally a strategic key to success (Verhees and Meulenberg, 2004; Liu, 2013; Acar and Ösazhin, 2018) must be critically questioned, and the underlying context is crucial. The author hoped that the present study would reveal new knowledge in this respect. On this basis, he expected that all three innovation strategies would respond positively to business performance, as markets and customer behaviours have been continuously changing for the past few decades (Carr, 2016). This requires new efforts on behalf of horticultural companies in terms of saturation because their products are available in multiple distributions, including outside particular sectors of horticulture. This development appears mainly in physical products and less in horticultural services, which to a large extent are not comparable (Eckardt and Skaggs, 2018).

The next section presents the interrelationships between the three concepts and serves to connect them. The review of the literature has shown not only that each concept does not simply have a single effect but also that interrelationships exist among the concepts. The following section leads over to the second research gap.

Figure 17 illustrates the three strategies of service innovativeness.

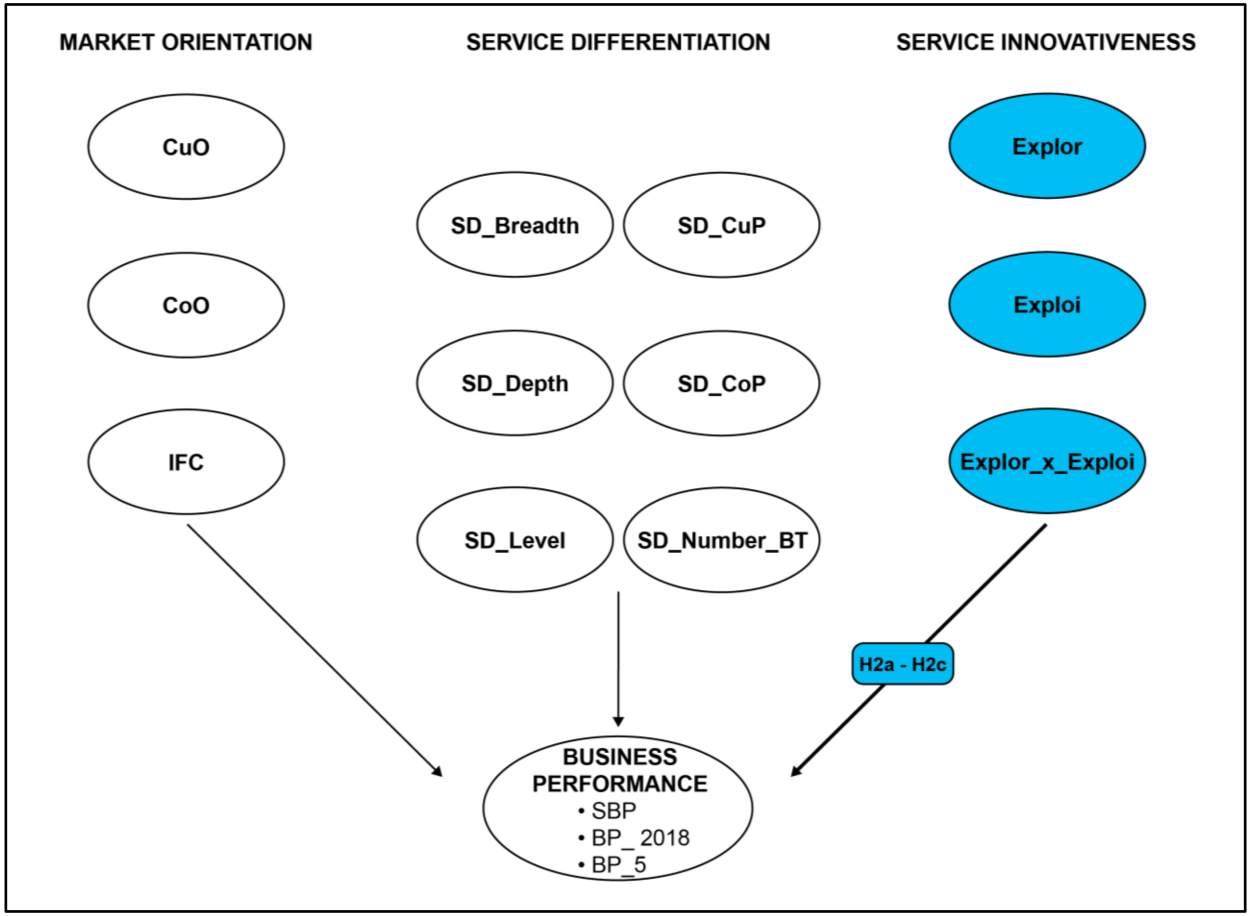


Figure 17: Proposed research model addressing the direct effects of service innovativeness and its three dimensions.

3.6 Interrelationship

3.6.1 Interrelationship between market orientation and service innovativeness

Numerous studies have concentrated on the interrelationship between market orientation and service innovativeness (Abdul-Halim *et al.*, 2018; O'Dwyer and Gilmore, 2019), and market-oriented companies clearly display more innovation (Lin, 2019). Consequently, most studies have confirmed that market orientation helps a company build its innovativeness (Hansen and Nybakk, 2016). There is also consensus that the ultimate aim of developing a market-orientation strategy must address the enhancement of the company's innovativeness (Santos-Vijande *et al.*, 2005) and that it helps a company build its innovativeness (Hansen and Nybakk, 2016).

Still, the causal direction in which this interrelationship proceeds is unclear. Some scholars have argued that innovativeness enables continuous monitoring of the company's competitors, which leads to improved performance (Simpson, Siguaw and Enz, 2006). Others have argued the opposite. For example, Liao *et al.* (2011) found a strong market orientation towards maintaining a close interrelationship with customers and their changing demands. Both sides contribute to the ongoing debate of antecedents versus consequences in this interrelationship. Several meta-analyses have also been conducted. For example, Alshahry and Wang (2015) examined the literature with a focus on this debate, concluding that no clear path in the interrelationship is more effective than another, as the arguments on both sides depend on the underlying research context. Prominent factors that in their opinion concern business performance include environmental conditions, such as the organisational culture; target orientation (e.g., customer, suppliers); innovation orientation and strategic orientation (e.g., leadership, strategic emphases).

In terms of innovation strategies, Alpkan, Şanal and Ayden (2012, p. 463) criticised market orientation because it limits organisations' ability 'to expand beyond their served markets and restricts innovativeness since market-oriented companies might extremely overemphasise their existing customers' needs'. They claimed that market orientation with an ambidextrous innovation strategy is most effective as a combination of creating new and refining existing services. Again, there is no consensus. Intriguing conclusions have been drawn by Baker and Sinkula (2005), who found significant effects between market orientation and new products' success and observed that only the coordination of the company's resources and capabilities was required for success. Otherwise, innovation was good only for customer acceptance but not for profitability, as other services would be cannibalised. This behaviour is inconsistent with the company's interests.

This aligns with Bhattarai, Kwong and Tasavori (2019), who described exploratory innovation as a suitable strategy for developing innovation capabilities. In terms of customer needs, Kirca, Jayachandran and Bearden (2005, p. 25) argued that it is market orientation that enhances an organisation's innovativeness and new product performance 'because it drives a continuous and proactive disposition toward meeting customer needs'. Here, innovativeness is a consequence of market orientation. In this context, Baker and Sinkula (2005) asserted that most innovativeness studies are the consequences of market orientation and that organisational structure (formalisation or centralisation) is the antecedent, which affects performance. They argued that the greater the formalisation, the more the interfunctional coordination is reduced, with a corresponding reduction in performance.

Several studies have shown a positive interrelationship between customer integration and innovativeness. Especially in the early stages of the customer integration process, the customer can help identify real market needs and thus improve product or service quality (Kumar and Reinartz, 2018), but success depends on how much information the companies obtain (Ruekert, 1992). On the other hand, there is also risk, for example, dependency, loss of know-how and limitations to only incremental innovation (Enkel, Kausch and Gassmannn, 2005), which can burden companies following a market-orientation strategy.

In this light, Cheng and Krumwiede (2012) determined that, whereas customer integration supports incremental innovation, interfunctional coordination can enhance radical innovation. Thus, innovativeness and market orientation are closely related in the context of customer integration, so the type of innovation depends on the company's market orientation. Hence, when the customer is incorporated, management must be aware of the potential consequences (Martinelli and Tunisini, 2018). Blankson *et al.* (2013) reported that, over the years, direct effects on business performance and indirect paths between market orientation and innovativeness (González-Benito, González-Benito and Muñoz-Gallego, 2014) predominate. Both directions are positively connected to business performance.

In sum, an interrelationship exists between market orientation and service innovativeness, and service characteristics are the connectors between them. Customer participation in particular is a central link (Kamaruddeen, Yusof and Said, 2010; Baines *et al.*, 2017). Researchers agree on a positive relationship between the concepts, but they have also called for the incorporation of contingency factors that could affect them most, such as environmental factors (Tomaskova, 2007; Rossiter, 2012). This interrelationship addresses the second research gap.

3.6.2 Interrelationship between service innovativeness and service differentiation

By their labelling, both strategic concepts imply services, but in different contexts. Service innovativeness represents the 'willingness and desire to seek new processes and services', while 'service differentiation refers to the actual creation and delivery of the new offerings', according to Ralston, Grawe and Daugherty (2013, p. 140). Accordingly, service innovativeness is an antecedent to service differentiation. Ralston, Grawe and Daugherty (2013), in a survey of US logistics and supply chain managers, found an isolated significance of business performance individually, but also in combination. They argued that 'greater benefits are likely when the capabilities are pooled and can support one another' (Ralston, Grawe and Daugherty, 2013, p. 140). Lin (2019) detected this in samples from three retail formats in Taiwan that perceived retailer service innovativeness as having become a critical strategic tool. It is therefore an antecedent as well.

3.6.3 Interrelationship between market orientation and service differentiation

The close connection between the two concepts derives from customer segmentation as a strategy for gaining competitive advantage. From a resource-based view, this is a differentiation of marketing resources. Companies that can differentiate their services from those of their competitors have an advantage (Kiessling, Isaksson and Yasar, 2016).

Kharabsheh, Jarrar and Simeonova (2015) examined manufacturing and service companies in Jordan and found a strong interrelationship between service differentiation and market orientation on direct paths. In contrast, Chin, Lo and Ramayah (2014), based on the analysis of structured questionnaires completed by executive-level employees of hotels in Malaysia, asserted that customer orientation and service differentiation are related, but only since they serve as a successor of business performance. Hence, the relationship is on an indirect path. Lam *et al.* (2012) produced similar results in an analysis of data related to service firms. They found that market orientation first relates to service quality as a performance measure, and, as an outcome, this enhances a company’s differentiation over its competitors. Similar outcomes on the relationship between market orientation, service differentiation and performance via service quality was found from Polat and Donmez (2010), who examined Turkish contractors.

Nadiri and Mayboudi (2010) offered a more general explanation based on their work with students in Northern Cyprus. They suggested that the customers’ needs must first be realised and eventually modified. In terms of customer-oriented marketing, Reijonen and Laukkanen (2010) surveyed SMEs in three industries in Finland. The sequential process, in their opinion, is as follows: customer information gathering, customer segmentation, creating value through differentiation and, finally, managing customer profitability. Ultimately, the ‘greater a firm’s customer orientation, the more the firm is able to develop a competitive advantage based on innovation and market differentiation' (Zhou, Brown and Dev, 2009, p. 1063). Hence, service differentiation is a successor to market orientation. In terms of a resourced-based view, Griffiths, Elson and Amos (2001) called for embedding more 'soft' (i.e., added) services to improve business performance. This work is nearly two decades old, so it is astonishing that since then only limited research has been conducted, given the continuing popularity of services.

3.6.4 Interrelationship in the triumvirate of service differentiation, market orientation and service innovativeness

As has been comprehensively described, three competitive-advantage strategies exist, but differentiation strategy is the focus of this study. Sufficient evidence exists that there is relationship between competitive advantage strategies and performance, either directly or via a mediator on the indirect path (Kamboj, Rahman and Zillur, 2017).

Song, Nason and Di Benedetto (2008), in a cross-national study of manufacturing companies, found positive effects on some market orientation dimensions, whereas Bustinza *et al.* (2015, p. 53) showed 'that increasing differentiation and high customer satisfaction are fundamental to achieving competitive advantage and superior performance with services'. This concurs with the findings of Wan (2011), who identified direct and indirect effects of both product differentiation and service differentiation on performance through distributor channels. Likewise, this is consistent with the findings of Gebauer, Gustafsson and Witell (2011), who found interrelationships between customer orientation and service innovativeness in manufacturing industries that were transitioning into service providers, which is an extremely common movement within organisational structures (Rajala *et al.*, 2019). In this context, Kowalkowski, Gebauer and Oliva (2017) examined the service transition process in market-oriented manufacturers. They determined that innovation has a significant effect on sales performance when service differentiation is embedded as a mediator. Recent research from Baron (2020) also found positive links with both concepts.

In a systematic review of the literature on servicing, Raddats *et al.* (2019) identified five major streams for categorising industry services. One is product–service differentiation, where products and services are combined as augmented products to distinguish them from similar products offered by other providers. This includes, for example, a generous return policy or free cooking classes when buying kitchenware. They argue that both the product and service are similar and gain an advantage over competitors for the company because the services are predetermined to support the core product sales and customer loyalty. Both target increasing customer value (Kowalkowski, Gebauer and Oliva, 2017).

An exhaustive study on business performance found positive effects on both market orientation (Davcik and Sharma, 2016; Talaja *et al.*, 2017) and service innovativeness (Hult, Hurley and Knight, 2004; Verhees and Meulenberg, 2004; Liu, 2013;). Service differentiation in combination to the others, however, has been only partially explored.

Specifically, product differentiation can significantly mediate the market orientation–performance relationship (Li and Zhou, 2010). In a survey of SMEs, Puspaningrum (2020) noted that competitive advantage strategies with product differentiation are successful for companies that focus on customer orientation, competitor orientation, and interfunctional coordination when they develop or innovate new products in parallel. This follows Zhou, Brown and Dev (2009), who found in an older study that business performance is strongly dependent on a company's customer orientation, innovation and market differentiation. Furthermore, Mpandare and Li (2020) identified continuous efforts in product differentiation in product innovation and differentiation in market-oriented social-media industries.

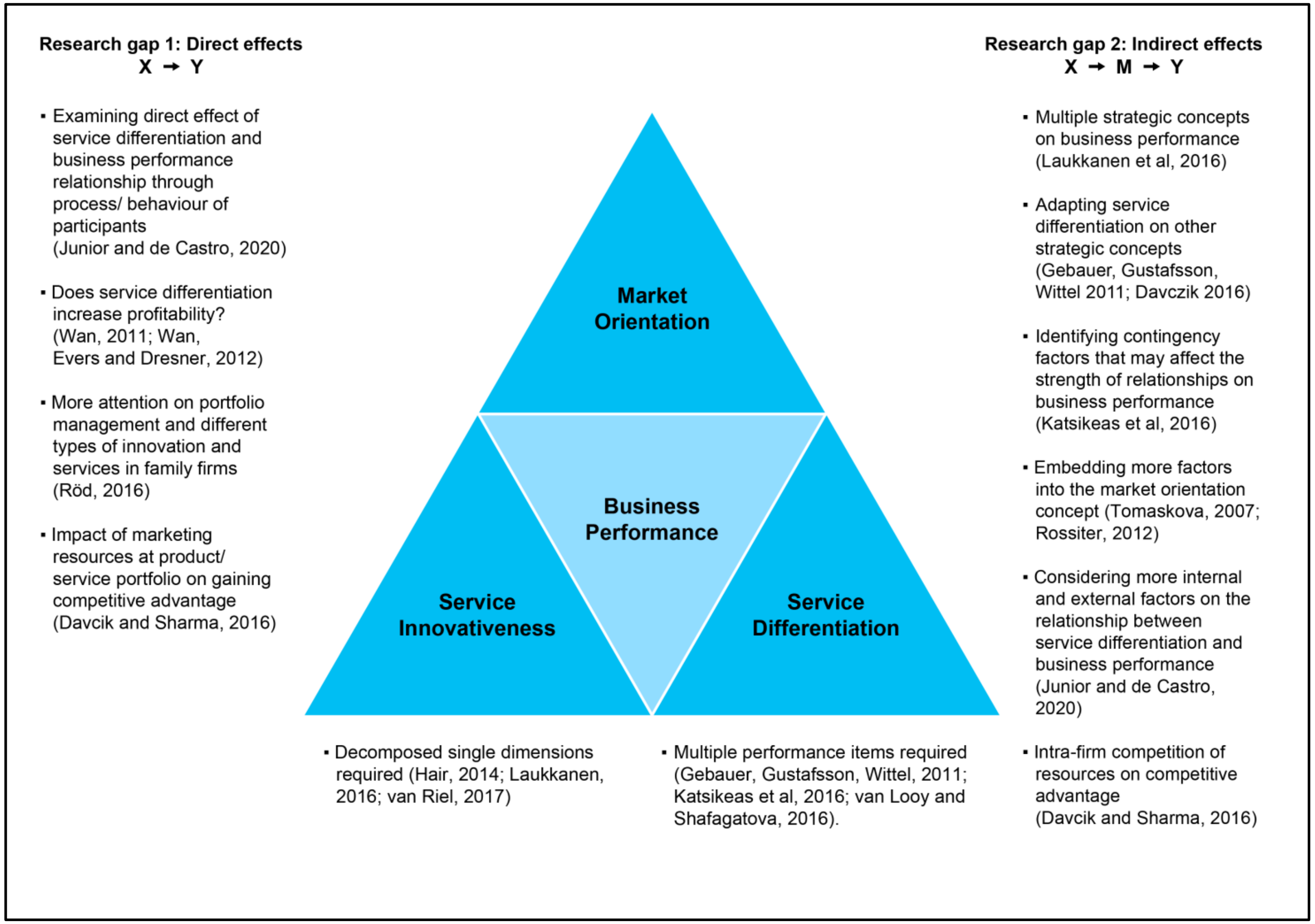
Gebauer, Gustafsson and Witell (2011, p. 28) asserted that 'only the combination of service differentiation with other factors can translate into valuable resources that are neither perfectly imitable nor easily substitutable', which supports the views of Hoopes *et al.* (2003) and recent research from Baron (2020), who sought to identify positive interrelationships between service differentiation and other factors. Gebauer, Gustafsson and Witell (2011, p. 6) further noted that 'for a service provider, service differentiation represents the main strategic priority, built on the company's customer centricity and innovativeness'. This research is also relatively old, but since then, despite positive outcomes in the existing research, only scattered investigations in this constellation have been conducted.

In summary, positive interrelationships in the triumvirate of the three concepts and performance were proven, but predominantly product differentiation was affected. Service differentiation has only partially been explored in research, giving rise to a major research gap, as differentiation with services has other requirements because customer involvement must be considered (Kumar and Reinartz, 2018).

3.6.5 Conclusion: interrelationships between the concepts and performance, leading to the research gaps

The literature provides evidence of interrelationships among all strategies focused on in the thesis, which explains the logical chronology of the study. Starting from business performance, closely related to competitive advantage, it is clear that both internal and external capabilities can be found within the three strategic concepts. In particular, interactions with customers, management and human resources (i.e., employees) favour customer orientation, a potentially key factor in gaining competitive advantage over competitors (Evans, 2016). Additionally, the capabilities of the service portfolio favour sufficient marketing resources (Davcik and Sharma, 2016) and innovativeness (Crossan and Apaydin, 2010). Thus, all three strategic concepts are interconnected and respond to business performance, which is in line with the research rationale. But most researchers concentrated on product differentiation, whereas service differentiation has been neglected. This is a major research gap.

Figure 18 presents an overview of the three concepts and the corresponding gaps in the scholarly work. In this figure, X represents the independent variable, Y the dependent variable and M the moderator or mediator variable. The authors of the relevant studies are cited in round brackets.



Note: X = independent variable, Y = dependent variable, M = moderator/mediator variable

Figure 18: Overview and how to address the research gaps.

3.7 Gaps in the existing research

Against this background, the thesis aims to explore the direct and indirect effects of service differentiation on the strategic concepts of market orientation, service innovativeness and business performance. Two important research gaps were detected in the literature review; these relate to direct effects (the first gap) and indirect effects (the second gap) of service differentiation on performance. These gaps, addressed in this study with hypothesis testing, are illustrated in Figure 18.

3.7.1 First research gap: direct effects

While numerous publications have concentrated on product differentiation (Aas, Breuning and Hydle, 2017), to date only a few studies have examined service differentiation in terms of service variety (Kowalkowski, Gebauer and Oliva, 2017). It is important, however, to examine portfolio management by responding to previous calls (Röd, 2016; Davcik and Sharma, 2016).

While many studies have been conducted on the direct relationships of market orientation and service innovativeness (Verhees and Meulenberg, 2004; Liu, 2013; Talaja *et al.*, 2017; Acar and Ösazhin, 2018), researchers have also called for more research on service differentiation. Only a few studies exist on service variety, which is essential to service differentiation. The portfolio is often equated with variety, offerings or the product–service mix (Kleinaltenkamp and Jacob, 2006; Meffert and Bruhn, 2009). Horizontal and vertical differentiation (Ozdemir, Kandemir and Eng, 2017) are prominent concepts which are often applied in marketing research (McDermott and Prajogo, 2012; Hamzah, Othman and Hassan, 2016; Leal-Rodríguez and Albort-Morant, 2016; Newman, Prajogo and Atherton, 2016; Becker and Brettel, 2017). These strategies, also known as service breadth and service depth (Bruhn and Blockus, 2011; Fließ and Luxett, 2019), together with effective market orientation and service innovativeness, can lead to a superior competitive position (Fließ *et al.*, 2015; Kiessling, Isaksson and Yasar, 2016; Lin, 2019).

A closer review of the literature on service variety revealed additional indicators that are seldom applied in academic research: level of differentiation and differentiation by customer or competitor preferences (Gebauer, Gustafsson and Witell, 2011; Ralston, Grawe and Daugherty, 2013). These suggest a provocative signpost regarding the first gap. In this context, Davcik and Sharma (2016) claimed that, from a resource-based view, there is a demand for more research into marketing resources and product or service portfolio variety and competitive advantage. Incidentally, these research gaps are accompanied by a call from Bustinza *et al.* (2015, p. 63) to 'explore other aspects of advanced services that may support higher performance' and a question from Wan (2011), who asked whether service differentiation could increase profitability. Since then, only a few studies have been undertaken in this area.

Principally, as explained, both concepts are in fact marketing resources, including internal and external factors, and the effect of service differentiation can respond to this gap. Therefore, this study aimed to identify the direct relationship of each concept with performance. On this basis, in a first step, the researcher investigated which individual items in each concept directly relate to performance, addressing the first research gap. Furthermore, the overview of concepts led to a preliminary stage in the second research gap, where indirect paths were examined. Thus, in the next step, the potential moderating and mediating effects (Jose, 2013) of all strategies on business performance are explored.

3.7.2 Second research gap: indirect effects

Because most research in strategic marketing has deployed only individual strategic concepts in relation to performance, there have been calls from Hair, Gabriel and Patel (2014) and Laukkanen *et al.* (2016) for more research involving a simultaneous exploration of complex multiple strategic concepts. Junior *et al.* (2020) also requested an exploration of more internal and external factors in the relationship between service differentiation and business performance. Specifically, Junior *et al.* (2020) claimed that more strategies concepts must be added to the market orientation and innovation relationship to gain a deeper understanding of this relationship, especially in small companies with few employees, where organisational structure is often inferior. As adapted for the present study, service differentiation is such a strategic concept, and it was employed to delve into the relationship between market orientation, service innovativeness and business performance through the example of GRH.

When services are offered, it is assumed that service differentiation strategies can change the formerly direct relationships (Chin, Lo and Ramayah, 2014). To date, limited research has been conducted on all three concepts in one model. Kowalkowski, Gebauer and Oliva's 2017 study was a response to calls from other scholars (Ralston, Grawe and Daugherty, 2013; Guajardo and Cohen, 2018; Raddats *et al.*, 2019) for more research on service differentiation in combination with other strategic concepts in one model. In 2011, Gebauer, Gustafsson and Witell similarly requested more research into the effect of service differentiation on other strategic concepts. Since then, however, little research has been conducted in this context.

The existing research in this constellation was performed by Zhou, Brown and Dev (2009) and Gebauer, Gustafsson and Witell (2011), who stated that business performance depends strongly on the company's customer orientation, innovation and market differentiation in its interrelationships. In several other studies, solid evidence of an effect of market orientation and service innovativeness on performance was found (Kibbeling, van der Bij and van Weele, 2013; Alshahry and Wang, 2015; Bamgbade, Kamaruddeen and Nawi, 2017). In addition, the interrelationship between market orientation and service innovativeness has been explained well. This is important, as both the competitor and the customer are involved, and the interfunctional coordination of knowledge inside the organisation is central (Kharabsheh, Jarrar and Simeonova, 2015; Tomaskova, 2018). The interrelationship between service differentiation and service innovation has also been comprehensively explained (Zhou, Brown and Dev, 2009; Lin, 2019). Ralston, Grawe and Daugherty (2013, p. 140) stated that differentiation 'refers to the actual creation and delivery of the new offerings', whereas service innovativeness represents the 'willingness and desire to seek new processes and services'. From this perspective, service innovativeness is an antecedent to service differentiation.

These examples show that all three strategic concepts are interconnected to some degree, and, in addition to single-factor research designs, multiple-factor designs are required. This is the second research gap. Both gaps offer promising directions for the research aim.

Relatedly, two important methodological aspects were also identified: decomposed dimensions and multiple performance indicators. As they do not represent a strategic concept to test but act as an essential part of both gaps, they were not hypothetically tested.

3.7.3 Decomposing

As both market orientation and service innovativeness are global strategic concepts (Sørensen, 2009), they are often treated as composite factors in structural equation modelling (Hair, 2017; Rajendran, 2019). Thus, they represent latent variables that serve as parents of the single dimensions, which are the decomposed dimensions (van Riel *et al.*, 2017).

Whereas most marketing research concentrates exclusively on composite models, in part due to parsimony (Hair, Gabriel and Patel, 2014), few researchers have examined single aggregate measures. Following Laukkanen *et al.* (2016, p. 35), more research on decomposed dimensions should be conducted because ‘treating market orientation as a global construct may result in incomplete information about what drives business performance’. Accordingly, informative value can be increased.

3.7.4 Multiple performance indicators

As in marketing research, different performance measurements exist, often with either financial or non-financial outcomes (Bustinza *et al.*, 2015). There is consensus in the literature that a combination of both financial as well non-financial indicators is required because information value can be increased (Miller, Washburn and Glick, 2013). On the other hand, there is disagreement about whether objective and subjective indicators must be combined (Goshu and Kitaw, 2017). Therefore, researchers have called for multiple performance indicators, including not only financial and non-financial items but also objective and subjective items (Katsikeas *et al.*, 2016; Laukkanen *et al.*, 2016; van Looy and Shafagatova, 2016). To date, most advocates have preferred objective indicators (van Looy and Shafagatova, 2016).

4. HYPOTHESES AND MODEL DEVELOPMENT

4.1 Introduction

In the previous section, the literature review highlighted two important research gaps. In this section, to address the research aim, both gaps are examined and the appropriate hypotheses developed. The three concepts discussed in Section 4.2 address the first research gap, and the moderating and mediating effects discussed in Section 4.3 address the second research gap. Ultimately, an overview of all hypotheses is provided in Table 4, and the entire research model is presented in Figure 19.

4.2 Development of hypothesis addressing the first research gap (direct effects)

The literature review suggests the existence of solid theory on the interrelationship between each of the three strategic concepts and business performance as global concepts. Hence, the future calls for multiple strategic concepts are addressed.

The three concepts differ, however: while adequate evidence supports market orientation and service innovativeness as both global concepts and single dimensions, in service differentiation, only a selection of single dimensions relate to performance. There is no evidence of relationships as a global concept. This corresponds to the first research gap. Therefore, in Hypotheses 1 and 2, positive effects are assumed, but in Hypothesis 3, both specifications are expected.

4.2.1 Direct effects between market orientation and business performance

In quantitative analysis, market orientation is often addressed using the primary MKTOR scale developed by Narver and Slater (1990). Despite its age and the permanent refinements it has undergone since its development (e.g., Amin *et al.*, 2016), the scale remains relevant. Consequently, this scale, based on a prebuilt three-dimensional hypothesis set, has been applied in the current thesis.

As the literature review revealed, research supports the predominantly positive relationships to business performance of all three dimensions and the assumption that market orientation is in fact a strategic key driver that often contributes to business performance (Verhees and Meulenberg, 2004; Liu, 2013; Talaja *et al.*, 2017). Thus, the hypotheses in the current studies were formulated as follows:

- **H1a:** Customer orientation has a positive effect on business performance.
- **H1b:** Competitor orientation has a positive effect on business performance.
- **H1c:** Interfunctional coordination has a positive effect on business performance.

4.2.2 Direct effects between service innovativeness and business performance

A prebuilt three-dimensional hypothesis set of service innovativeness appears in the literature, including in the work of McDermott and Prajogo (2012) and Jansen *et al.* (2006). Yet the three innovation strategies differ in performance, and there is ambiguity. More precisely, although each can positively contribute to business performance on direct paths, as the body of research indicates (Suhartanto, 2017), the literature review revealed that ambidextrous innovation strategies are more likely to support performance, and the others often respond to business performance only via indirect paths. Nonetheless, most studies of service innovativeness and performance show that the former contributes positively to the latter (Verhees and Meulenberg, 2004; Liu, 2013; Acar and Ösazhin, 2018).

- **H2a:** Exploratory innovation has a positive effect on business performance.
- **H2b:** Exploitative innovation has a positive effect on business performance.
- **H2c:** Ambidextrous innovation has a positive effect on business performance.

4.2.3 Direct effects between service differentiation and business performance

Unlike market orientation and service innovativeness, these hypotheses do not follow a default set of hypotheses, and different scales used by other scholars have been collocated (Gebauer, Gustafsson and Witell, 2011; Ralston, Grawe and Daugherty, 2013; Gronum, 2015). Thus, different single dimensions have been separately formulated into hypotheses compared to previous research on this concept.

This addresses an important gap in portfolio management. The keyword is ‘variety’. Whereas product differentiation has been explored thoroughly in the literature (Fließ *et al.*, 2015; Kowalkowski *et al.*, 2017), there is evidence that the number of products in the portfolio increases performance. This occurs only up to a defined quantity, after which it decreases (Wan, Evers and Dresner, 2012).

In contrast to product differentiation, service differentiation has been only partly explored (Wan, Evers and Dresner, 2012; Bustinza *et al.*, 2015). Prior research concentrated on the number of core services, or service breadth, or the number of added services, or service depth. There are also, however, calls to consider the effect of more marketing resources in the product or service portfolio on gaining competitive advantage (Davcik and Sharma, 2016), especially in family firms (Röd, 2016). As in GRH there is currently no reliable information about service differentiation, and as the number of core services is increasing without a strategy (Engelke, 2017a), it has been assumed that there is no significant horizontal differentiation in relation to business performance at this stage.

- **H3a:** Horizontal differentiation (service breadth) has no significant effect on business performance.

On the other hand, added services (e.g., by-products) are also increasing (Schwarz, 2008; Engelke, 2017c), but experience has shown that these services are deep-seated in the operational business, not least because they are rather easy to offer (Fließ, 2009; Meffert and Bruhn, 2009). For example, besides selling potted plants (the core product), the wrapping service (an added service) is adjacent. Given this, sales revenue and profitability are also increasing; this is business performance. As a result, these companies are more likely to succeed (Zentralverband Gartenbau e.V., 2016):

- **H3b:** Vertical differentiation (service depth) has a positive effect on business performance.

As an overall description, the combination of both horizontal and vertical differentiation describes the company’s level of differentiation. This is another approach to gaining detailed information regarding the first research gap. Ralston, Grawe and Daugherty (2013), who examined service differentiation in the logistics service industry, and Gebauer, Gustafsson and Witell (2011), who focused on the manufacturing industry, have explored this differentiation strategy. As it is rather a subjective evaluation from the participants’ own opinions, in GRH there is a positive impression, due to the increasing trend towards servicing (Bundesministerium für Ernährung, 2013a):

- **H3c:** The level of service differentiation has a positive effect on business performance.

Another rather unknown approach to gaining competitive advantage with service differentiation derives from the resource-based view, which is part of the organisational structure. The number of core and added services (Engelke, 2017a), along with independent departments, has been increasing in GRH, indicating a relationship: the more services in the portfolio, the higher the level of departmentalisation as a sign of a more structured organisation (Fließ and Luxett, 2019) and thus the higher the economic performance. Therefore, it was assumed that:

- **H3d:** The number of business types, assuming a higher level of departmentalisation, has a positive effect on business performance.

Like the level of differentiation, two more approaches in service differentiation refer to Gebauer, Gustafsson and Witell (2011) and Ralston, Grawe and Daugherty (2013): differentiation by customer preferences and by competitor preferences. These concepts are also predicated on the participants’ subjective assessments and have a more general character relating to how to obtain advantages over competitors when offering services. As has been shown in GRH, there is a close customer orientation and a clear trend towards service provision, so the following hypotheses were formulated:

- **H3e:** Service differentiation by customer preference has a positive effect on business performance.
- **H3f:** Service differentiation by competitor preference has a positive effect on business performance.

Figure 19 shows the proposed research model addressing the first research gap, in preparation for hypothesis testing H1a–H1c and H2a–H2c.

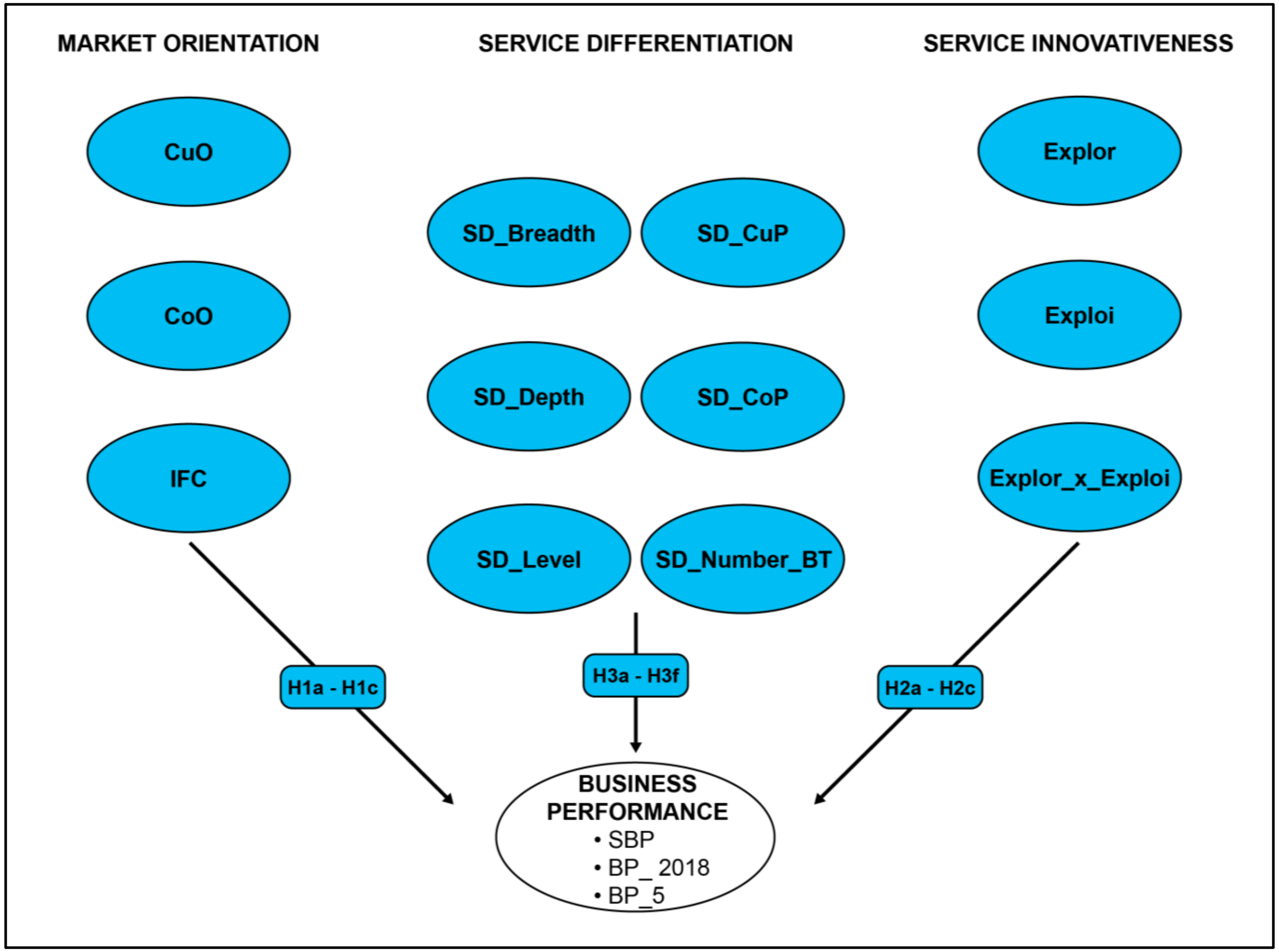


Figure 19: Proposed research model addressing the first research gap.

4.3 Development of hypotheses addressing the second research gap (indirect effects)

After examining the direct relationship between the three strategic concepts, hypotheses concerning the potential moderating and mediating effects on business performance were formulated as indirect effects. This addresses the second research gap.

4.3.1 The moderating effects of service differentiation

Positive relationships between service differentiation, market orientation and performance have long been established, either on direct paths (Kharabsheh, Jarrar and Simeonova, 2015) or as an indirect path via differentiation as moderator (Chin, Lo and Ramayah, 2014). Hence, there is similarity between the concepts in the examples from various industries, and it can be assumed that this is also the case in GRH, where both concepts are prominent. Unlike in mediation, which is discussed in the next section, in moderation, it is predominantly the strength of the relationships that changes in the presence of a third variable (Jose, 2013). As previous research findings support the view that moderating effects of service differentiation among all strategic concepts as global concepts exist (van Riel *et al.*, 2017), but not on the level of every single dimension, it has been assumed that there are at least partial effects:

- **H4a:** Service differentiation has a partial moderating effect on the relationship between dimensions of market orientation and business performance.
- **H4b:** Service differentiation has a partial moderating effect on the relationship between dimensions of service innovativeness and business performance.

4.3.2 The mediating effects of service differentiation

Whereas moderator variables specify when certain effects will hold, ‘mediators speak to how or why such effects occur’ (Baron and Kenny, 1986, p. 1176) and ‘explain the kind and effects of the relationship between independent and dependent variables’ (Namazi and Namazi, 2016, p. 545). As suggested by their names, both service innovativeness and service differentiation are strategic concepts that imply an application to services, but in different contexts. Whereas the former represents the ‘willingness and desire to seek new processes and services’, service differentiation ‘refers to the actual creation and delivery of the new offerings’, following Ralston, Grawe and Daugherty (2013, p. 140) describing the logistics transport industry from an operational perspective. Accordingly, it is an antecedent to service differentiation, and, as both are closely connected, this is an effective basis for running a mediation (Iacobucci, 2012).

Like moderation hypotheses, there is an interrelationship among the three strategic global concepts, but it is unclear whether there is one on every single dimension. Thus, only a partial interrelationship among the three strategic concepts, as measured by single dimensions, was expected:

- **H5a:** Service differentiation has at least a partial mediating effect on the relationship between dimensions of market orientation and business performance.
- **H5b:** Service differentiation has at least a partial mediating effect on the relationship between dimensions of service innovativeness and business performance.

Figure 20 presents the research model addressing the second research gap in preparation for hypothesis testing H4a–H4b and H5a–H5b.

The hypotheses are summarised in Table 4.

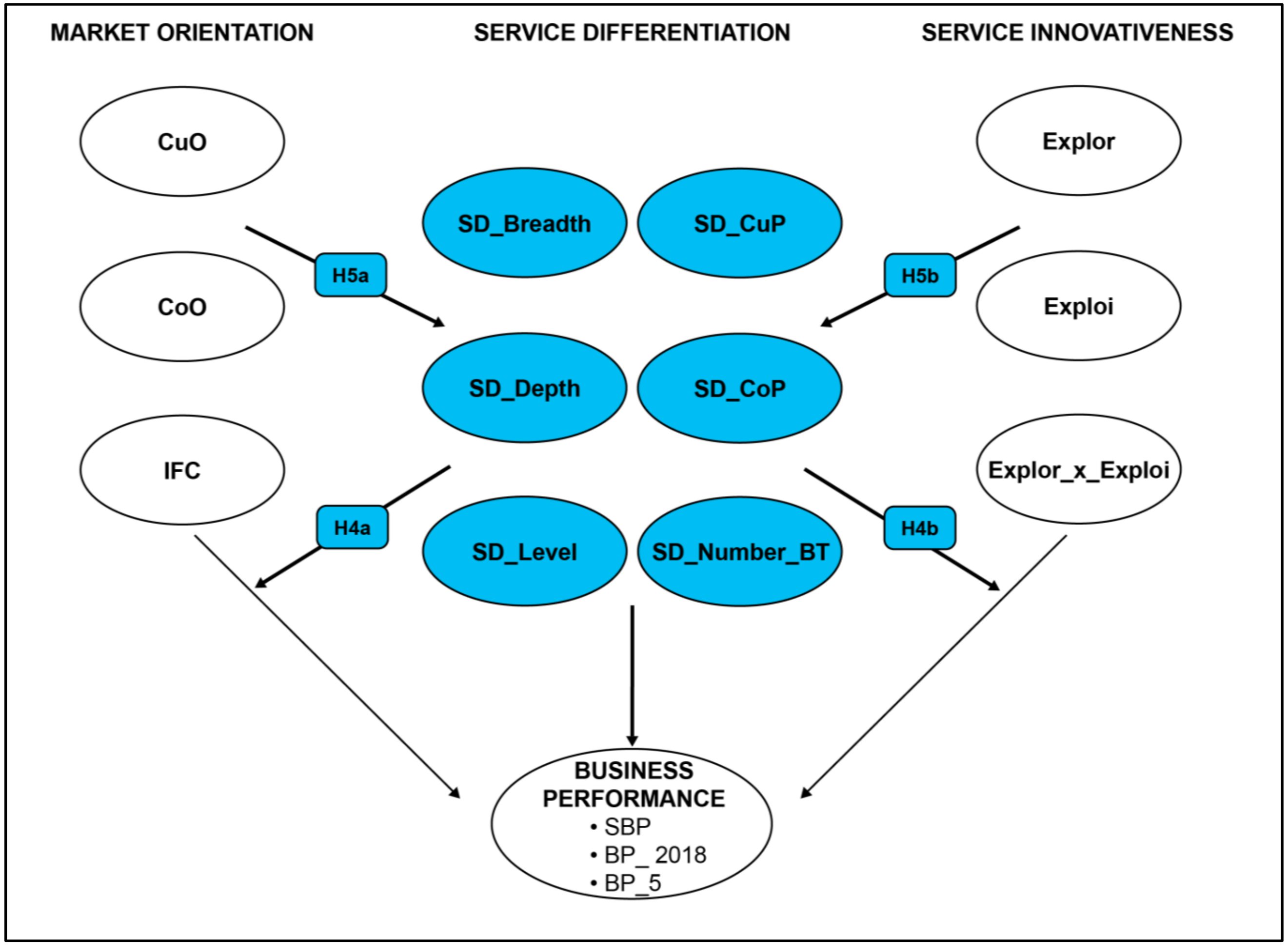


Figure 20: Proposed research model addressing the second research gap.

Table 4: Overview of all hypotheses.

Hypothesis	Strategic Concept or Dimension
1	**Market orientation**
1a	Customer orientation has a positive effect on business performance.
1b	Competitor orientation has a positive effect on business performance.
1c	Interfunctional coordination has a positive effect on business performance.
2	**Service innovativeness**
2a	Exploratory innovation has a positive effect on business performance.
2b	Exploitative innovation has a positive effect on business performance.
2c	Ambidextrous innovation has a positive effect on business performance.
3	**Service differentiation**
3a	Horizontal differentiation (service breadth) has no significant effect on business performance.
3b	Vertical differentiation (service depth) has a positive effect on business performance.
3c	The level of service differentiation has a positive effect on business performance.
3d	The number of business types, assuming a higher level of departmentalisation, has a positive effect on business performance.
3e	Service differentiation by customer preference has a positive effect on business performance.
3f	Service differentiation by competitor preference has a positive effect on business performance.
4	**Moderating effects**
4a	Service differentiation has a partial moderating effect on the relationship between dimensions of market orientation and business performance.

Hypothesis	Strategic Concept or Dimension
4b	Service differentiation has a partial moderating effect on the relationship between dimensions of service innovativeness and business performance.
5	**Mediating effects**
5a	Service differentiation has at least a partial mediating effect on the relationship between dimensions of market orientation and business performance.
5b	Service differentiation has at least a partial mediating effect on the relationship between dimensions of service innovativeness and business performance.

4.4 The entire research model

The hypotheses and sub-hypotheses are illustrated in the research model (see Figure 21). In the centre are the three strategic concepts. On top are the appropriate dimensions of each concept. These serve mostly as predictors in the statistical evaluation. Business performance as criteria is at the bottom. The relationships are visible as follows: relationships between the three strategic concepts and business performance are H1a–H1c, H2a–H2c and H3a–H3f. Moderating effects are tested through H4a–H4b, and mediating effects through H5a–H5b.

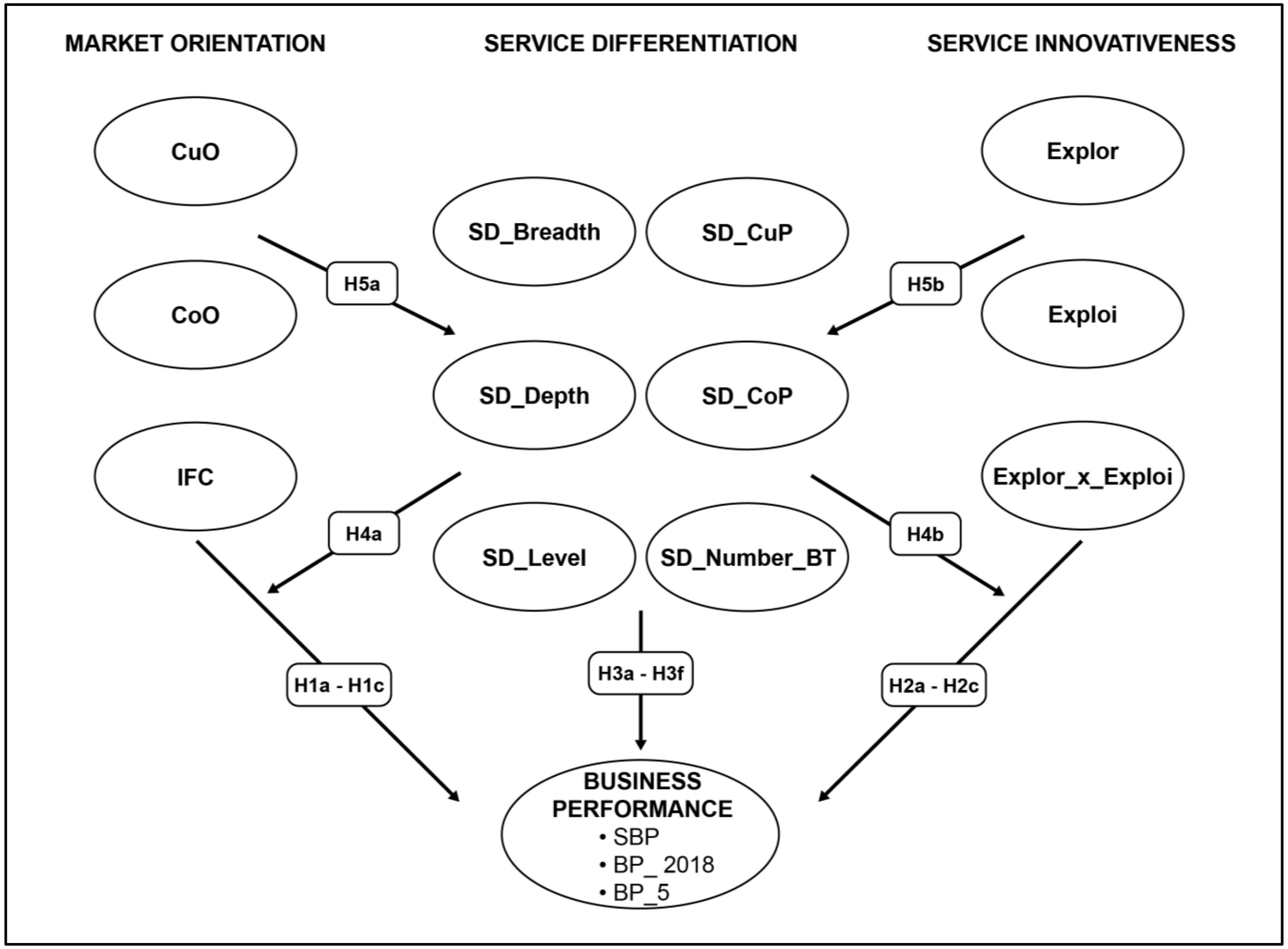


Figure 21: The entire proposed research model addressing both research gaps.

5. METHODOLOGY

5.1 Introduction

The literature review (Section 3) created the theoretical foundation for the thesis, while the conceptualisation (Section 4) led to the formulation of 16 hypotheses, which were translated into the proposed research model (Figure 21). This section explains the design of the research, where the leitmotif roughly follows the research onion model of Saunders, Lewis and Thornhill (2016). The onion model is a framework of the research process involving 6 stages ('layers') the researcher needs to complete step by step, aiming ultimately to reach the inner core. Each layer incorporates a single attribute or method, all of which are arranged in a continuum from one antipole at the top to a second antipole at the bottom, with other attributes between them.

The process begins with Section 5.2, which presents the research philosophy of the present study. Here, the positivist paradigm and the deductive approach are explained in more detail. In a summary in Table 5, the philosophical aspects are critically reflected on as they apply to the present research (5.2.3). Section 5.3 outlines the research design, while Section 5.4 presents the questionnaire's measurements. As a quantitative analysis was deemed appropriate, the variables are discussed in detail, which includes predictor (independent) variables, criterion (outcome) variables, moderating and mediating variables, control variables and demographic variables.

The pre-tests are presented in Section 5.5, leading to the data collection (Section 5.6), which includes the sample, samples size and judgemental sampling as an appropriate choice of sampling method. Section 5.7 presents an analysis of the data.

5.2 Research philosophy in the present study

5.2.1 Philosophical underpinnings

A central task at the beginning of any research process is to discover the nature of reality (Johnston, 2019). According to Boon and van Baalen (2018), it is a purpose of philosophy to determine a belief about how knowledge will be generated to find truth. As truth reflects reality, the nature of knowledge, therefore, includes how the scholar – the individual – sees the world (Haydam, 2012). In knowledge management, knowledge is defined as the awareness and understanding of particular aspects of reality (Zagzebski, 2017), which will be understood through the individual world view of the researcher: the research paradigm.

In research, two key perspectives in terms of reality must be considered: the epistemological and ontological paradigms. Whereas epistemology describes the nature of knowledge within a research discipline (e.g., social sciences or natural sciences), ontology refers to the study of existence and entails the nature of reality (Saunders, Lewis and Thornhill, 2016). Knowledge and reality are closely connected.

From an epistemological perspective, the key consideration when choosing a research philosophy in social sciences, as with the present study, is whether the researcher will apply the same principles as in natural sciences. Here, only observable facts will confirm the truth, which is independent of the researcher's actions. There are two antipoles: positivism on the one end, called the positivist approach, and interpretivism on the other, which requires human action and the interpretation of the researcher. Between these two are realism and constructivism: the former is more positivist, and the latter is more interpretivist. They represent four major philosophical paradigms, with different visions of reality. Generally, choosing the right paradigm is important, as the epistemological positioning will strongly influence the design a researcher can implement (Buchanan and Bryman, 2009). Whereas interpretivism and constructivism are non-positive approaches, or phenomenology, the positivist believes in explanatory research to answer the question: 'For what reason?'

Regarding social phenomena from an ontological perspective concerns the nature of reality. Here, two viewpoints must be considered. The first viewpoint is to decide whether there is an objective or subjective reality. With the former, objectivity means the independence of the researcher, without his or her own perceptions. Only by using objective reasoning, free of any personal characteristics, feelings or opinions (Davies and Fisher, 2018), will truth be accepted to approach the research aim. On the other hand, in subjectivity, there are no objective facts. Rather, interpretation is based on what is observed in the social world to be true. Subjectivists believe that the social world is not pre-existing or fixed but rather constructed by the perceptions and consequent actions of the actors who inhabit it (Buchanan and Bryman, 2009; Francescucci, 2014). That means the positivist researcher is more likely to believe in facts that can be observed with the senses, where only data are in the centre.

The second viewpoint in ontology requires the researchers' influence in detecting social phenomena. Is social reality static, and does it exist without the control of any of the actions of the social actors, or will social phenomena be detected through the actions of the social actors (Bell, Bryman and Harley, 2018)? In answering this, objective and subjective viewpoints will decide. In objectivity, truth is found through observable facts, and interpretation is focused on statistical data analysis, where the participants' behaviour is dispensable. This stands in contrast to interpretivism, where people's actions and social worlds depend on their perspective (Buchanan and Bryman, 2009) and where truth relies on the participants' behaviour. This is subjectivity. Table 5 provides an overview of two major research paradigms.

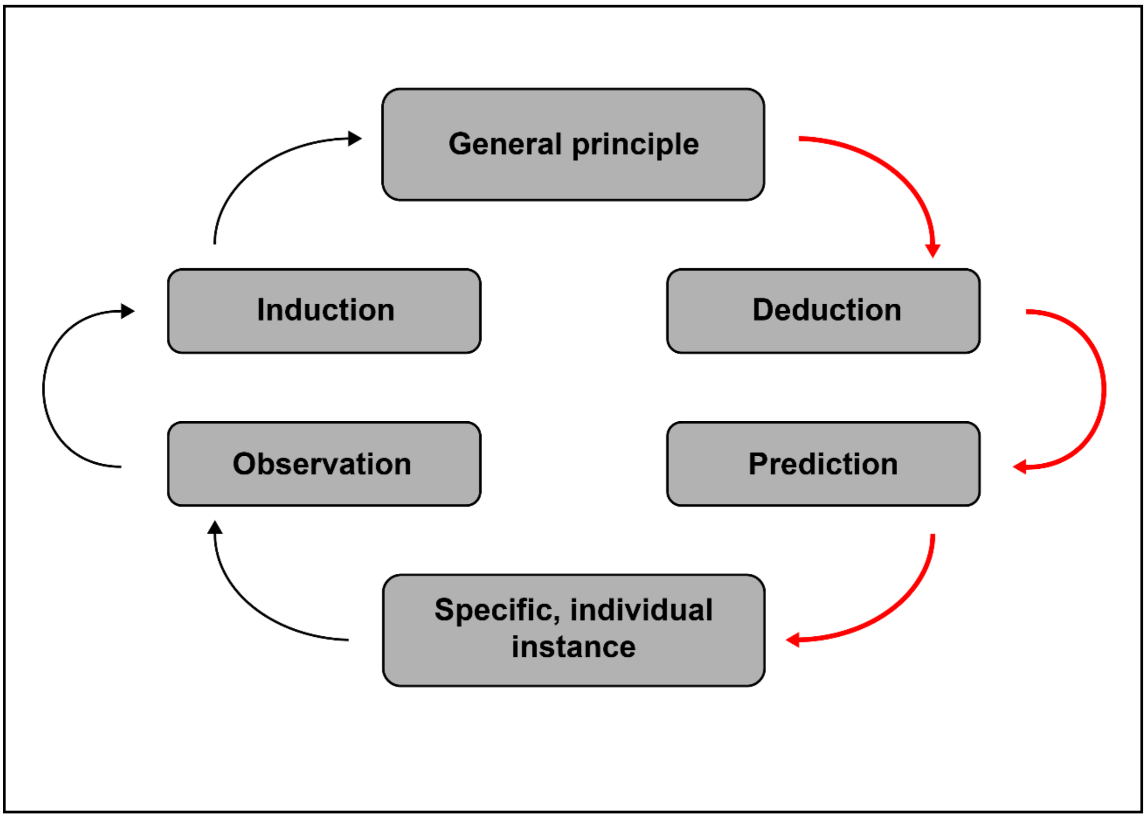
Table 5: Contrasting research perspectives and paradigms. (Source: Aubele, 2014, as cited in Saunders, Lewis and Thornhill, 2016)

Perspectives	**Paradigms**	
	Positivist	**Interpretivist**
EPISTEMOLOGY The researcher’s view regarding what constitutes acceptable knowledge	Only observable phenomena can provide credible data or facts. A focus on causality and law-like generalisations, reducing phenomena to their simplest elements	Subjective meanings and social phenomena. A focus on the details of the situation, a reality behind these details, subjective meanings motivating the actions
ONTOLOGY The researcher’s view of the nature of reality or being	External, objective and independent of social actors	Socially constructed, subjective, may change, multiple
AXIOLOGY The researcher’s view of the role of values in research	Research is undertaken in a value-free way. The researcher is independent of the data and maintains an objective stance	Research is value-bound; the researcher is part of what is being researched, cannot be separated and so will be subjective
Appropriate data-collection techniques	Highly structured, large samples, measurement, quantitative, but also can use qualitative methods	Small samples, in-depth investigations, qualitative methods

The table shows the two major paradigms (positivist and interpretivist), the two philosophical perspectives (ontology and epistemology), the role of the researcher and the appropriate data-collection techniques. The perspectives of both epistemology and ontology must be considered at the beginning of any research, and, irrespective of research discipline, whether natural or social sciences, it is within the researcher's philosophical paradigm to decide how to approach the research aim, which can be inductive or deductive.

5.2.2 Research approach

The deductive approach means to test general, existing knowledge via hypotheses with predictions about a specific case, which in the present study is GRH. Induction, on the other hand, means that new knowledge is generated through observation by leveraging existing theory to develop new hypotheses (Patton, 2015; see Figure 22).



Note: The procedure followed in the current research is marked in red.

Figure 22: Differences between deductive and inductive approaches. (Source: adapted from Buchanan and Bryman, 2009)

Since positivists believe only in predictable facts, positivism is also objectivity, in which no interpretation is necessary. Hence, positivism and objectivity are contextually related. Likewise, since interpretivists rely on the opinions or observations of the actors, their approach is subjective. Thus, interpretivist epistemology and the inductive approach can be grouped.

5.2.3 Critical reflection on the present research

Whether both the positivist/objective and inductive/subjective approaches must be conducted in a value-free way a priori has been debated. While some scholars argue that this is only necessary for positivists (Scotland, 2012; Francescucci, 2014), others argue the opposite: predominantly in qualitative research, which accompanies interpretivism, the researcher’s behaviour has a strong effect on the participant (Denzin and Lincoln, 2008); therefore, a value-free approach will inevitably minimise the influence of the researcher. Following this argument, quantitative research will not have this strong effect, as the data are gathered anonymously. Consequently, positivist approaches need not be value-free approaches. Nonetheless, to maintain scientific objectivity, value-free research, irrespective of paradigm, should be conducted in a neutral way. Finally, some authors support the idea that social sciences research can never be value-free (Reiter, 2017).

Critical reflection is a crucial component of learning (Reynolds and Vince, 2017), and the arguments for critical reflection represent theoretical fundamentals. Therefore, this researcher had to adapt critical reflection practices to this research context. The overall research aim of this thesis was to investigate the indirect and direct effects of service differentiation as a strategic orientation to the relationships between market orientation, service innovativeness and business performance through the example of GRH. As there has thus far been a lack of explicit knowledge in the research context with both other strategic concepts, the hypotheses were deductively tested based on a quantitative data analysis to gain new knowledge on this specific industry. Hence, the positivist paradigm was chosen for its objective nature, and both research gaps were filled through observable and measurable facts, where only acceptable answers decided whether the 16 hypotheses, which were formulated based on existing knowledge, were supported (Kwaku Kankam, 2019).

From the researcher's professional experience, and the literature (Bundesministerium für Wirtschaft und Energie, 2018) on GRH, a form of tacit knowledge prevails: the practical experience of the employee. The new explicit knowledge gathered through the research will complement prevailing tacit knowledge in the organisation. This is called internalisation (Nonaka and Krogh, 2009). The pressing question now is whether social reality will remain static over time. It is desirable for tacit and explicit knowledge, in combination, to improve business performance as the overall goal in future. In practice, however, disturbing factors are likely, especially in this heterogenous industry, where such influence is expected, for example, from changes in the market, which was the author's initial motivation for conducting this study.

5.3 Research design

5.3.1 Strategy

In accordance with the research philosophy, where a positivist epistemology accompanies objective reasoning from an ontological perspective, truth is found through predictable facts and where only statistical data can achieve the research aim in the present study. Thus, information was gathered using quantitative data-analysis techniques in numerical form (Azorin and Cameron, 2010). A major difference between quantitative and qualitative techniques is the appropriate sample size, as in quantitative analysis only large sample sizes can achieve explanatory power. Therefore, the researcher chose the survey instrument, which accompanies the deductive approach. The purpose of a survey is to collect rich and reliable data, especially in quantitative research projects, where a representative proportion of the population is involved (Bell, Bryman and Harley, 2018).

The survey strategy was employed mostly to observe the contributing variables among different data, and it allowed the collection of large data sets to respond to the two research gaps. Additionally, the collection of objective data allowed generalisation (Toepoel, 2015). Hence, data were collected through a structured questionnaire via a web-based online survey, as recommended by Thiétart

(2007). This system improved both the quality of data and the mechanisms for collecting large quantities of data (Wieters, 2016). Moreover, the completion of an online survey has the advantage of increasing participation rates, and as personal contact with the participants was unwanted and anonymity desired, non-response bias could be reduced. Furthermore, an online survey is a low-cost alternative to other interview techniques such as face-to-face interviews (Hodder and Wolfenden, 2017). These arguments ruled out the use of traditional paper surveys.

Once the data were collected, covariance-based structural equation modelling was employed to validate the measurement scales and test the hypothesised model. As both a large sample size and a significant distribution of addresses could be obtained (see Section 5.6.3), the data satisfactorily reflected the target industry (GRH), and the researcher expected high explanatory power.

5.3.2 Choices

In research design, there are three major approaches to data collection: the mono-method, multi-method and mixed-method approaches. Mono-method studies use one method of data collection, either quantitative or qualitative, while multi-method approaches combine several qualitative methods, and mixed methods combine qualitative and quantitative methods (Creswell, 2003). Here, the overall purpose is for the combination of the quantitative and qualitative approaches to provide a deeper understanding of the research problem, especially with complex phenomena, than either approach alone (Azorin and Cameron, 2010).

This research design depends on the epistemological setting, and, in the present study, where objectivity through positivism prevails, a single (mono) quantitative data-collection method was deemed appropriate. The theoretical framework incorporated the three strategic concepts established in the literature review, and the hypotheses were developed afterwards. Against this background, confirmation was guaranteed through statistical hypothesis testing, where one single set of data was sufficient to fill both research gaps. Moreover, using only one cycle of data collection reduced time and effort in the research process, labelled as the time horizon.

5.3.3 Time horizon

According to Quinlan *et al.* (2019), data can be collected in two ways: through a cross-sectional study, which is conducted at a specific point in time, or a time-series analysis, which takes place over a period of time, also called a longitudinal study. One advantage of cross-sectional analysis is that several factors, mostly independent contingency variables, can be measured isochronally, reducing the potentially complicating aspects of the individual factors, such as variation. All factors are measured at the same time on a level playing field to search for a particular phenomenon at one point or a particular time (Saunders, Lewis and Thornhill, 2016). On the other hand, longitudinal analysis has the advantage of obtaining more information about individuals over a longer period of time, which is mostly important in qualitative analysis, where the behaviour of the participants can be tracked. This is irrespective of the research strategy chosen, as both time horizons can be employed in either research strategy (Saunders, Lewis and Thornhill, 2016).

The choice of the right time horizon depends somewhat on the research aim. As the two research gaps in the present study were formulated to develop a strategic orientation by exploring the direct and indirect effects of service differentiation on the relationships between market orientation, service innovativeness and business performance through the example of GRH, they were addressed with hypothesis testing.

In a positivist paradigm, objective reasoning ensures the independence of the specific subjective context, which is not influenced by the personal characteristics, feelings or opinions of the subject. Hence, statistical analysis was used to test the assumptions quantitatively. By using an online survey via structured interviews, the participants were anonymous, and the focus was not on the behaviour of the participants but on the causality between the factors.

Accordingly, the research design allowed only one opportunity to obtain data, where all factors were measured under the same circumstances. Repeating the process would not be logical, as new conditions on the contingencies would then be expected, such as a new population or sample size, so the validity of the hypothesised model would be at risk (Watson, 2015). Therefore, a cross-sectional design was part of the survey strategy so that the relationships of the concepts' dimensions on performance could be explained.

5.3.4 LimeSurvey Professional

The questionnaire was embedded into the LimeSurvey Professional open-source software (Schmitz, 2019), an advanced online survey system for creating quality online surveys that is often employed in the sciences (Prinz *et al.*, 2018). After survey completion, data were transferred into IBM SPSS 27, a software program for analysing data and running statistical tests (IBM Corp., 2019). Principally, the LimeSurvey tool was used because it saved every data input. If the participant were interrupted before completing the questionnaire, the existing data would be saved and could be evaluated nonetheless, even though the explanatory power would be significantly reduced.

5.3.5 Covariance-based structural equation modelling using AMOS 27

In the social sciences, a common method of quantitative data analysis is structural equation modelling. This represents a theory-driven data analytical approach that can evaluate hypotheses regarding causal relations between measured (observed) and/or latent variables (Hancock, Stapleton and Mueller, 2018). The process of structural equation modelling principally employs two types of variables: latent and observed variables (Thakkar, 2020). Whereas latent variables, also known as unobserved variables or concepts, are so called because they are not directly measured in the research design, observed variables are the appropriate items to be directly measured (Kline, 2016). The purpose of structural equation modelling is to examine a set of relationships between one or more independent variables, called exogenous variables, and one or more dependent variables, called endogenous variables. For simplification, the terms independent and dependent variables are employed throughout the thesis.

In the current study, the latent variables of the independent variables are the 12 dimensions of the concepts (customer orientation, competitor orientation, interfunctional coordination, exploratory innovation, exploitative innovation, ambidextrous innovation, service breadth, service depth, level of differentiation, number of business types, customer preferences, competitor preferences). Latent variables of the dependent variables are subjective performance, objective performance_2018, and objective performance_5, for a total of 15 latent variables. The observed variables are the relevant items in the questionnaire.

There are two major structural equation modelling applications in academic research: covariance-based and partial-least-square structural equation modelling. They differ in some assumptions (Hair *et al.*, 2019), such as the multivariate normality of the data and sample size, and in technique. Whereas covariance-based structural equation modelling is based primarily on the confirmation (or rejection) of theories in a set of systematic relationships, partial-least-square structural equation modelling is often employed to 'develop theories in exploratory research by focusing on explaining the variance in the depending variables when examining the model' (Aubele, 2014, p. 108).

Because both sample size and hypothesis testing seemed appropriate, covariance-based structural equation modelling was chosen, using AMOS (Analysis of Moment Structures) as the statistical software tool (Arbuckle, 2019). Besides these main motives, other arguments also favoured covariance-based structural equation modelling: first, as it is a module within the IBM SPSS 27 software, where several statistical tests are necessary, the linkage of SPSS and AMOS was convenient, as one data set is applicable through both programs. Second, as a larger sample size (> 100) was expected, a strong theory was taken as a basis for confirming theoretically assumed relationships (Namazi and Namazi, 2016; Tarka, 2017). Third, it was suitable in the context of the present model, as the three strategic concepts could be incorporated well, in accordance with the work of other scholars in the present research field. For these reasons, AMOS is widely acknowledged in the literature.

5.3.6 Questionnaire development

As the underpinning research philosophy of the survey, with its positive epistemological paradigm and objectivist ontological viewpoint, set the agenda for quantitative data collection, empirical evidence had to be gathered through observable, measurable facts (Thiétart, 2007). In quantitative analysis, web-based data entry, such as an online survey, is an efficient and effective data-collection system, for it expedites data processing and analysis. Furthermore, the necessity for the inconvenient and expensive transfer and tracking of forms, data entry and verification is extensively reduced (Cooper *et al.*, 2006). Therefore, a structured questionnaire was deemed the appropriate tool for the current survey, which comprises eight groups relating to the conceptual model: business classification, the three strategic concepts, demographic factors, company information, respondent information and business performance.

As the underpinning framework a priori determines a subjective evaluation of most items, where the respondent's opinion is decisive, the questionnaire thus relies on hypothetical answers. Self-evaluation must be handled carefully in terms of common method bias (Podsakoff *et al.*, 2003; Amin *et al.*, 2016; Bell, 2019). To achieve this, in this study, the researcher conducted statistical methods testing and common method bias (see Section 5.7.4.1). Additionally, the application of prebuilt scales from the existing questionnaires of other scholars can counter common method bias, which also improves the reliability of the questionnaire (Keilow *et al.*, 2019).

In contrast to most subjective items, the study required the collection of data on some objective items on business performance (Rojas-Méndez and Rod, 2013; see Section 3.2.2.1, 'Choice of performance items'). The researcher adhered to the principles for constructing web surveys (Brace, 2018). Most requests refer to the business year 2018, as mentioned in the cover letter. Exceptions are the items 'service differentiation' and 'How were sales revenues and profitability in the last five years?', where data related to a five-year period were requested. The survey took approximately 15 minutes to complete.

See Appendix 1 for the original English questionnaire, Appendix 2 for the translated German questionnaire, Appendix 3 for the cover letter and Appendix 4 for the reminder letter for the survey.

5.4 Measurements

5.4.1 Scales

The choice of adequate model fit depends on the level of measurement, also called scales of measures. This classification describes the nature of information within the values assigned to the variables (Kirch, 2008), where different response options and parameters exist (Field, 2015). The research design of the present study relied to a great extent on prebuilt scales from other scholars, such as the MKTOR scale from Narver and Slater (1990), which is generally accepted among scholars (Mokoena, 2019). Given that all items rely on well-established studies, the scales were adapted to the individual conditions of the theoretical framework in this research.

The researcher used consistent scales to support data input and for more accurate data analysis (DeVellis, 2012). This is the meaning of 'complex frameworks', such as those used in the present study, where multiple concepts are on hand. Having a clearly arranged questionnaire is therefore desirable, but internal consistency must also be considered. In statistics generally, internal consistency measures the correlation between different items on scales, and high values produce similar values. Cronbach's alpha is the most common index of reliability in research (Streiner, 2003), so this was employed in the present study to test reliability, and most scores had high internal consistency.

For this questionnaire, the researcher chose Likert scaling, a psychometric scale often employed in research that involves questionnaires (Joshi *et al.*, 2015). Despite the prominence of this measure, there is debate among scholars over whether Likert scales are interval scales with continuous data or ordinal scales with categorical data (Willits, Theodori and Luloff, 2016). This is important to know, as it dictates which statistical analysis is appropriate to the study (Buchanan and Bryman, 2009). The crucial discussion concerns whether points on the scale are equivalent and equidistant (Joshi *et al.*, 2015), that is, whether all the distances between the points are equally distributed.

The argument for classification as an ordinal scale posits that an order is in fact available but lacks the relative magnitudes and distances between two responses on a quantitative scale. Following this argument, a Likert scale cannot be classified as an interval scale. Others argue that since a composite score of the individual is authoritative, the intervals between each individual score do exist (Boone and Boone, 2012). Thus, a Likert scale is indeed an interval scale. Adapting the discussion to the present study, the latter argument is supported, because (a) the present study is based on quantitative, not qualitative, data, (b) no true zero point exists (Wu and Leung, 2017) and (c) the items of each group were consolidated into factors after confirmatory factor analysis. Hence, after rotation, the factors, which were consolidated into single items, relied on composite scores.

Therefore, the researcher used mostly 5-point Likert scales in the present study. Nominal scales were employed for business classification, demographic factors, company information and respondent information, for which only one choice was available. Discrete variables were treated as continuous variables. Respondents needed to answer 67 items. To prevent bias (Bell, 2019), all questions were reduced to the phrase ‘please rate the following’. An exception was service differentiation, for which an explanation was necessary. Here, one short description of the purpose of the item was provided.

5.4.2 Independent variables

As detailed in the literature review, two research gaps were uncovered in the present study: the exploration of (a) the direct effects of three strategic concepts on business performance and (b) the indirect effects of service differentiation on the relationship between both other concepts and performance. The single dimensions of the three strategic concepts represent the independent variables in the research.

5.4.2.1 Market orientation

In market orientation, two prebuilt, three-dimensional scales have dominated in the last decades: MKTOR and MARKOR. MARKOR is based on the work of Kohli and Jaworski (1990), and MKTOR on the work of Narver and Slater (1990). Both consist of three behavioural dimensions. MARKOR uses the organisation-wide generation of market intelligence pertaining to current and future customer needs, the dissemination of such intelligence across all departments of the organisation and the organisation-wide response to this market intelligence. MKTOR consists of the three dimensions: customer orientation, competitor orientation and interfunctional coordination. There are major differences between the two, as MARKOR assumes market orientation from an organisational perspective to assess a firm’s potential, and MKTOR is more customer-oriented and exhibits a ‘checklist’ approach (Rojas-Méndez and Rod, 2013). Using structural equation modelling, the statistical analysis was grounded in the average scores across the three dimensions. MKTOR and MARKOR are detailed in Section 5.4.1., but one major advantage of MKTOR is its superior statistical reliability (Pelham and Wilson, 1996).

In the research context, modifications were made to the prebuilt MKTOR scales developed by Narver and Slater (1990). For example, new items were added that were convenient for the research context (items 10, 11, 12, 25, 29 and 30). They were adapted from Johnson, Dibrell and Hansen (2009), Blankson *et al.* (2013), Leal-Rodríguez and Albort-Morant (2016), Solano Acosta, Herrero Crespo and Collado Agudo (2018) and Wales *et al.* (2018).

From the pre-tests (see Section 5.5, ‘Pre-testing’), some items were found to be similar and thus were combined. In addition, some expressions were more suitable for the GRH industry in particular, where lower hierarchies predominate and managers are replaced with staff or executives (items 29 and 30). Some items were too general and were removed; other items were redundant. Eleven items were included in the customer orientation section, seven in competitor orientation and nine in interfunctional coordination.

How do you evaluate your customer orientation*? Please evaluate every item:*

1 = totally disagree, 5 = totally agree

- We give close attention to after-sales service.
- We have a strong commitment to satisfy our clients.
- We define service quality in terms of customer satisfaction.
- We encourage customer suggestions to learn how to serve them better.
- We train our staff to provide satisfactory services.
- We carefully select staff that interact with customers.
- We continuously look for ways to increase customer value.
- We carry out research to detect any changes in customers' needs.
- We regularly analyse and take track of the needs of customers.
- We measure customer satisfaction systematically and frequently.
- We target customers and customer groups where we have, or can develop, a competitive advantage.

How do you evaluate your competitor orientation? *Please evaluate every item:*

1 = totally disagree, 5 = totally agree

- We analyse our competitors' marketing programmes.
- We collect market data to help direct new service plans.
- We respond rapidly to competitors' actions.
- We encourage staff to report on competitors' activities.
- We have sufficient knowledge of our competitors' strengths and weaknesses.
- We have sufficient knowledge of our competitors' capabilities.
- We look for ways to differentiate ourselves from competitors.

How do you evaluate your interfunctional coordination? *Please evaluate every item:*

1 = totally disagree, 5 = totally agree

- We have regular meetings with all business functions to discuss market trends and development.
- We coordinate the activities of all business functions to provide a satisfactory service.
- Customer information is shared with all business functions.
- All business functions are involved in preparing the company plans.
- The activities of all business functions within the organisation are well integrated.
- People from one department interact well with the people from another business function.
- All business functions within the organisation are equally important in marketing our customer value.
- The business functions know how the staff can help to generate value for the customer.
- Customers are regularly visited by executives to quality control.

5.4.2.2 Service innovativeness

Also using a 5-point Likert scale, four items included in the questionnaire address exploitative innovation and eight items exploratory innovation strategies. All scales originated from the service innovativeness literature (Jansen *et al.*, 2006; McDermott and Prajogo, 2012). Some items were modified after pre-testing, since cooperation agreements are becoming increasingly important to the GRH industry (Bundesministerium für Ernährung, 2013a).

***How do you evaluate your service innovativeness**? Please evaluate every item* [on a 5-point Likert scale]*:*

'*Please rate the following: 1 = totally disagree, 5 = totally agree'*:

Exploitative innovation

- We frequently refine the provision of existing services.
- We introduce the improved version of our existing services in our local market.
- We improve our provision's efficiency of services.
- Our company expands services for existing clients.

Exploratory innovation

- Our company accepts demands that go beyond existing services.
- We invent new services.
- We experiment with new services in our local market.
- We commercialise services that are completely new to our company.
- We frequently utilise new opportunities in new markets.
- Our company regularly uses new distribution.
- Our company regularly uses new cooperation.
- We regularly search for and approach new clients in new markets.

5.4.2.3 Service differentiation

Because several research gaps were uncovered, one major focal point in the present study was service differentiation, which is the focus of six questionnaire questions. The first concerns the changes in portfolio variety over the last five years.

5.4.2.4 Horizontal and vertical differentiation (service breadth and service depth)

> **Compared to the previous five years, did any of the following decrease, stay the same or increase**:
>
> 1 = decreased, 2 = stayed the same, 3 = increased, 4 = not applicable
>
> - Number of core services offered (service breadth)
> - Number of added services offered (service depth)

To counter potential misunderstandings, the definitions of two terms appear before the question:

Service breadth: 'This is the number of your core services, e.g., cemetery horticulture, landscaping, retailing, floristry, crop-growing.'

Service depth: 'This is your whole spectrum of services with added services, e.g., new installation, maintenance, winter services, building swimming ponds, roof greening, delivering service, plantation services.'

The existing scales in this context were adapted from Gronum (2015). Whereas the items have been employed as performance growth variables, other scholars have written about service differentiation in the context of a one-off request relating to the previous business year. For example, in a structured literature review, van Looy and Shafagatova (2016) identified performance items for which service differentiation was performed as a set of continuous variables by total numbers. This is hence an objective mode of assessment (Katsikeas *et al.*, 2016). As expected, the participants did not know the exact number of services within their portfolios, which hindered an accurate response and could not be supported in the present research. Therefore, we likewise chose a continuous variable type, but on a 3-point Likert scale with a subjective nature.

Furthermore, as Gronum (2015) employed service differentiation as a business-performance variable from the previous year, the present study adapted it as an independent variable within a five-year period. This was facilitated by formulating a general opening question. Thus, modifications could be made against the background that innovation in GRH usually takes some time, for the industry is somewhat clumsy when it comes to structural changes (Bundesministerium für Ernährung, 2013b; Gabriel and Bitsch, 2018). Gronum's (2015) questionnaire included the following item: 'Range of products/service offered'. Because this is vague, the questionnaire used in the present study offers more detailed items, such as 'number of core services offered' and 'number of added services offered'. The former is horizontal differentiation, or service breadth, and the latter is vertical differentiation, or service depth. To the author's knowledge, the (a) constellation of a categorical growth variable with 4-point ordinal scales in a (b) five-year period asking about (c) both horizontal and vertical differentiation is to date unique and unexplored.

5.4.2.5 Level of service differentiation

***Please rate the following**: 1 = totally disagree, 5 = totally agree*

- Our services are highly differentiated.

The items were adapted from two existing scales, also on 5- or 7-point Likert scales. Whereas Gebauer, Gustafsson and Witell (2011) examined service differentiation in the context of the process of transitioning from a manufacturer to a service provider, which is the current trend as measured by the number of studies, Ralston, Grawe and Daugherty (2013) explored the logistics industry in terms of company capabilities. The scales were combined, as they had similarities. Some items were removed because they were specific to the logistics industry, where business partners are the focus. This is not relevant in the present study, which includes not only business customers but also end and municipal customers. Hence, the research context differs.

5.4.2.6 Number of business types

The type of business might be relevant to the present study, considering the diverse structures of horticultural companies. The German horticulture industry's classification scheme contains nine subclasses. As it is assumed that their borders are blurred because companies in this industry often provide multiple product mixes, the business type can affect the outcomes. This variable derives from Blankson and Ming-Sung Cheng (2005), and the scales from BMEL (2014b), so it is appropriate that multiple choices be possible:

How do you classify your company? *Multiple choices are possible.*

- Cemeteries
- Crop growing
- Fruits
- Floristry
- Landscape building
- Garden Centre
- Interior gardening
- Ornamental plants
- Retail horticulture
- Tree growing
- Vegetables
- Others

This request not only serves for descriptive analysis but also uncovers the level of specialisation. As most business types are specialised in the services they offer, this request was therefore intended as an indicator of the organisational level of servicing: the more business types, the higher the level of servicing, and the higher the level of service differentiation. The total number of business types for each case was manually counted and translated into decimal numbers as an interval scale, where no absolute zero was available because each company has at least one business type. This contrasts with ratio scales, which do have an absolute zero.

While the first questions address the changes in portfolio variety according to growth rate, the next ones request more detailed information about portfolio variety according to customer and competitor preferences, which are partially hypothetical (see 5.3.6, ‘Questionnaire development’).

5.4.2.7 Customer preference

***Please rate the following**: 1 = totally disagree, 5 = totally agree*

- We focus on products, but we deliver services if the customers require them.
- Customers choose us for our products, services come second.
- Customers choose us for our services, products come second.

5.4.2.8 Competitor preference

***Please rate the following**: 1 = totally disagree, 5 = totally agree*

- Compared to competing firms, our services offer unique features or attributes to the customer.

5.4.3 Dependent variables (business performance)

Business performance scales are the dependent variables in the research, and they were detailed in the literature review, where both research gaps were uncovered. In previous research, there were limitations on the combination of objective and subjective items within one framework because most studies used only one mode of assessment (van Looy and Shafagatova, 2016), either objective or subjective items. Hence, the present study makes a central contribution to addressing calls for including both objective and subjective items. This has the advantage of increasing information value but bears the risk of early breakoff because more items must be covered in the survey, which demands more of the respondent’s time.

Prior research, on the other hand, has shown that studies using both modes of assessment in their questionnaires have strong correlation among the variables (Slater and Narver, 1994; Appiah-Adu and Singh, 1998b; Jogaratnam, 2017b). Furthermore, studies using only objective measures, such as financial performance, can lead to hesitation and lack of interest in respondents (Appiah-Adu and Singh, 1998a). Finally, a number of research papers have established that subjective measures correlate closely with objective performance indicators (Vij and Bedi, 2016). Thus, subjective measures are widely accepted.

5.4.3.1 Objective performance measures in 2018

Objective items are absolute financial numbers such as sales revenue and profitability in the last business year (2018, in this case). In the survey, they appear on ordinal scales, which are named and ordered. Both were adopted by Zentrum für Betriebswirtschaft im Gartenbau e.V. (2017), an institution at the University of Hanover that specialises in ratio analysis in German horticulture. The questionnaire includes the following questions:

What was your company’s sales revenues (€) in 2018? *One choice:*

- < 100,000
- 100,001–200,000
- 200,001–350,000
- 350,001–600,000
- 600,001–1,500,000
- > 1,500,001

What was your company’s profitability (€) in 2018? *One choice:*

- < 20,000
- 20,001–40,000
- 40,001–60,000
- 60,001–80,000
- 80,001–100,000
- 100,001–120,000
- 120,001–140,000
- > 140,001

5.4.3.2 Objective performance measures in the last five years

Overall business performance measures on an objective basis were the growth rates of the five most recent business years, adapted from Chan Hung Ngai and Ellis (1998) and Fernhaber and Patel (2012). For this, the questionnaire includes questions about both sales revenue and profitability on a 5-point Likert scale. The questions appear separately:

Compared to the last five years, how have turnover and profitability changed?

Please evaluate every item: 1 = worst, 5 = best

- Sales revenue growth
- Profitability growth

5.4.3.3 Subjective performance measures

Subjective measures differ from objective measures in that they are not absolute financial numbers that are requested but rather the self-reported evaluations of firm performance as provided by respondents, as Jogaratnam (2017a) and Johnson, Dibrell and Hansen (2009) observed. While the former addresses the effect of the development of services on business performance, the latter addresses the relationships between service innovativeness, service differentiation and business performance. Financial performance is explored with four items and non-financial performance with five items, for a total of nine items.

***Please rate the following**: 1 = totally disagree and 5 = totally agree.*

Financial performance

- Our services were profitable.
- Total sales of our services were high.
- The profitability of our service exceeded its objectives.
- Our service exceeded its sales objectives.

Non-financial performance

- Our services had a positive impact on the company's perceived image.
- Our services improved the loyalty of the company's existing customers.
- Our introduction of the services enhanced the profitability of other company products.
- Our services attracted a significant number of new customers to the company.

- Our services gave the company an important competitive advantage.

These are specific subjective performance measures adapted from Avlonitis, Papastathopoulou and Gounaris (2001) and Cooper (1994).

As a result of the pre-tests (see Section 5.5, ‘Pre-testing’), some items, such as ‘market share’, were removed, because this information was not available to managers, given that GRH is dominated by SMEs (Schöps, 2013), where control systems such as market instruments are seldom applied (Engelke, Lentz and Stützel, 2016). These statements were thus abbreviated. Furthermore, since the original items included the expression ‘the services’, this was replaced by ‘our services’ for consistency with the other measurements.

5.4.4 Moderating and mediating variables

Since the first research gap concerns the relationships between three strategic concepts and business performance, statistical analysis with AMOS was applied. The program estimates structural model parameters based on confirmatory factor analysis, discriminant analysis and multiple regressions (Wang, Zhao and Voss, 2015). Besides revealing the direct relationships of each single concept with business performance, the latent variables could also be used to estimate the indirect relationship effects (Namazi and Namazi, 2016). As a result, more predictors, such as moderator or mediator variables, could be integrated into the research model to find more effects, strengths and/or direction (Müller, 2009).

Moderation and mediation are different approaches to testing indirect effects (Hayes, 2018). According to Baron and Kenny (1986), moderation appears when the relationship between two variables depends on a third variable. This can be a qualitative (e.g., gender) or quantitative (e.g., level of competition) variable, which affects the direction and/or strength of the relationship between an independent variable X and a dependent variable Y. In moderation, the principle is to create a new, standardised variable, X_x_M, through the interaction of an independent and moderating variable M.

In the example of service innovativeness, exploratory and exploitative service innovation is labelled exploratory_x_exploitative innovation. Thus, the outcomes are interaction effects, called ‘moderated interaction’. The appropriate variable is the interaction term. To determine a moderating effect, it is mandatory to have a significant main effect between the independent and dependent variables, and between the interaction term and the dependent variable. If these conditions fail, there is no moderating effect (Dawson, 2014); see Figure 23).

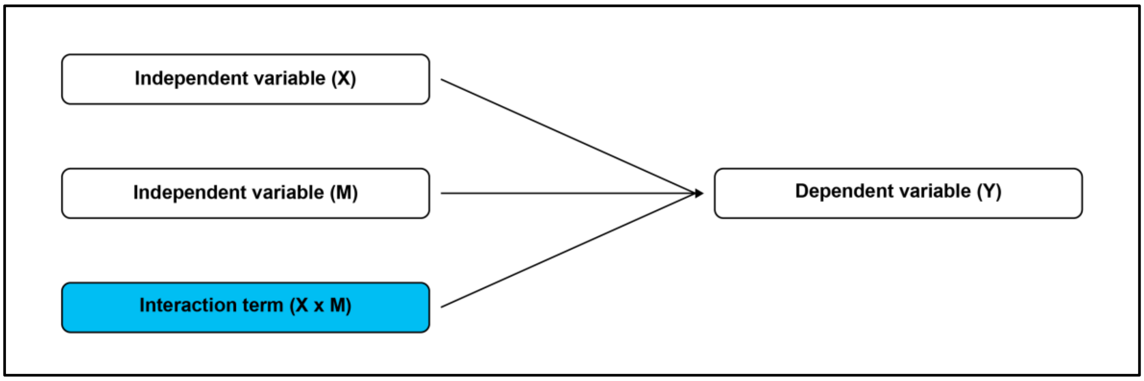


Figure 23: Statistical model of the moderation process.

On the other hand, a mediator is a given variable that as an intermediary transforms both variables: ‘whereas moderator variables specify when certain effects will hold, mediators speak to how or why such effects occur’ (Baron and Kenny, 1986, p. 1176) and ‘explain the kind and effects of the relationship between independent and dependent variables’ (Namazi and Namazi, 2016, p. 545). The mechanism in mediation operates between two independent variables (predictors) and two dependent variables (criterion, outcome; Jose, 2013). The mediation process determines the relationships between both predictors and the criterion. Therefore, there are direct and indirect paths. For example, the predictor is customer orientation, and the meditator is service differentiation. Both are significantly directed onto subjective performance itself.

To conclude, mediating the route to performance occurs via another predictor variable. Hence, there is an indirect relationship, and mediation occurs, when both direct and indirect effects are significant. Moreover, when the direct effect X–Y *after* mediation is insignificant, there is full mediation. More details are provided in Section 5.7.3. See Figure 24.

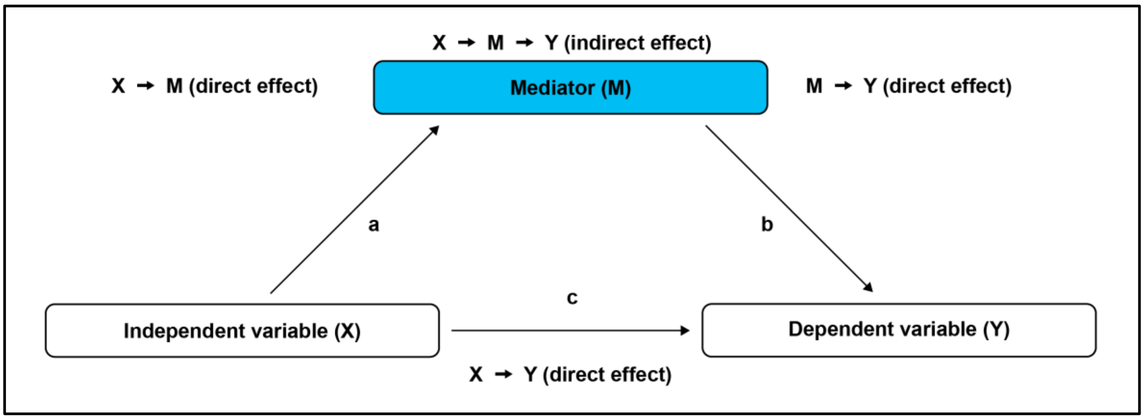


Figure 24: Statistical model of the mediation process.

This stands in contrast to moderation analysis, where the direction is always from predictor to criterion. The addition of an interaction term for both predictors is crucial.

There is disagreement in the literature (VanderWeele, 2020) about whether the early definitions of Baron and Kenny (1986) remain valid, and hence whether the application of moderators and mediators supports transparency in complex business problems. There remains debate among scholars about which type of each variable is appropriate because they overlap (Namazi and Namazi, 2016). For example, Iacobucci (2012) responded to this problem, arguing that mediation analysis usually prefers continuous variables, in contrast to moderation analysis, which is more flexible in using both continuous and categorical variables. In a meta-analysis of different statistical models, however, Iacobucci discovered that ‘mediation analyses can also be conducted no matter whether X, M, and/or Y are continuous or categorical variables’ (Iacobucci, 2012, p. 30). Accordingly, both categories can consider both variables, but the reality is that, given the large number of publications, most recent research is still confined to the traditional categorisation. In this context, Müller (2009) argued that the choice of the right statistical model is crucial and must be carefully made. Especially in moderation analysis, measurement errors can occur, such as multicollinearity, when the variables are too homogeneous in terms of interdependency.

In the present study, service differentiation was applied not only to the direct relationship with business performance but also as a moderator and mediator of the potential indirect effects on business performance.

Mediation tests by using the causal steps method of Baron and Kenny (1986) was initially proposed by fitting a series of three regular regressions (Iacobucci, 2012; Kenny and Judd, 2014). The formula is:

1) $\hat{Y} = b_{01} + cX$
2) $\hat{M} = b_{02} + aX$
3) $\hat{Y} = b_{03} + c'X + bM$

$\hat{Y}$ is the predicted value of *y* (dependent variable), the $\hat{M}$ estimator is defined as zero of the estimating function, and *a* is the path from independent variable X1 to independent variable M, which serves as mediator. The path from M to the dependent variable (Y) is *b*, and *c* is the direct path from X1 to Y.

The parameter estimate *c* in Equation 1 indicates whether there exists a direct effect of *X* on *Y* (in $X \rightarrow Y$), and Equations 2 and 3 determine whether there exists an indirect effect of *X* on *Y* through the mediator *M* (in $X \rightarrow M \rightarrow Y$). To determine whether there is a significant mediating effect, *a* and its standard error were estimated from Equation 2, and the estimate of *b* was extracted from Equation 3. Mediation was then tested via a *z*-test. In the present study, two techniques were applied, which is the bootstrap method of Preacher and Hayes (2008) and the causal steps method of Baron and Kenny (1986). As both are widespread in academic research, and each technique has its preferences, such as application with non-normal distribution of the data in bootstrapping, they were run separately and discussed individually.

All data were input into AMOS 27 to run the mediation tests.

In hypothesis testing (see tables in Section 7.4), both direct and indirect effects were listed in data tables, and Model 1 shows the direct effects on business performance, whereas Model 2 shows the mediator effects of service differentiation on the relationship between the dimensions and business performance. They are in bold.

In mediation, when all the direct and indirect effects of one variable are combined, this is called total effects. To determine the adjacent question of which observed variables are responsible for the effects, a specific indirect effect can be applied afterwards (Jose, 2013). This is critical to enhancing informative value (Hair, 2017). All these techniques were applied in the thesis.

5.5 Pre-testing

Pre-tests are small-scale, preliminary studies that aim to investigate whether the crucial components of a main study – usually a randomised controlled trial – are feasible (Töpfer, 2009). Multiple pre-tests were conducted prior to the main study. This is an important step because it improves upon various aspects of the main study design and questionnaire.

Several pre-tests were conducted with different participants in each case, who were invited to pilot-test the questionnaire. The aim was to examine whether the measurement items were appropriate and whether any important aspect was missing (Blankson and Ming-Sung Cheng, 2005). Based on these results, the measurement items on the questionnaire were developed. Another 15 cycles were conducted to check the e-mail sending procedure and ensure 100% freedom from error.

Since this was ultimately successful, the researcher filled in 20 sample questionnaires to check the procedure. When this was satisfactory, the data were exported to both SPSS 27 and AMOS to practice the data analysis. Next, several refinements were made, and the final e-mail was sent. See Table 6 for an overview.

Table 6: Overview of the pre-testing process.

No.	Date	Aim	Participants, contact person	Modifications
1	16 Sept.– 15 Oct. 2019	Technical checks of the provider: • Operational capability • Data export to SPSS	• Head of LimeSurvey's survey research	• Form and research design • Basic adjustments
2–5	16–22 Oct.	• Identify potential problems • Check logic and understanding	• Two practitioners in horticulture industry; not included in sample • Three academics outside horticulture industry; not included in sample	• Form and research design
6–20	23 Oct.– 4 Nov.	• E-mail sending procedure: technical checks before final sending to guarantee 100% freedom from error • General adjustments of LimeSurvey	• IT expert	• Several test e-mails sent to researcher. Scattered errors occurred. Problems were resolved.

21–40	5–24 Nov.	• Pre-sending and filling in of questionnaire	• Researcher	• Minor refinements in form and research design
	25 Nov.	• Final sending of e-mail		

Based on the pre-tests, the following modifications were made:

- The type of business was moved to question 1, as it is the general classification of the respondents' companies (the 'ice-breaker').
- The question regarding type of business – 'Which classification does your company belong to? One choice' – was reformulated to 'How do you classify your company? Multiple choices possible' to simplify the input, as respondents were expected to make multiple selections. This made it more convenient for the reader, and it had the additional effect that in the later data analysis, potential diversity could be determined, which is of great interest considering the research aim. Since service differentiation was the focus, the number of industry fields could yield provocative insights.
- The introduction to 'Growth of core and added services' was reformulated for clarity.
- The same was done for 'How do you evaluate your portfolio variety from your customer preference?'
- Originally, 'size' was asked about in terms of total numbers, and the respondent was asked to calculate their own weight as 'full-time = 1, part-time = 0.5, occasional employment = 0.25, trainee = 0.5'. Because this calculation could be quite complicated, it increased the risk of early breakoff. It was finally determined that respondents would be asked only the number of staff in each category. Translation into the total number was conducted by the researcher ex-post (data transformation).
- The response options for 'company size' were increased from 10 to 150 employees for each item.

- The question ‘What is the postcode of your location?’ was removed for anonymity.
- Some phrases (e.g., ‘market share’) in the item ‘service innovativeness, service differentiation and business performance’ were removed, as the literature uses terms that are too specific to other industries.
- Against the background that two reminders were sent to encourage participation, later data analysis was intended to conduct T-tests to compare potential early- and late-response group bias. This was not possible because there was only one data set.
- Some phrases in the cover letter were changed, for example, ‘with kind regards from a colleague’ to ‘yours sincerely’ to avoid social desirability.
- The total number of items was reduced to 67.

The questionnaire was shortened in its final form to disburden participation.

5.6 Data collection

5.6.1 Effect size

The strength of the interrelationship among the variables describes the effect size and was assumed, given previous research on the three strategic concepts. Therefore, the effect size had to be estimated – a difficult task, as other factors, such as variances, had to be considered (Aberson, 2015b). Results from previous research and pre-testing helped the researcher approach the problem (Thiétart, 2007). In the current study, effect size was measured by applying covariance-based structural equation modelling, common in market orientation and service innovativeness research. For example, in a study from Francescucci (2014), market orientation and business performance were tested, and only low to moderate effects were found. This concurs with Thiétart (2007), who stated that, in management research, there are usually only small effect sizes with population variances, which in other contexts depend on the nature of the demographic variables. Larger effects also exist (Alpkan, Şanal and Ayden, 2012), however, so there is no clear prediction. Therefore, a medium-sized effect was assumed in the proceedings.

The significance level is usually 5% or 1%, and a 95–99% confidence interval for the data was presumed. In the study, both levels were tested.

5.6.2 Power effects

Upon the failure to reject the false null hypothesis, a type 2 error must be considered, as the researcher's efforts to minimise them can be significant. This means that the more power effects are aspired to, the lower the risk of failure. The literature finds values above 0.8 adequate (Aberson, 2015b). For the current study, the effort to minimise potential errors was low because there are, in fact, experiences in (a) a number of previous research studies, (b) several pre-tests, which were conducted before the main study to support the adjustment of the conceptual model, and (c) a large sample size, which was expected, as the study was of high interest to the participants.

5.6.3 Population

Before recruiting participants, conclusions regarding the population of the target group had to be drawn as a first step. In scientific research, it is often impossible to map a population completely. Thus, a sample must be chosen that represents what the population looks like. In quantitative research, such as the present study, inferential statistics must be applied to hypothesis testing for external validity. These rely on power analysis, which should be conducted before data collection to estimate sample sizes (Mihas, 2016).

Effect size (e.g., the relationship among the variables) and significance level (type 1 error, α) are also determining criteria for research on power. They are interrelated; each depends on the others. Essentially, 'a research study designed for high power is more likely to find a statistically significant result (Aberson, 2015b, p. 4). This rejects the null hypothesis if it is false. Consequently, studies with high power enhance the information value. Another criterion is the failure to reject a false null hypothesis (type 2 error, β). When drawing samples, the choice of sampling method is important, as it grounds the validity of the study. In the current study, external validity was achieved by employing statistical inference.

More analysis techniques were also chosen, which are explained in the next section. As these were conducted after the survey, they are ex post techniques.

5.6.4 Sample

The target population is the GRH industry, one of eight subindustries of the overall German horticulture industry. As borders between these subindustries are blurred, it is assumed that a body of companies has been falsely classified as GRH, such as ornamental growers, who engage in retail distribution but do not have the variety of goods or services necessary for a typical retail nursery (BMEL, 2014a). This hinders clear classification, a possible reason the exact number of GRH companies is, unfortunately, unavailable.

Some sources calculate 10,000 companies (Dirksmeyer, 2013), and others 16,500 (Zentralverband Gartenbau e.V., 2016). It is assumed that this significant variance is caused by the floristry sector, by nature close to retail horticulture. However, it is not classified under the German Federation of Horticulture but under the Chamber of Industry and Commerce. These authors may have relied on different assumptions. Because of this personal, subjective judgement, probability sampling is nearly impossible (Thiétart, 2007; Mayer-Vorfelder, 2011). Thus, judgement sampling was chosen. This comprises the selection of subjects who are most favourably placed or in an optimal position to provide the required information (Amin *et al.*, 2016).

The participant pool was selected based on three criteria: the addressee is running a horticultural company, there is retailing distribution, and horticultural services are provided. Each addressee must have met at least one criterion to be invited to take part in the survey. The participants were company managers, that is, the CEOs or owners, who could give informed consent for the survey (Engelke, 2017a).

During the selection process, company e-mail addresses were collected. The main source was a professional directory of German retail horticultural companies, which is free and available on the market (Taspo, 2010). The purpose of this directory is to cross-link companies and support communication in all possible ways, including knowledge transfer. A scientific survey like this is part of knowledge generation and essential to supporting subsequent knowledge transfer. Hence, issues concerning General Data Protection Regulation (GDPR) were not expected. The researcher also had from previous surveys a list of addresses of German retail horticultural companies that had agreed to participate in later studies, such as the current one. The researcher also had a list of addresses of cooperating colleagues who were willing to support the researcher with the survey.

As the researcher had conducted surveys in the past, requesting contact details was a years-long continuous process. Hence, a large pool of addresses had already been acquired. At the time of the survey, the researcher had approximately 8,500 addresses. Assuming that 10,000 companies exist, this corresponds to nearly the total population. Generally, the larger the sample, the greater the confidence in the results, but large samples can also cause problems and inefficiencies (Thiétart, 2007). Thus, the right sample size represents the studies' objectives and criteria for the total population without errors (Mayer-Vorfelder, 2011). Accordingly, the right sample size must be calculated.

5.6.5 Sample size

Together with general information about effect size and power size, the foundation for calculating the sample size is derived. In this study, however, there are more factors to consider, such as variances and different types of data and variables, which can by their nature complicate calculation. Covariance-based structural equation modelling is the appropriate statistical method and is convenient for such complex associations and different types of data, but these features make it difficult to develop generalised guidelines regarding sample size requirements (Wolf *et al.*, 2013). Consequently, a simpler formula (Mayer-Vorfelder, 2011) was chosen at this stage that solely considers the estimated total population ($N = 10{,}000$), significance level ($\alpha = 0.05$) and an expected variance of 2.

Formula: $n = N / 1 + \alpha^2 (N–1) = 38{,}476$ (alternative: $N = 16{,}500 = 390$, only insignificantly higher).

Given this, a sample size of 400 was thought to represent the total population of GRH, and given the congruency of both calculations, the output would be reliable for further procedures. Considering that total population has a significant effect on the formula, however, and that a definite number of companies is unavailable because categorisation in this industry is vague (Bundesministerium für Ernährung, 2013a), biases were expected (Anderson, Kelley and Maxwell, 2017). Especially in online surveys, where the latent risk of low participation is pervasive (Brosnan, Kemperman and Dolnicar, 2019), the estimated numbers would doubtlessly deviate from reality and thus were handled with care.

Against this background, another approach to determine sample size was derived from Hair *et al.* (2019), who considered the model's complexity. The authors classified the model into a number of concepts, which are in structural equation modelling called 'latent variables' (Thakkar, 2020); the number of observed variables, which are the questionnaire items of each dimension; and the item communalities, the calculated sum of square factor loadings (Field, 2015). Following this cluster, the present study comprised 4 concepts: the 3 independent strategic concepts, including 12 latent variables, and 3 business performance variables (subjective performance, objective performance of 2018, objective performance of the last five years), for a total of 15 latent variables. The communalities of the 3 independent concepts had values higher than 0.6. Thus, on this basis the minimum sample size was set at 100.

Additionally, Combrisson and Jerbi (2015) suggested a rough threshold of 200 samples in social sciences. Hence, different calculations are involved in sample size, with a wide range of 100–400. Drawing conclusions from this, the researcher ultimately aimed for a rough sample of N = 200. The current sample (see Section 5.6.3, 'Population') was first 244 and finally 222 (after data screening and cleaning; see Section 6, 'Data screening'), and this was deemed a solid basis on which to ensure high informative value.

In addition to power size, a large sample size can also encounter potential sample errors, where variability is enhanced as a consequence (Anderson, Kelley and Maxwell, 2017). Nevertheless, a large sample size cannot reduce the risk of potential methodological bias. Against this background, the researcher tried to apply rigour throughout the whole study, as is apparent in Table 7, which shows the large number of techniques considered. In this light, the researcher hoped that a thorough methodological framework, paired with a large sample, would prevent survey bias (Wolf *et al.*, 2013). Given this, the results (see Section 7) were trustworthy in their ability to achieve the research aim.

5.6.6 Measures to support participation

To avoid early breakoff, the researcher attempted to persuade the participants of the necessity and benefit of the survey: participation was important for the industry in general and the participant in particular, as the outcomes aimed to help horticulture practitioners. In the event of low response rates, which did not occur, two reminder e-mails were written to be sent to the whole address pool together with a slightly modified cover letter, which again explained the necessity of participation and conveyed the researcher's gratitude for it. The first reminder was sent after seven days, and the second after another seven days. The e-mail mentioned that the whole pool was being contacted, including those who had already completed the questionnaires because the addressees were anonymised. Thus, refining the pool was no longer possible.

5.6.7 Ethical considerations regarding the General Data Protection Regulation (GDPR)

Some ethical aspects concerning the survey had to be considered, in accordance with the principles of the University of Worcester's ethical guidelines: informed consent, confidentiality, anonymity, data storage and disposal, and potential risks to the participants, subjects and researcher.

Essentially, the aim of the survey was to gain relevant data. In the current study, on the basis of an objectivist ontological viewpoint, these were predominantly quantitative data (Thiétart, 2007). Empirical evidence was gathered through observable and measurable truth in a deductive approach. From an ethical perspective, quantitative data, especially economic figures, are sensitive and must be handled with special care. Asking about financial items could have hindered the completion of the online survey, which would be disadvantageous from the researcher's perspective.

To encourage a company's participation, a personal cover letter was sent to the e-mail addresses along with the icebreaker questionnaire. A photograph of the researcher and background information were also included. To gain favour and credibility, the letter stated that the researcher was the owner of a horticultural retail company and part of the industry. Thus, the goal was to facilitate access to the participants. Yet the methods employed carried the risk of burdening the neutrality of the researcher, which would conflict with ethical standards. To adhere to high scientific standards and avoid ethical conflicts, sensitive data had to be handled with responsibility and trust. Scientists, communities and the subjects of research all have legitimate stakes in the research. The interests of the current study lie particularly in uncovering the complex relationships between the three strategic concepts in a heterogeneous industry, and there is little explicit extant knowledge in the research field.

The data were stored only for scientific reasons and handled carefully to prevent ethical issues. For example, during the research phase, the data were stored only on the server of the service provider, LimeSurvey, which upon the beginning of a project asks the user on which country's server the data will be stored (in this case, Germany). Later, when the survey was completed, the data were transferred onto an external hard drive. Features no longer required (e.g., old data files) were deleted from the hard drive. Additionally, nobody but the researcher had access to the data at any point. All statistics, including data encryption, were used only in the statistical applications described.

This survey was required to respect the anonymity of the data and the respondents (Crow and Wiles, 2008). This was guaranteed, as, for example, the researcher was the only person authorised to contact potential participants. Furthermore, the names and data of the respondents could not be tracked. As the researcher occupies dual positions as an insider and an outsider researcher (Drake and Heath, 2011), ethical conflicts could have arisen regarding neutrality, which must be strictly maintained in this type of study. A researcher must be careful with the privilege of personal contact and refrain from taking advantage of this power: above all, it is important to maintain sufficient distance and neutrality. Under no circumstances should participants develop the impression of data abuse.

The online survey was conducted using the appropriate software (LimeSurvey Professional), which allowed participants to decide whether to participate. Thus, their participation was also their agreement, giving informed consent by ticking three boxes initially: that the ethical information was read and understood, that he or she voluntarily agreed to participate, and that the respondent was over 18 years old. This was not asked at this stage, but within the survey, when participants were asked for their ages, data from those younger than 18 were excluded. This ensured that the researcher did not pressure individuals to participate in the survey (Saunders, Lewis and Thornhill, 2016). If the participant decided to end participation for any reason, this was also voluntary.

In conclusion, ethical issues should be anticipated and addressed during the research stage (Buchanan and Bryman, 2009). Ethical issues were intensively discussed to avoid conflicts with high scientific standards. This is in line with the University of Worcester’s ethical standards of not causing immediate threat, physical discomfort or harm.

5.7 Data analysis

5.7.1 Model fit

Along with the maximum likelihood estimation method, all parameters were tested, followed by the formulation of the modification indices of the residuals and model fit statistics to refine the measures. Thresholds for measuring the goodness-of-fit indices (GFIs) vary among scholars, depending on various factors, such as sample size and the number of degrees of freedom. The thresholds must also be seen in the context of the other studies’ indices from a holistic perspective.

With this in mind, the following indices relate to other scholars, such as Enders (2002), Jogaratnam (2017b), Niemand and Mai (2018), Tarka (2018) and

Subudhi and Mishra (2019a). These are CMIN/DF (chi-square statistics ($\chi 2/df$) – the minimum discrepancy divided by its degrees of freedom. In terms of p-value, nonsignificant p-values were desirable. Notably, the chi-square statistic is sensitive, so the greater the sample size, the more unlikely it is to achieve insignificance. GFI measures the amount of variance and covariance in the data that is reproduced by the tested model. AGFI (adjusted GFI) and comparative fit index (CFI) specify the amount of difference between the examined model and the independence model, and the population value of the root-mean-square error of approximation (RMSEA) determines how well the examined model reproduces the saturated model. It is a discrepancy function obtained by fitting a model to the population moments rather than to sample moments (Fruet-Cardozo *et al.*, 2019).

Another technique to test if the model fits the data is the Bollen–Stine bootstrap. If the data are above the 0.05 threshold, 0 falls outside both intervals with a 95% CI. Accordingly, the null hypothesis has to be rejected and the alternative hypothesis supported. Thus, the model fits the data. When there is good model fit, the sample represents the population well (Kline, 2016). Only when good model fit was achieved did the researcher begin testing the hypotheses against the null hypothesis. In all models, a confidence interval (CI) of 95% was adjusted in AMOS.

5.7.2 Exploratory and confirmatory factor analyses as a two-stage approach

In line with the first research gap, the study followed a two-stage approach (Marsh *et al.*, 2020) in which first exploratory factor analysis (EFA) and then confirmatory factor analysis was conducted. EFA is a data-reduction technique that allows a rough classification of items. Its goal is to uncover the structure and underlying relationships among a large number of observed variables to be measured (Ockey, 2014). As the present study comprises 55 total items, this measure could reduce its complexity and therefore improve the tracking of the model. This measure is often performed prior to confirmatory factor analysis, where only factors with at least two items can continue to be processed and single items are not usable (Jolliffe and Cadima, 2016). This is also a reduction. IBM SPSS 27 was applied here as an approved program.

Among the factoring methods, principal components analysis (PCA) was chosen for several reasons, including the fact that high intercorrelations among the observed variables were removed and total variance was considered, which covers maximum variance among the features in a data set (Suhr, 2009). It is also relatively easy to handle. Reduction produced orthogonal, uncorrelated factors (components). The researcher continued to use these instead of single variables. Data reduction in general bears the risk of information loss, and standardisation is common when running PCA. Compared with other reduction methods, such as principal axis factoring, in PCA this risk is minimised, as most items use 5-point Likert scales and are thus standardised. Hence, there was no concern (Karamizadeh *et al.*, 2013) about information loss. In addition, this technique constitutes only a preliminary stage of the entire data analysis process, which focuses on measurement and structural analysis.

Confirmatory factor analysis was the measurement model chosen. It represents theoretical knowledge by specifying how the measured variables come together in theory (Alexiev, Volberda and van den Bosch, 2016). This was performed to filter out items that did not load well onto the factors, where the threshold is of 0.5, which is set relatively high (Field, 2000). This guarantees the high reliability of the factors employed as a basis for the hypothesis testing. Into this model, all appropriate items of the EFA – 34 in total – were embedded.

5.7.3 Hypothesis testing and effects of sample

The items in the confirmatory factor analysis were then transferred to the hypothesised, structural model in AMOS. As a CB-structural equation modelling approach was employed for model testing, an approximation with the maximum likelihood estimation method (ML estimation method) for all parameter estimations was chosen so that under the assumed statistical model the observed data were most probable (Meeker and Escobar, 2014). The hypothesised, structural models were then applied to hypothesis testing.

Hypothesis testing can be conducted in different ways. A common method is to adhere strictly to a null hypothesis significance test but also to use approximation with the ML estimation method function due to good model fit. In the present study, these techniques were combined.

Generally, the technique used depends not least on the sample size: a null hypothesis test is sensitive to sample size but has only a few approximation functions (Barrett, 2007). Since the present study expected a large sample ($N < 200$), null hypothesis testing was convenient, as the larger the sample size, the more power effects are expected (Wolf *et al.*, 2013). Essentially, larger sample sizes produce more reliable results with greater precision and power. Moreover, a large sample size allows researchers to increase the significance level of the findings (Anderson, Kelley and Maxwell, 2017). In AMOS, however, where multiple latent and observed variables are combined, differentiating between normal and non-normal distribution must be neglected, as the program is highly sensitive to sample size and normality often hard to achieve (Schmidt and Finan, 2018). In addition, all regression weights are only approximated using the ML estimation method. Hence, the outcomes are asymptotic and 'can be made to apply with any desired degree of accuracy, but only by using a sufficiently large sample' (Arbuckle, 2017, p. 31). With $N > 200$, this is indeed given.

As it was expected that data would fail to meet the assumption of multivariate normality, non-normal distribution was also expected (see Section 7, 'Data screening'). Furthermore, this was becoming clear through excessive kurtosis. Consequently, testing against the null hypothesis in addition to using the ML estimation method was conducted by running a Bollen–Stine bootstrap (Enders, 2002), as is advisable for large sample sizes (Hilborn and Mangel, 2013).

Following Byrne (2016), bootstrapping is a resampling procedure that randomly extricates a number of subsamples based on the original sample. This generates an empirical sampling distribution that contrasts with the normal distribution process. The great advantage of bootstrapping is that it gathers factor estimates, which are less biased, as opposed to no bootstrapping (Zhang and Pitts, 2018). As a result, they are more accurate and useable.

When the observed p-values were above the $p < 0.05$ threshold, the proposed model fit was proven not significant and did not represent the whole population under a 95% CI. Thus, the null hypothesis was rejected. This was confirmed because 0 fell outside both intervals with a 95% CI, where significance values support the alternative hypothesis.

Testing the null hypothesis represents the presupposition that there is no effect on the population. The usual types of null hypothesis are that there is no correlation between two variables or that the means for two groups are equal (Aberson, 2015a). If the sample is small, then the probability is poor that the data will differ significantly from reality, so the null hypothesis will be supported. Conversely, with large samples, the probability of rejecting the null is high. It has long been known, however, that this 'perfect fit' is unrealistic in empirical work (Aberson, 2015b; Alizadeh Noughabi and Vexler, 2016). For the present study, as a large sample was expected, null hypothesis testing of the hypothesised model was rigorous and consequently applied to all models.

Another technique in testing against the null hypothesis is the F-statistic, which is in AMOS the critical ratio comparing multiple variances in a mean (e.g., two samples, male/female), since the regression coefficient is divided by the standard error (Peat and Barton, 2014). The researcher had no intention of comparing different groups, but aimed to compare the sample with that of the hypothesised model. The formula used was $F = s^2{}_1 / s^2{}_2$, where variance s^2 was the expectation of the squared deviation *s* of a random variable from its mean. In the F-test, it is assumed that variances of the population are equal; hence, s^2 is always 1. As a result, the researcher's null hypothesis also assumed that variances are always equal. As in the present study, most hypothesis are tested against the null, and values outside the Gaussian distribution range are sought.

If the hypothesis is true, then the critical ratio is an observation of a random variable that has an approximately standard normal distribution. Thus, using a significance level of 0.05, any critical ratio that exceeds 1.96 in magnitude would be significant (Arbuckle, 2017). Non-normal distribution is thereby proven, and the data are outside the Gaussian distribution. In this case, the alternative hypothesis was proven, so there were differences between the sample and the population, and the sample did not fit the measured model. In the present study, a majority of cases assumed an alternative hypothesis, except for H3a, and testing against the null hypothesis attempted to seek differences between the sample and the hypothesised model. For example, because H1a assumes a relationship between customer orientation and business performance, they are not equal.

In mediation analysis, different techniques can be applied. Besides the bootstrap method of Preacher and Hayes (2008), another technique of Baron and Kenny (1986), which is widespread in social research, was additionally applied. The principle relies on four conditions which must be met to measure a mediating effect (Hadi, Abdullah and Sentosa, 2016). Therefore, it is called the causal steps method:

1) Direct effect (X–Y) without mediators. The independent variable must significantly influence the dependent variable in the first regression equation.
2) Direct effect (X–M). Independent variable must significantly influence the mediator in the second regression equation.
3) Direct effect (M–Y). Mediator must significantly influence the dependent variable in third equation. The independent variable and mediator are entered as predictors.

If steps 1–3 are not met, there is no mediation.

4) If successful, the direct effect of (X–Y) after controlling for the mediating variable is measured. If the inclusion of the mediator variable nullifies the direct relationship, then there is full mediation (FM); otherwise, mediation is partial (PM) or absent.

There are more mediation techniques, such as the Sobel test, which analyse, instead of single paths, the product terms *ab* between X–Y, which is the indirect path. This is called the product-of-coefficients approach. Scholars have made numerous attempts to find the ideal technique (Preacher and Hayes, 2008). Delving into the related literature it becomes clear that the individual research constellation provides direction. Factors to consider include the assumption of normality of the sampling distribution, sample size, a lack of potency while measuring the strength of mediation (Meyer *et al.*, 2014), unreliability of the outcomes while measuring non-significant relationships (Pardo and Roman, 2013) and the number of mediators. Whereas most researchers prefer single mediation analyses, there is a lack of multiple simultaneous mediators (Preacher and Hayes, 2008). As this researcher searched for the impacts of such simultaneous mediators, it became relevant to turn the balance to run two different mediation techniques, which are the causal steps method and bootstrap method. The results are discussed at the end of this section.

Using the bootstrap method, hypothesis testing of mediating effects was performed by manually calculating the variance accounted for (VAF), which determines the size of the indirect effect in relation to the total effect (direct effect + indirect effect).

Formula: VAF indirect effect divided by total effect.

Following Hadi, Abdullah and Sentosa (2016) and Hair (2017), VAF values greater than 80% indicate full mediation, values between 20% and 80% partial mediation, and values less than 20% mean that there is no mediating effect.

In sum, four single tests were conducted to answer the hypotheses: null hypothesis testing with Bollen–Stine bootstrapping (and the causal steps method in mediation), approximation with the ML estimation method to model fit, critical ratio (F-test), and VAF. After data collection, statistical tests were run. Critically, the data must be interpreted correctly to draw a valid conclusion from it (Albers, 2017). In the present study, all statistical techniques were discussed in and supported by the relevant literature (see Table 7).

5.7.4 Demonstrating and ensuring rigour

Appropriate measures must be taken to evaluate the quality of quantitative research. This is methodological rigour, which refers to the soundness or precision of a study in terms of planning, data collection, analysis and reporting (Marquart, 2017).

This stage requires reliability and validity measures. Whereas reliability confirms the results when the measurements are repeated, validity means testing the stability of the concept or questionnaire to determine whether the outcomes represent reality correctly (Heale and Twycross, 2015). Different techniques are applied before and after data collection. The former is called ex ante analysis and the latter ex post analysis. Both techniques must be considered in the context of data screening to ensure good raw data. As the present study relied on statistical analysis, data screening was inevitable to support causal theory testing (see Section 7.2, 'Hypothesis testing').

5.7.4.1 Ex ante techniques

A quantitative study often has only one set of data. This bears the risk of common method bias and variance, which is, according to Bell (2019, p. 3), a 'situation where systematic variance is shared between the variables'. This means that both independent and dependent variables are from the same source, which can 'affect research and reduce its rigor' (Bell, 2019, p. 2). In the present study, several steps were performed to address this problem. For example, in terms of the research style of the questionnaire, the distribution of the items of each group was randomised, while the order of the groups in the survey was fixed to all participants (Bhattarai, Kwong and Tasavori, 2019). In another step, different scale types were created: interval, ordinal and nominal scales, arranged in a mixed order. Doing so threatens potential exhaustion when the items are too analogous. The questionnaire's questions were also minimised to prevent social desirability and bias (Tehseen, Ramayah and Sajilan, 2017). Thus, participants were instructed only to 'please rate the following'. Specific subheadings for the different sections were also deleted. The rule is to include just enough information to convey the minimum principle but clear instructions to prevent ambiguity (Williams and McGonagle, 2016).

Besides common method bias, another potential problem is obtaining sensitive data, such as economic figures. These are often unavailable because respondents are unwilling to provide them. However, as these data are the criteria for the conceptual model, they are critical to this study. Therefore, the request for this information was placed at the end of the questionnaire, after gaining the respondents' trust and allowing them to become accustomed to the questions and the status bar. This design motivated the respondent to complete the information for psychological reasons (Brace, 2018) and to avoid early breakoff.

The questionnaire was originally created in English, but the survey was conducted on a German sample and thus was translated. To rule out potential bias due to language differences, the questionnaire was translated by a professional translation agency.

5.7.4.2 Ex post statistical data techniques

The following ex-post statistical techniques were conducted step by step (while maintaining the hierarchy).

Table 7: Ex post statistical techniques in the data analysis.

Method	Technique	Literature
Data screening		• Compulsory
Missing values • Manual in SPSS	• Excluding those cases with many missing values. • Replacing those values where only a few were missing.	• Compulsory
Detecting outliers • SPSS, AMOS	• Mahalanobis	• Compulsory
Test for normality (normal distribution) • SPSS, AMOS	• Kolmogorov-Smirnov and Shapiro-Wilk (S–W)	• Compulsory
Test for linearity • Assumption of PCA • SPSS	• Analysis of variance (ANOVA)	• Compulsory

Test for multicollinearity • SPSS	• Linear regression • Variance inflation factor (VIF)	• Compulsory
Exploratory Factor Analysis • (EFA) SPSS	• Factoring method: • Principal component analysis (PCA)	• Suhr, 2009
Appropriateness of data (adequacy) • SPSS	• Kaiser-Meyer-Olkin Measure (KMO) • Bartlett’s test of sphericity • Total variance explained	• Mulaik, 2010 • Tabachnick and Fidell, 2014b
Testing composite reliability (CR) • Excel	• Composite reliability (CR)	• Amin et al., 2016 • Jogaratnam, 2017b • Bhattarai, Kwong and Tasavori, 2019
Testing convergent validity (CV) • Excel	• Average variance extracted (AVE)	• Amin et al., 2016 • Jogaratnam, 2017b • Bhattarai, Kwong and Tasavori, 2019
Testing discriminant validity (MSV) • Excel	• Average variance extracted: • AVE > MSV and AVE > ASV	• Amin et al., 2016 • Jogaratnam, 2017b • Bhattarai, Kwong and Tasavori, 2019
Test of reliability and inter-item (internal) validity of the questionnaire • SPSS	• Cronbach’s coefficient alpha	• DeVellis, 2012 • Jogaratnam, 2017b • Bhattarai, Kwong and Tasavori, 2019

Confirmatory factor analysis (CFA) **= measurement model** • AMOS		• Bentler and Yuan, 1999 • Johnson, Dibrell and Hansen, 2009 • Amin *et al.*, 2016 • Jogaratnam, 2017b • Tarka, 2018 • Bhattarai, Kwong and Tasavori, 2019
Test of common method bias + test of consistency • SPSS	• Harman’s single factor test in the factor analysis	• Johnson, Dibrell and Hansen, 2009 • Amin *et al.*, 2016 • Bhattarai, Kwong and Tasavori, 2019
Discriminant function analysis • SPSS	• Cronbach’s coefficient alpha	• Johnson, Dibrell and Hansen, 2009 • Amin *et al.*, 2016 • Bhattarai, Kwong and Tasavori, 2019

Hypothesis testing	**Techniques**	• Compulsory
CB–structural equation modelling (CB-SEM) – structural (causal) model • AMOS	• Null hypothesis significance test with Bollen–Stine bootstrap method • Bootstrap method • Causal steps method • Approximation with maximum likelihood estimation • Critical ratio (F-test) • Variance accounted for (VAF)	• Amin *et al.*, 2016 • Hadi, Abdullah and Sentosa, 2016 • Arbuckle, 2017 • Hair, 2017 • Jogaratnam, 2017b

The table shows the complete data-analysis process, where the single steps of ex ante techniques were executed in order. The last step was structural equation modelling, where the hypotheses were tested.

6. DATA SCREENING

6.1 Introduction

This section describes the measures of data screening (cleaning) undertaken. This step is important, as data screening is based on several assumptions, such as linearity, which must be considered in multiple regression analysis, an essential technique in structural equation modelling. Screening techniques for data and statistical analysis must be applied to check the integrity (reliability, validity) of data and rule out potential errors. If there are potential errors, such as outliers, they will not be eliminated but will remain in the data sets, lowering the quality of data and impairing the statistical results, which can distort the testing of the causal theory (DeSimone and Harms, 2018). Thus, as the present study relied on statistical analysis, data screening was critical and essential to guarantee adequate raw material.

The following section explains the relevant screening techniques for the present study, which are in accordance with the relevant literature (Hahs-Vaughn, 2016; Mertler and Reinhart, 2017). These techniques are detecting missing values (6.2), outliers (6.3), normality (6.4), linearity (6.5), and multicollinearity (6.6). The section is summarised in Section 6.7, and the descriptive statistics are detailed in Section 6.8.

All concepts, constituent items and abbreviations used in the present study are listed in the next section. They represent the independent (IV), dependent (V) and moderation and mediating (MV) variables that were added. See Table 8 for an overview.

Table 8: Overview of the concepts, constituent dimensions (strategies) and abbreviations employed in modelling.

Item	Concepts	Abbreviation
	INDEPENDENT VARIABLES	
I	**MARKET ORIENTATION**	MO
	Customer orientation	CuO
1	We pay close attention to after-sales service.	CuO1
2	We have a strong commitment to satisfying our clients.	CuO2
3	We measure customer satisfaction systematically and frequently.	CuO3
4	We define service quality in terms of customer satisfaction.	CuO4
5	For us, service quality and customer satisfaction go together.	CuO5
6	We train our staff to provide satisfactory services.	CuO6
7	We encourage customer suggestions to teach how to serve them better.	CuO7
8	We carefully select staff who interact with customers.	CuO8
9	We continuously look for ways to increase customer value.	CuO9
10	We regularly analyse and track new needs of customers.	CuO10
11	We target customers and customer groups where we have, or can develop, a competitive advantage.	CuO11
	Competitor orientation	CoO
1	We analyse our competitors' marketing programmes.	CoO1
2	We collect market data to help direct new service plans.	CoO2
3	We respond rapidly to competitors' actions.	CoO3
4	We encourage staff to report on competitors' activities.	CoO4
5	We have sufficient knowledge of our competitors' strengths and weaknesses.	CoO5
6	We have sufficient knowledge of our competitors' capabilities.	CoO6
7	We look for ways to differentiate ourselves from our competitors.	CoO7

	Interfunctional coordination	IFC
1	We have regular meetings with all departments to discuss market trends and development.	IFC1
2	We coordinate the activities of all departments to provide satisfactory service.	IFC2
3	Customer information is shared with all departments.	IFC3
4	All departments are involved in preparing the company plans.	IFC4
5	The activities of all business functions within the organisation are well integrated.	IFC5
6	People from one department interact well with those from other departments.	IFC6
7	All departments within the organisation are equally important in marketing our customer value.	IFC7
8	The departments know how the staff can help generate value for customers.	IFC8
9	Customers are regularly visited by executives for quality control.	IFC9
II	**SERVICE INNOVATIVENESS**	SI
	Exploitative innovation	Exploi
1	We frequently refine the provision of existing services.	Exploi_1
2	We regularly implement small adaptations to existing services.	Exploi_2
3	We introduce the improved version of our existing services in our local market.	Exploi_3
4	We improve the efficiency of our provision of services.	Exploi_4
	Exploratory innovation	Explor
1	Our company expands services for existing clients.	Explor_1
2	Our company accepts demands that go beyond existing services.	Explor_2
3	We experiment with new services in our local market.	Explor_3
4	We commercialise services that are completely new to our company.	Explor_4
5	We frequently find new opportunities in new markets.	Explor_5
6	Our company regularly performs new distribution.	Explor_6

7	Our company regularly performs new cooperation.	Explor_7
8	We regularly seek and approach new clients in new markets.	Explor_8
III	**SERVICE DIFFERENTIATION**	SD
	Service breadth	
1	Number of core services offered.	SD_Breadth
	Service depth	
2	Number of added services offered.	SD_Depth
	Level of differentiation	
3	Our services are highly differentiated.	SD_Level
	Number of business types	
4	How do you classify your company?	SD_Number_BT
	Customer preference	CuP
5	Customers choose us for our products; services come second.	SD_Focus Products
6	We focus on products but deliver services if the customers require them.	SD_Cu Products
7	Customers choose us for our services; products come second.	SD_Cu Services
	Competitor preference	CoP
8	Compared to competing firms, our services offer unique features or attributes for customers.	SD_CoP
	DEPENDENT VARIABLES	
IV	**BUSINESS PERFORMANCE**	
	Objective business performance 2018	BP_2018
1	Sales revenue in 2018 (absolute numbers)	SR_2018
2	Profitability in 2018 (absolute numbers)	PR_2018
	Objective business performance five years	BP_5
1	Sales revenue in the last five years (growth rate)	SR_5
2	Profitability in the last five years (growth rate)	PR_5

	Subjective business performance	SBP
1	Our services were profitable.	SBP1
2	The total sales of our services were high.	SBP2
3	Our service exceeded its sales objectives.	SBP3
4	The profitability of our service exceeded its objectives.	SBP4
5	Our services had a positive effect on the company’s perceived image.	SBP5
6	Our services improved the loyalty of the company’s existing customers.	SBP6
7	Our introduction of the services enhanced the sales revenues of other company products.	SBP7
8	Our services attracted a significant number of new customers to the company.	SBP8
9	Our services gave the company an important competitive advantage.	SBP9
	Valid N (listwise)	222

The four concepts are capitalised, and their 15 dimensions are highlighted in grey. The items for each dimension are listed below the dimension, and the abbreviations appear in the third column. These were employed in all models throughout the analyses. There were 222 valid cases, representing the current sample size.

6.2 Missing values

The relevance of obtaining adequate response rates was detailed in Section 5.6 (‘Data collection’). To this end, efforts were made in the present study, such as accurate data collection and reminder letters. Despite the large samples, complete data sets are the goal, but they often remain unachieved, as missing data can occur for various reasons, such as poor questionnaire layout that overloads the participant or too many questions and poor sequences of similar items that can impair concentration and result in early breakoff (Field, 2015). These situations must be avoided.

Nonetheless, breakoffs in web surveys are a well-known phenomenon, and measures must be implemented beforehand in the questionnaire (McClain *et al.*, 2019). Missing values lead to incomplete data sets and inaccurate inferences from the data. In SPSS, two solutions are appropriate when encountering missing data (Peat and Barton, 2014):

1) Deleting those with many missing values.

2) Replacing cases in which only a few are missing.

The problem is that deleting leads to more deleting (Field, 2015), and the researcher must realise the right moment to stop this process so that sufficient samples can be maintained because every removed sample is lost and no longer useable. Even when a few cells are left blank, the precious information from already-filled items remains, and deleting the data deletes this information as well. Therefore, removing incomplete cases must be handled carefully.

In the present study, when data collection was completed, the total number of participants was N = 275, with 33 incomplete cases. These were closely examined afterwards, and it was found that often the first items were answered, but then there was an interruption, and, thus, no more robust information could be generated. As some techniques in covariance-based structural equation modelling require complete datasets, such as bootstrapping, and considering that the total response rate must be sufficient to generate informative value, these 33 cases were consequently deleted, irrespective of whether they had only a few or a larger number of gaps. Accordingly, the adjusted sample size was N = 244.

This means that the sample size was reduced, which might have consequences for the power effect and/or some of the other elements dependent on it. The general guideline is that the larger the sample size, the smaller the margin of error, and hence the greater the probability of rejecting the null hypothesis if it is wrong (Aberson, 2015b). Previously, the sample size calculated was N = 200 (see Section 5.6.5, ‘Sample size’). After data input, with N = 244, this was adequate. Given the guideline of a sample size of at least 100 (Hair *et al.*, 2019) to 200 (Combrisson and Jerbi, 2015) as a threshold in the social sciences, this was acceptable.

Because no missing values remained in the data set, the spectrum of potential statistical techniques in both SPSS and AMOS was amplified. This was a great advantage because some key functions, such as bootstrapping, were now applicable. This is important, as is detailed in Section 6.4, because bootstrapping does not rely on normal distribution (Enders, 2002). This benefited the present study, where non-normal distribution was detected.

After handling missing values, the next step was to detect potential outliers, which also had consequences for the sample.

6.3 Detecting outliers using Mahalanobis distances

Outliers can bias the estimates of the parameters and affect the sum of squared errors (Field, 2015). Therefore, it was necessary to detect potential outliers in a second step. As more than one (univariate) extreme variable was expected, Mahalanobis distances were employed to identify multivariate outliers in SPSS. Mahalanobis distances are grounded in performing regression analysis, saving the Mahalanobis distance values in the data set. Significant distance values in the sample were constructed with the help of a new p-value variable, which was then computed. Graphical illustrations were constructed with scatter plots.

The process identified several outliers on different items. Especially high values in ‘company size’ were noted and became visible in the descriptive statistics, as most companies were rather small. This supported the researcher’s existing knowledge of this industry (Engelke, 2017a; Schwarz, 2008) and simplified the fact that large companies constituted a minority of the sample. As these high outliers can create a false impression of the sample, they were accordingly deleted. The problem when deleting multivariate outliers is that, once this process is started, more outliers appear, creating a feedback loop to find a suitable fit (Campos *et al.*, 2016). On this account, one must find a compromise between abnormal extremes and what is acceptable. It is critical that there are mostly homogeneous 5-point Likert scales, which prevents bias. Nonetheless, this is not a fail-safe guarantee, as the results have shown.

After running several loops, 22 cases were ultimately deleted, giving a final useable sample size of N = 222 without missing values. Outliers could be detected in AMOS and SPSS, where the assessment of normality showed a range of data distribution. This showed that tests for normality were closely connected with the detection of outliers.

6.4 Test for normality using Shapiro–Wilk and Kolmogorov–Smirnov tests

Tests for normality are used to check the data distribution in samples. They are performed to determine whether the sample has been collected from a normally distributed population. The assumption of normality must be checked for a number of statistical procedures, such as parametric tests, because their validity of the analyses depends on it (Ghasemi and Zahediasl, 2012). Checking for normality in SPSS is possible using visual methods, such as frequency distribution (a histogram), which shows the skewness and kurtosis of the data. Boxplots are also suitable for showing the range of data. If the curve is normal, then there is a normal distribution. In this case, parametric tests can be applied, which again test the null hypothesis. On the other hand, non-parametric tests are suitable for cases of non-normal distribution.

The Shapiro–Wilk test and Kolmogorov–Smirnov test (K–S or KS test) are common. They are based on different assumptions, such as the sensitivity of the sample size and the corresponding parameters of distribution comparisons. For example, for small sample sizes, normality tests have little power to reject the null hypothesis, so small samples usually pass normality tests. For large sample sizes, significant results would be derived even in the case of a small deviation from normality, although this would not affect the results of a parametric test (Ghasemi and Zahediasl, 2012).

Sensitivity in terms of sample size in model fit in AMOS was becoming clear. Originally, N = 244, so p-values were mostly 0.00, so significant and not normally distributed. After deleting outliers to N = 222, p-values rose to non-significant thresholds.

It has been argued that the K–S test has low power and should not be considered seriously for testing normality, whereas the Shapiro–Wilk test is more suitable in terms of the corresponding normal scores, where more power is expected. In the present study, with N = 222, the sample size was relatively large, following Field (2015); hence, both tests were applied. See Appendix 5.

The prob < W value listed in the output is the p-value. The alternative hypothesis is assumed regardless of whether the sample and the whole population differ significantly. The chosen alpha level was 0.05, and the results showed a p-value of less than 0.05 in all cases. This means that there were significant differences between the samples, and the null hypothesis had to be rejected; thus, the alternative hypothesis was supported. Not all variables were normally distributed.

Yet in AMOS, this significance test on its own is not a practical assessment of normality, especially in structural equation modelling, where tests such as these are highly sensitive to sample size, and with larger sample sizes the outcomes are more likely to be significant (non-normally distributed; Ghasemi and Zahediasl, 2012). Therefore, normal distribution is desired in research but often non-existent, especially in the social sciences, including this study. Consequently, some corrections were made as described, but deleting too many variables from the sample would risk losing potential information (Hancock and Mueller, 2010). For this reason, it was accepted, and only the highest outliers were deleted, leaving a residual of high critical ratios (threshold < 10; Byrne, 2016).

In statistics, the F-test is common when comparing multiple variances of means, as is performed in regression analysis (Peat and Barton, 2014). Yet in AMOS, where typically complex constellations of multiple latent and observed variables are created, it is not the F-test but the critical ratio that is applied. The formula involves dividing the regression coefficient (β) by the standard error. The great difference between these tests is that the F-test is ‘exact under the assumptions of normality and independence of observations, no matter what the sample size. In Amos, the test based on critical ratio depends on the same assumptions; however, with a finite sample, the test is only approximate’ (Arbuckle, 2017,

p. 31). In sum, in AMOS, differentiating between normal and non-normal distribution must be neglected, as all measured regression weights are only approximate. Thus, in large samples, it is difficult to gain insignificant p-values, so in AMOS, values are usually outside the normal distribution range (Schmidt and Finan, 2018).

After confirmatory factor analysis, the next step is hypothesis testing with structural equation modelling. Since the data of the present study failed to meet the assumption of multivariate normality, they were non-normally distributed, and the results clearly showed excessive kurtosis, so the bootstrap method was applied in all subsequent analyses. This is advised when working with large sample sizes (Hilborn and Mangel, 2013).

The necessity of bootstrapping was underpinned by the fact that the questionnaire's items had already been employed in previous research. As these studies were concerned with only the significance levels of the path coefficients, it was assumed that these deviations from normal distribution could be disregarded. Nonetheless, in structural equation modelling, significance tests and tests for normality are more robust when combined with descriptive statistics due to the expectation of large samples in structural equation modelling and the fact that, as stated, significant results and non-normality are more likely with larger samples. As a result, the probability of the null hypothesis was small (Wolf *et al.*, 2013).

As non-normal distribution of the sample in most models was likely, the Bollen–Stine bootstrap enabled hypothesis testing as an acceptable method. As discussed in Section 5.7.3 ('Hypothesis testing'), with higher sample sizes the importance of gaining a normal indicator distribution can be neglected, as covariance-based structural equation modelling is less likely to be sensitive to it (Arbuckle, 2017; Zhang and Pitts, 2018). Hence, AMOS 27 was appropriate for running all hypothesised, structural models with both ML estimation and bootstrapping techniques. As the results confirmed, both techniques showed the same outcomes.

6.5 Test for linearity using ANOVA

Since AMOS encompasses different statistical techniques (see Section 5.3.5), multiple linear regression analyses are central to it. Linear regression models must be justified by a number of assumptions, one of which is linearity (Pallant, 2007). Linearity identifies the relationship between an independent variable and a dependent variable in a consistent slope of change (Darlington and Hayes, 2017). As measured by deviation from linearity, the threshold is error type 1; for example, $\alpha = 0.05$ with a 95% CI. See Appendix 6 for an overview of all items.

Based on the ANOVA output table, most values significantly deviating from linearity were > 0.05, so it can be concluded that a linear relationship exists between all independent variables and business performance. The exceptions were BP7 and BP8, which in some items had values under the threshold of 0.05. These must be considered carefully.

Peculiar to the former techniques in data screening is that the linear regression models are sensitive to outlier effects; therefore, there is a risk of multicollinearity when the correlations between the independent and dependent variables are too high. This is explained in the next section, which explores consistency issues using appropriate techniques in reliability (see Section 5.4.1, ‘Scales’). In conclusion, high Cronbach’s coefficients confirmed that there was thus far no reason for concern (Meeker and Escobar, 2014) and that all data of the proposed models could be processed.

In the present study, the assumption of linearity was confirmed, since the three dimensions of customer preference loaded highly onto one factor. As SD_Focus_Products and SD_CuP had opposite signs in the measurement model, however, the negative sign could be converted into a positive sign in the hypothesised, structural model; hence, both were on the same slope. This indicated the high linearity of these dimensions (see Appendix 6).

The test for multicollinearity, another assumption of linear regression models, is discussed next.

6.6 Test for multicollinearity of the independent variables using linear regression

Detecting multicollinearity is another measure of data cleaning, which is the appearance of high intercorrelations among independent variables in a multiple regression model (McClelland *et al.*, 2017), such as covariance-based structural equation modelling. It is a type of disturbance in the data, a phenomenon in which one predictor can be linearly predicted from the others. As multicollinearity can affect calculations regarding individual predictors, it does not reduce the predictive power of the model in its entirety. The main problem with multicollinearity is that statistical inferences made from the data may not be reliable. This problem is particularly pronounced in small samples (O'Brien, 2007).

Different sources can cause multicollinearity. When there is more than one independent variable explaining the total variance in the dependent variables, there can be overlap. In this case, the regression model can be biased, and it is thus important to detect collinearity symptoms prior to data analysis (McClelland *et al.*, 2017). Another potential for multicollinearity occurs when the participant him- or herself answers the questionnaire, so there is self-assessment (Field, 2015). As a result, self-evaluation must be handled carefully in terms of common method bias (Podsakoff *et al.*, 2003; Amin *et al.*, 2016). Another potential source of multicollinearity occurs in moderation analysis, where potential measurement errors can occur when the variables are too homogeneous in terms of interdependency (Müller, 2009). For this, the study used methods testing common method bias.

As noted, the intercorrelations of all variables in the study were measured. The results revealed that moat items within the three independent concepts did significantly correlate with each other, but as all intercorrelations were below the threshold of 0.9, there was no risk of multicollinearity among them (Tabachnick and Fidell, 2014b) because the large sample size could have counteracted it. This first step of data analysis is useful because it gives a rough impression of data correlation.

One appropriate indicator is the variance inflation factor (VIF) for each independent variable after performing a multivariate regression. Following the literature, the threshold is < 3, where no problems are expected. Values above 10 are critical, and measures must be undertaken when necessary, such as deleting the outlying independent variables.

In the present study, the 12 dimensions of the 3 independent concepts were calculated and the VIF identified. Based on the coefficients' output and collinearity statistics, all obtained VIF values of the independent variables were between 1 and 3, safely within the acceptable range. Thus, it could be concluded that there were no collinearity symptoms of any independent variable (O'Brien, 2007). This laid an important foundation for reliability (see Appendix 7).

Finally, the non-normalised correlation, called covariance, between the independent variables is illustrated in Appendix 8. The normalised correlation matrices appear in Appendix 9. The correlation coefficients indicate no serious problems with multicollinearity.

6.7 Summary of data screening

This section explains the five measures of data screening used in the present study. They are also summarised in Appendix 10. No serious problems were found at this early stage of analysis. Moreover, the assumptions of linear regression were supported by almost every test except the test for normality, and there was hence no concern about violation. The test for normality continuously showed significant p-values on all variables, indicating non-normal distribution. Given this, non-parametric techniques needed to be applied in the subsequent tests.

An important outcome of data screening was that missing values and outliers were detected and carefully deleted based on Mahalanobis distances. Ultimately, 22 cases were deleted, resulting in a final useable sample size of $N = 222$ without missing values. On this basis, a solid grounding gave the researcher confidence in the data analysis detailed in Section 7.1.

Next, the descriptive statistics are presented. They employ the basic features of the data in the present study and provide simple summaries of the sample and measures. They also represent the basis for the quantitative data analysis (Watson, 2015).

6.8 Descriptive statistics

6.8.1 Introduction

Descriptive statistics are numbers employed to summarise a sample and describe quantitative data. They are necessary when interpreting large amounts of data but are limited to a descriptive character. Accordingly, they are not suitable for generalisations beyond the data (Holcomb, 2017).

As our data collection was a priori based on a positive epistemological paradigm, quantitative analysis was the logical and appropriate strategy to use with it. Relevant indicators in descriptive statistics are the range, with the minimum and maximum values of the variables; the central tendency of a distribution (mean, as an estimate of the centre of the sample); measures of variability (standard deviation and variance); skewness and kurtosis (Albers, 2017). The items in each group are presented in Appendix 10.

The scales are marked with * below. Most items – market orientation, service innovativeness, service differentiation and subjective performance – used 5-point Likert scales, where 1 is ‘totally disagree’ and 5 is ‘totally agree’. Service differentiation employed 3-point Likert scales, and demographic factors and objective performance employed ordinal scales ranging from 5 to 8. Furthermore, interval scales were employed in the company’s size as a demographic factor.

The initial interpretation of the sample data began with skewness and kurtosis.

6.8.2 Skewness and kurtosis

Both indicators describe the shape of data distribution. Skewness closely describes the asymmetry of the probability distribution of a random variable about its mean. The acceptable range is between –0.5 and 0.5, which is close to 0 and means that the distribution is approximately symmetrical (Field, 2015). Kurtosis is also a measure of the shape of data distribution, but here the ‘tailedness’ of the probability distribution of a real-valued random variable is the focus (Shields and Rangarajan, 2013).

The output table shows values far outside the acceptable range, indicating that the data set is highly skewed and not normally distributed. This confirms the tests for normality (see Section 6.4, 'Data screening’).

6.8.3 Standard deviation

Standard deviation is an indicator of the variation of data, that is, how far the data are from the mean. Following the literature, for skewed distributions the standard deviation gives only limited information on asymmetry. In a normal distribution of data, the ‘68–95–99.7’ rule can be applied. This shows that the percent values lie within one, two and three standard deviations of the mean (BAS, 2020). As the present data faced non-normal distribution, however, the rule was meaningless (Zhao *et al.*, 2019) and had no real value for interpretation, as a number of scholars have argued. Another school of thought states that, in large samples, such as sample sizes larger than 100, violations of a normality assumption often do not noticeably affect the result (Schmidt and Finan, 2018). Therefore, the distribution of data can be neglected in terms of its variation, and standard deviation can be applied anyway, irrespective of normal or non-normal distribution.

Outliers have a significant effect on the outcomes and can seriously disturb normal distribution and thus increase variability. Therefore, data screening and deleting potential outliers were conducted to reduce variability prior to hypothesis testing (see Section 7, ‘Results’). Whereas suitable techniques are roughly split into parametric and non-parametric tests (Peat and Barton, 2014), the problem of insecurity in terms of standard deviation remains when there is non-normality in the data set, regardless of the sample size. Hence, new statistical methods considering outliers on skewness and kurtosis and sample size were developed (Gunver, Senocak and Vehid, 2018).

No individual standard deviation is optimal (Dopkins, Varner and Hoyer, 2017), and, in the present data set, the standard deviation lay predominantly between 0.5 and 1, representing measurements that are closer to the true value. This is acceptable for the present study, regardless or non-normality. Exceptions were the company's size and profit for 2018, with abnormally high values. As mentioned, however, size was influenced by a few outliers, with employment far above the average. This biased the mean. As for PR_2018, this cannot be explained at this stage.

6.8.4 Statistical mean

The statistical mean (or average) describes the central statistical tendency or distribution of the data in question. The calculation is performed simply by adding all data points of the sample and then dividing the sum by the number of data points (Field, 2015). Thus, the statistical mean provides important information about the data because it includes all items in the data set. It is therefore essential for statistical measurements. As mentioned, a problem can occur when extreme values bias the mean values.

6.8.4.1 Market orientation

It could be observed that, for all five scales, the range of distribution of the three dimensions of market orientation – customer orientation, competitor orientation and interfunctional coordination – had a mean between 3 and 4. This means that the mean of the responses of the survey subjects for customer orientation was higher than 3 in most variables. In other words, there was a tendency to agree with the statements. Furthermore, in customer orientation, several items' means are closer to 'totally agree', indicating a high level of market orientation.

6.8.4.2 Service innovativeness

In service innovativeness, the mean value was also between 3 and 4 and also showed a tendency to agree with the statements in the questionnaire. Deviations were visible within both groups. Whereas exploitative innovation tended towards 'strongly agree', some items in exploratory innovation tended towards 'disagree', indicating that new innovations were inferior. Within the group, different peculiarities were identifiable.

6.8.4.3 Service differentiation

In service differentiation, different scales were chosen with the purpose of obtaining a holistic view from different variables. SD_Breadth and SD_Depth had a mean greater than 2 on the 3-point Likert scale, indicating ‘increasing portfolio variety’ within the last five years. SD_CuP was more likely to be positioned left of 3 on the 5-point Likert scale, indicating ‘rather disagree’. This means that the customers did not choose the shopping location because of their products but because of their service offerings. As this question was asked for both products and services, they were automatically in the interest of the customer.

The mean number of business types was far left of the middle, indicating that there were only a few independent service departments. Accordingly, the level of departmentalisation was not particularly distinguished, as each business type was automatically the company’s emphasis: the fewer business types installed, the lower the level of departmentalisation. Service differentiation by competitor preference, on the other hand, was right of the middle, indicating agreement with the statement that the company offered more desirable features to the customer than their competitors did. The level of service differentiation was also right of the middle, indicating that the service offerings were highly differentiated.

6.8.4.4 Objective business performance

Objective business performance was asked about with two questions: performance in 2018 and in the last five years. Sales revenue in 2018 was asked about on a 6-point ordinal scale, where a mean of 4.12 was calculated. This was clearly right of centre, within the range of 5, and corresponded to the categories > €350,000 p.a. In comparison to the results of ratio analysis in German horticulture (Zentrum für Betriebswirtschaft im Gartenbau e.V., 2017), which are annually surveyed in this industry, the average sales revenue in 2016 was €549,887, higher than the sample data.

Profits in 2018 were asked about on an 8-point ordinal scale, where a mean of 4.05 was calculated. This was in the middle, within the range of 7, and corresponded to the categories indicating > €60,001–80,000 p.a. The average profits in 2016 were €72,068, at least on par with the sample data.

Sales revenue in the last five years was asked about on a 6-point ordinal scale, where a mean of 3.63 was calculated. This was clearly right of centre, within the range of 4 to 5, and corresponded to the categories > €350,000 p.a. The average sales revenue in the years 2013–2016 was €524,886, higher than the sample data.

Profits in the last five years were asked about on an 8-point ordinal scale, where a mean of 3.5 was calculated, in the centre, within the range of 5 to 6, and which corresponded to the categories > €60,001–80,000 p.a. The average profit in the years 2013–2016 was €64,983, at least on par with the sample data.

In sum, sales revenue, both from 2018 and from the last five years, were below the comparative figures of the Zentrum für Betriebswirtschaft im Gartenbau e.V. (2017). Profits, however, were similar.

6.8.4.5 Subjective business performance

The range of distribution on subjective performance on all five scales had a mean between 3 and 4. The mean of the responses of the survey subjects on customer orientation was higher than 3 for most variables. Hence, there was a tendency to agree with the statements. Furthermore, some items were closer to ‘totally agree’, indicating a high level and positive subjective performance.

Considering that the nine items were subdivided into four financial items (1–4) and five non-financial items (5–9), the mean values (3–4) reveal no differences between them.

6.8.4.6 Comparison of objective and subjective performance

From an objective viewpoint, sales revenue in both 2018 and the last five years were below the comparative figures of Zentrum für Betriebswirtschaft im Gartenbau e.V. (2017), but from a subjective perspective, the participants evaluated themselves positively. Here can be seen a discrepancy between objective and subjective performance. Thus, it can be argued that the personal assessment was more accurate than the effective, objective outcomes. Consequently, the descriptive results answered the request for multiple performance indicators, and there were in fact differences between the subjective and objective performance measures. Profit, on the other hand, corresponded well to the objective and subjective viewpoints.

Before hypothesis testing with structural equation modelling was performed, a prior step was to conduct EFA using PCA as the appropriate factoring method. Even though, following the literature, the conceptual framework was known for each of the three strategic concepts, a fair theory a priori existed. Hence, EFA was not automatically necessary, and confirmatory factor analysis could be directly conducted, as scholars have suggested. As the combination of all strategic concepts remains unexplored to date, however, a recombination of the variables is necessary, and a new theory expected.

Against this background, EFA was conducted first, and then the proposed structural model was validated by confirmatory factor analysis and structural equation modelling to perform hypothesis testing. These were the two main approaches (Marsh *et al.*, 2020). The software tools used were IBM SPSS 27 and AMOS 27 (Pattnaik and Dangayach, 2019). See Figure 25.

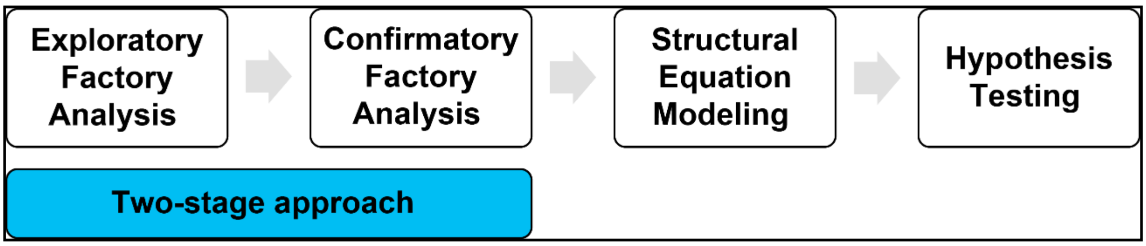


Figure 25: Procedure for hypothesis testing via a two-stage approach.

Not least for these reasons, several pre-tests were conducted before refining the questionnaire (see Section 5, ‘Methodology’). In contrast to other extraction methods in PCA, such as principal axis factoring, all the available variance, not just common variance, was considered. This was important, as it was unknown at this stage whether and how the three concepts were interrelated. Determining this was one task of the present study. Hence, PCA is more sensitive in this context.

There is debate about whether PCA is a descriptive or inferential statistic. This can be answered by the fact that when the data set is presented solely to describe the characteristics of the sample, it is descriptive, but when PCA is otherwise used only as a step prior to continuative research, it is inferential. One approach of continuative research is path analysis in the measurement model of the present study. For this reason, PCA is discussed in Section 7.1.

7. RESULTS

This section presents the results of the survey. In accordance with the two-stage approach (Figure 25), Section 7.1 is data analysis and Sections 7.2–7.4 hypothesis testing.

7.1 Data analysis

In preparation for hypothesis testing, exploratory and confirmatory factor analysis were conducted following a two-stage approach (Marsh *et al.*, 2020). The first step was EFA, which was conducted using PCA in IBM SPSS 27. EFA is necessary to enable an initial rough classification of all questionnaire items (components; Ockey, 2014). The components are based on eigenvalues, which are inflated component loadings contaminated with error variance (Child, 2006).

The components are depicted on a scree plot (Appendix 11) and arranged in a downward curve, ordered from largest to smallest. At a point, the curve turns and shows that all components with eigenvalues < 1 were dropped, because at this point the eigenvalue is equal to the information accounted for by an average single item. This is the Kaiser rule (Juez-Gil *et al.*, 2020). From this point towards the higher components, total variance cannot be more effectively explained with independent variables.

The individual numbers of components were manually transferred into confirmatory factor analysis and their conformity tested in a subsequent step. This is the measurement model in AMOS 27 (Appendix 12).

After confirmatory factor analysis, the selected items were transferred from the measurement model into structural equation modelling by building the causal model to test the hypotheses. Against the measurement model, in the structural model, covariances on error terms are not permitted; only single-headed arrows appear between latent variables. They show regression lines (β-value).

In principle, while measurement models represent the theoretical foundation of specifying how measured variables come together to represent the theory, hypothesised, structural models build the theorical foundation that shows how the concepts are related to the other concepts (Chapman and Feit, 2019). More specifically, structural modelling lays open the potential relationship among the latent variables, which is the great advantage and general purpose of structural equation modelling (Tarka, 2018).

As a matter of principle, all models are tested through GFIs and, once adequate fit statistics are achieved, interpreted. This is important in maximising the informative value and fulfilling high academic standards. In this study, the GFIs are CMIN/DF, P-value, GFI, AGFI, CFI and RMSEA. They are presented in each analysis.

Only when the models were fit was interpretation started. This included the variables with significant p-values, which were then considered for further interpretation. Those that failed were eliminated from use during structural equation modelling. This in turn meant that when the model was completed, not all relationships among the variables were visible. No relationship equals no visibility, equals no interpretation. Nevertheless, in some overview tables, such as moderation analysis, insignificant relationships were added for the sake of completeness. They are marked with ‘n/s’ (not significant).

As each hypothesis required an individual analysis of every concept, it is hereinafter explained step by step following the two-stage approach: EFA, and then confirmatory factor analysis and structural equation modelling. Confirmatory factor analysis was added by tests of validity, reliability and discriminant validity of the PCA model and tests of the reliability and inter-item (internal) validity of the questionnaire, using IBM AMOS 27. Additionally, tests of common method bias in SPSS using Harman’s single-factor test were also included.

7.1.1 Exploratory factor analysis using principal components analysis

The results imply that 63.13% of total variance can be explained by 12 factors (components; see the scree plot in Appendix 11). This is ‘adequate’ and indicates high reliability of the questionnaire (Mulaik, 2010). The appropriateness of data (adequacy) shows a KMO value of 0.884, considered ‘meritorious’ by Tabachnick and Fidell (2014a) and indicative of sufficient items for each factor. Bartlett’s test of sphericity has an approximate chi-square value of 6916.526, which is high.

The p-value is 0.000 and significant (Tabachnick and Fidell, 2014a). Both values indicate that the correlation matrix differs significantly from an identity matrix in which correlations between variables are all 0.

Communalities were examined next. They are the calculated sum of square-factor loadings. In this case, most values were relatively far over the threshold of 0.5 (Field, 2000), indicating that they load well onto the others. Customer orientation items CuO7, CuO9, CoO2 and CoO7, with values below 0.5, could be critical and had to be considered carefully. Regarding the rotated component matrix, however, some items were no longer considered. Generally, most loadings were acceptable. The factor structures after running PCA are illustrated in Table 9. Relevant items are in bold.

Table 9: Factor loadings of all items after principal components analysis.

Rotated Component Matrix[a]												
	Component											
	1	2	3	4	5	6	7	8	9	10	11	12
CuO1							**.663**					
CuO2												.565
CuO3							**.711**					
CuO4				**.709**								
CuO5				**.795**								
CuO6							**.534**					
CuO7												
CuO8												
CuO9												
CuO10												
CuO11	.541											
CoO1					**.763**							
CoO2					**.576**							
CoO3					**.774**							
CoO4					**.596**							
CoO5											.555	
CoO6											.694	
CoO7												
IFC1		**.598**										
IFC2		**.708**										

Rotated Component Matrix[a]												
	Component											
	1	2	3	4	5	6	7	8	9	10	11	12
IFC3		**.770**										
IFC4		**.664**										
IFC5		**.794**										
IFC6		**.640**										
IFC7		**.658**										
IFC8		**.721**										
IFC9												
Exploi1				.511								
Exploi2												
Exploi3												
Exploi4												
Explor1	**.612**											
Explor2	**.756**											
Explor3	**.730**											
Explor4	**.699**											
Explor5	**.686**											
Explor6	**.674**											
Explor7												
Explor8	**.677**											
SD_CuP1						**-.814**						
SD_CuP2						**-.754**						
SD_CuP3						**-.787**						
SR_2018										**.796**		
PR_2018										**.755**		
SR_5									**.787**			
PR_5									**.822**			
SBP1			**.587**									
SBP2			**.552**									
SBP3								**.675**				
SBP4								**.691**				
SBP5			**.736**									
SBP6			**.704**									

Rotated Component Matrix[a]												
	Component											
	1	2	3	4	5	6	7	8	9	10	11	12
SBP7			**.549**			-.514						
SBP8			**.735**									
SBP9			**.738**									

Note: Extraction method – principal component analysis; rotation method – varimax with Kaiser normalisation
[a] Rotation converged in 16 iterations

7.1.1.1 Interpretation of development and reliability of the concept

The PCA performed on the 55 items resulted in a 12-component solution. After oblique rotation, items with loadings above the threshold of 0.5 were selected for further analysis. Ten items were deleted, which were below 0.5: CuO7–10, CoO7, IFC9, Exploi2-4 and Explor7. Additionally, three items were deleted which were only single items and could not be considered in the confirmatory factor analysis, as a minimum of two were required: CuO2, CuO11, and Exploi1. The items CoO5-6 and SBP3-4 were separate components and therefore suitable for further analysis. However, as the later convergent and discriminant validity showed irregular values, they were removed as well. Afterwards, the values were on a better level (see Table 11).

After reduction, 38 items remained and were selected to transfer into confirmatory factor analysis at a later stage. Concerning the reliability of the 38-component construct, the Cronbach’s alpha coefficient was 0.878, suggesting that all items had ‘acceptable’ internal consistency (Taber, 2018).

Discriminant validity refers to the extent to which factors are distinct and uncorrelated. The rule is that variables should relate more strongly to their own factor than to another factor. The component transformation matrix printed out maximum correlations of 0.615, below the threshold of 0.7 to risk a majority of shared variance (Plonsky *et al.*, 2018). The exception is component 4, with a maximum value of 0.766, which is above the threshold. This component was consequently deleted to secure validity. As it is one of two CuO components, the other component remained available. With most below the 0.7 threshold, there was no concern about discriminant validity.

After interpreting the EFA using PCA as the appropriate factoring method, in a later step the results were transformed into confirmatory factor analysis in AMOS.

7.1.2 Confirmatory factor analysis (measurement model) using AMOS

The EFA items were transferred from SPSS into the measurement model in AMOS, where different data analysis properties could be chosen, one of which was modification indices. This was employed to detect outlying values, which are regression weights and which accordingly must be eliminated to achieve a good model fit. The following items were deleted: CoO3 and SBP7. After running the analysis, 34 items remained in the measurement model.

Thresholds for measuring GFIs vary among scholars depending on factors such as sample size and number of degrees of freedom. The thresholds must also be viewed from a holistic perspective in the context of the other studies' indices. With this in mind, the following indices relate to other scholars, such as Jogaratnam (2017b), Niemand and Mai (2018), Tarka (2018), and Subudhi and Mishra (2019b). Common indices and thresholds include the following:

- CMIN/DF, or chi-square statistics ($\chi 2/df$) – the minimum discrepancy divided by its degrees of freedom. Threshold: 1–3
- P-value – nonsignificant p-values are desirable. Notably, the chi-square statistic is sensitive to sample size: the greater the size, the more unlikely it is to achieve insignificance. Threshold: > 0.05
- GFI. Threshold: > 0.8
- AGFI. Threshold: > 0.8
- CFI. Threshold: > 0.8
- RMSEA, or the population value of the root-mean-square error of the approximation – a discrepancy function obtained by fitting a model to the population moments rather than to sample moments (Fruet-Cardozo et al., 2019). Threshold: < 0.1

See Table 10 for an overview of regression weights.

Table 10: Path coefficients (β-value) of the measurement model.

Dimension		Item	Estimate β	SE	C.R.
CoO	--->	CoO1	.728***	.062	11.742
CoO	--->	CoO2	.662***	.070	9.457
CoO	--->	CoO4	.503***	.070	7.186
IFC	--->	IFC1	.713***	.042	16.977
IFC	--->	IFC2	.766***	.035	21.856
IFC	--->	IFC3	.778***	.035	22.229
IFC	--->	IFC4	.694***	.042	16.523
IFC	--->	IFC5	.800***	.037	21.621
IFC	--->	IFC6	.621***	.058	10.707
IFC	--->	IFC7	.608***	.059	10.305
IFC	--->	IFC8	.802***	.035	22.914
Explor	--->	Explor1	.709***	.041	17.292
Explor	--->	Explor2	.822***	.028	29.357
Explor	--->	Explor3	.710***	.041	17.317
Explor	--->	Explor4	.693***	.045	15.400
Explor	--->	Explor5	.738***	.039	18.923
Explor	--->	Explor6	.641***	.052	12.327
Explor	--->	Explor8	.760***	.040	19.000
SD_CuP	--->	SD_CuP1	.686***	.030	22.867
SD_CuP	--->	SD_CuP2	.806***	.050	16.120
SD_CuP	--->	SD_CuP3	.874***	.046	19.000
SBP	--->	SBP1	.649***	.044	14.750
SBP	--->	SBP2	.708***	.054	13.111
SBP	--->	SBP5	.832***	.035	23.771
SBP	--->	SBP6	.827***	.034	24.323
SBP	--->	SBP8	.712***	.043	16.558
SBP	--->	SBP9	.728***	.052	14.000
BP_2018_	--->	SR_2018	.565***	.139	4.064
BP_2018_	--->	PR_2018	.944***	.242	3.900
BP_5_	--->	SR_5	.869***	.086	10.104
BP_5_	--->	PR_5	.800***	.081	9.876
CuO	--->	CuO1	.719***	.064	11.234
CuO	--->	CuO3	.548***	.067	8.179
CuO	--->	CuO6	.778***	.061	12.754

Note: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Model fit: CMIN/df = 1.552; $p > 0.000$; GFI = 0.829; AGFI = 0.794; CFI = 0.925; RMSEA = 0.050

items, the estimated regression weights (β-values), the standard errors (SEs) and critical ratios (C.R.s). P-values are asterisked. Below are the 33 regression paths, which are the focus.

At first, the model showed good model fit to the data. The values tended nearly to 1, which indicates a nearly perfect fit and high reliability. The model was therefore almost saturated (Thakkar, 2020). The number of degrees of freedom (496) divided by CMIN also gave no reason for concern, as the CMIN/DF is 1.552 and thus on an acceptable level below the three thresholds.

Except for p-value, where significant output supports the null hypothesis, there is no difference between the model and population. As mentioned, however, this metric is strongly dependent on sample size, where insignificance is hard to achieve. N = 222 is in fact a large sample. Hence, this is acceptable (Tarka, 2018). Thus, the model was reliable.

It was necessary to check the model's convergent and discriminant validity, which is measured by composite reliability (CR), average variance extracted (AVE) and maximum shared variance (MSV). This is summarised in Table 11.

Table 11: Convergent and discriminant validity.

	CR	AVE	MSV	MaxR(H)	IFC	CoO	CuO	Explor	SD_CuP	SBP	BP_2018	BP_5
IFC	.898	.528	.367	.907	.726							
CoO	.668	.407	.376	.692	.508	.638						
CuO	.726	.474	.407	.752	.606	.613	.689					
Explor	.886	.528	.407	.892	.562	.601	.638	.727				
SD_CuP	.855	.666	.308	.909	–.206	–.023	–.325	–.280	.816			
SBP	.882	.556	.308	.892	.501	.171	.442	.461	–.555	.746		
BP_2018	.743	.605	.181	.896	.229	.248	.091	.100	–.096	.227	.778	
BP_5	.822	.698	.181	.829	.259	.125	.260	.209	–.190	.414	.426	.835

The results show that most values safely met the thresholds, except AVE on customer orientation and competitor orientation, which was lower than the threshold of 0.5. Accordingly, the MSV values were invalid, but, given how close they were to the threshold, interpretation was not affected.

Along with the maximum likelihood estimation method, all parameters were tested. The convergent validity, reliability and discriminant validity of the measurement models were then examined, followed by the modification indices of residuals and model fit statistics to refine the measures. Concerning the reliability of the 34-component construct, the Cronbach's alpha coefficient was 0.873, suggesting that all items had 'acceptable' internal consistency (Taber, 2018).

To exclude common method bias in the data set, as described in Section 5 ('Methodology'), the Harman's single factor test was applied. This test shows whether most of the variance can be explained by a single factor. This is done by entering all the principal concepts into a PCA (Amin *et al.*, 2016). Thus, a reliable set of variables will consistently load on the same factor. The threshold is maximum 50% (Podsakoff *et al.*, 2003). The results show 29.418%, indicating no serious problem.

In sum, the data reduction through both EFA and confirmatory factor analysis filtered out the following significant dimensions: customer orientation, competitor orientation, interfunctional coordination, exploratory innovation and service differentiation by customer preference. The other variables were excluded from this point forward, except for the service differentiation variables, which were excluded in direct effect analysis but reconsidered in the indirect analyses, as they are central in the moderation and mediation processes.

The remaining variables were next transferred into the structural model in AMOS to address the hypotheses.

7.2 Hypothesis testing: direct effects of each concept on business performance

In the next step, the measurement data were transferred into the structural model to answer the hypotheses. These data in turn address the research gaps and, finally, the research aim. The researcher created one integrated hypothesised model with simultaneous path analyses of all three concepts and the 15 dimensions (see Figure 26). To complete the next step of the analysis, direct effects were examined, which are an essential element of the indirect analysis in SEM as a first step. Moderation and mediation are principally two different approaches to test indirect effects (Hayes, 2018). Consequently, the direct effects can be measured twice because in both moderation and mediation analyses the indirect effects are based on the direct effects. Thus, two Models 1 exist on principle (see Section 7.2.1). The two Models 1 are distinguished from one another because of different dimension quantities in moderation and mediation analyses and because in mediation, the direct effects must be measured twice, which is before and after analyses (see Section 7.4.1). Hence, different outcomes were expected.

Subsequently, the appropriate hypothesis for each concept was identified. Hypothesis testing is explained in Section 7.2.3. An overview of the entire hypothesised, structural model with all results is summarised in Figure 41. The model tests and path coefficients are explained before the hypotheses are addressed.

To begin, the proposed research model with direct effects is presented in Figure 26.

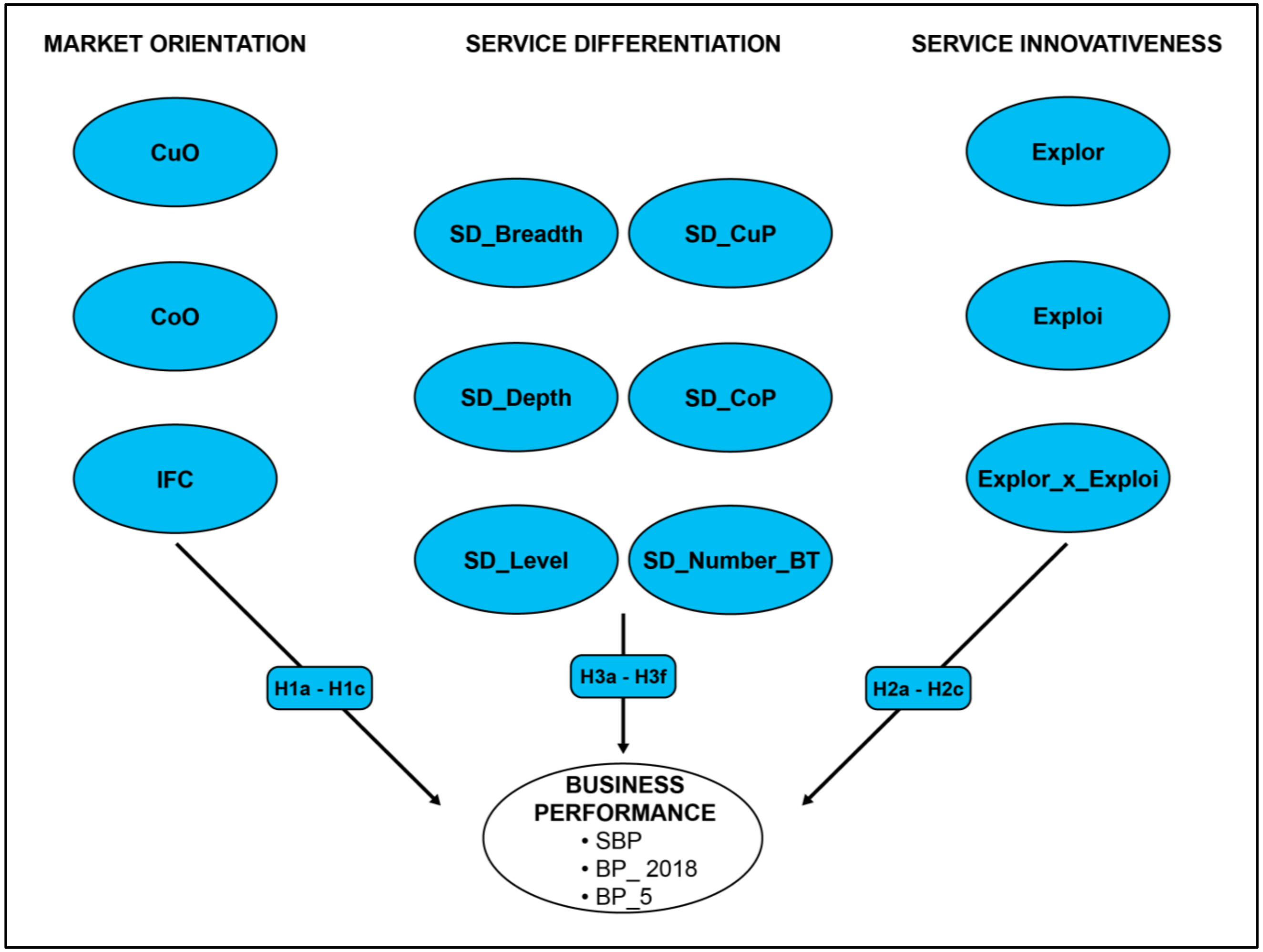


Figure 26: The proposed research model addressing direct effects of the first research gap.

7.2.1 Introduction

Direct effects are the relationships between the three strategic concepts and business performance, which inform the study. Although the study emphasised service differentiation, whose unexplored single dimensions were tested, as all three concepts are interconnected, their direct paths were analysed. They are called main effects. Moreover, they served as a pre-stage to the second research gap, which examined the indirect paths. In the thesis' research constellation, two different Models 1 to test direct effects were available, which depend on two analyses: moderation and mediation analyses.

After data reduction with EFA and confirmatory factor analysis, 10 variables remained in the mediation analysis and 34 in the moderation analysis. The difference occurs because of the additional variables, which are the moderating variables and interaction terms. Multiplied by three dependent variables, there are accordingly 30, respectively 102, regression paths. The numerous paths emphasise the complex research constellation.

When new variables are added, the direct effects change, which is to be expected. These are indirect effects, and they address the second research gap. Thus, in structural equation modelling, on principle, the path coefficients between the independent and dependent variables change when new variables are added. According to Field (2000, p. 4), 'all variables that affect both the cause and effect variables must be included. Therefore, any variable that could produce a spurious relation between the cause-and-effect variable must be considered within the model.' Against this background, and to decide which model to choose, both models with direct effects were contrasted and compared in a first step.

7.2.1.1 Direct effects originating from Model 1 (moderation)

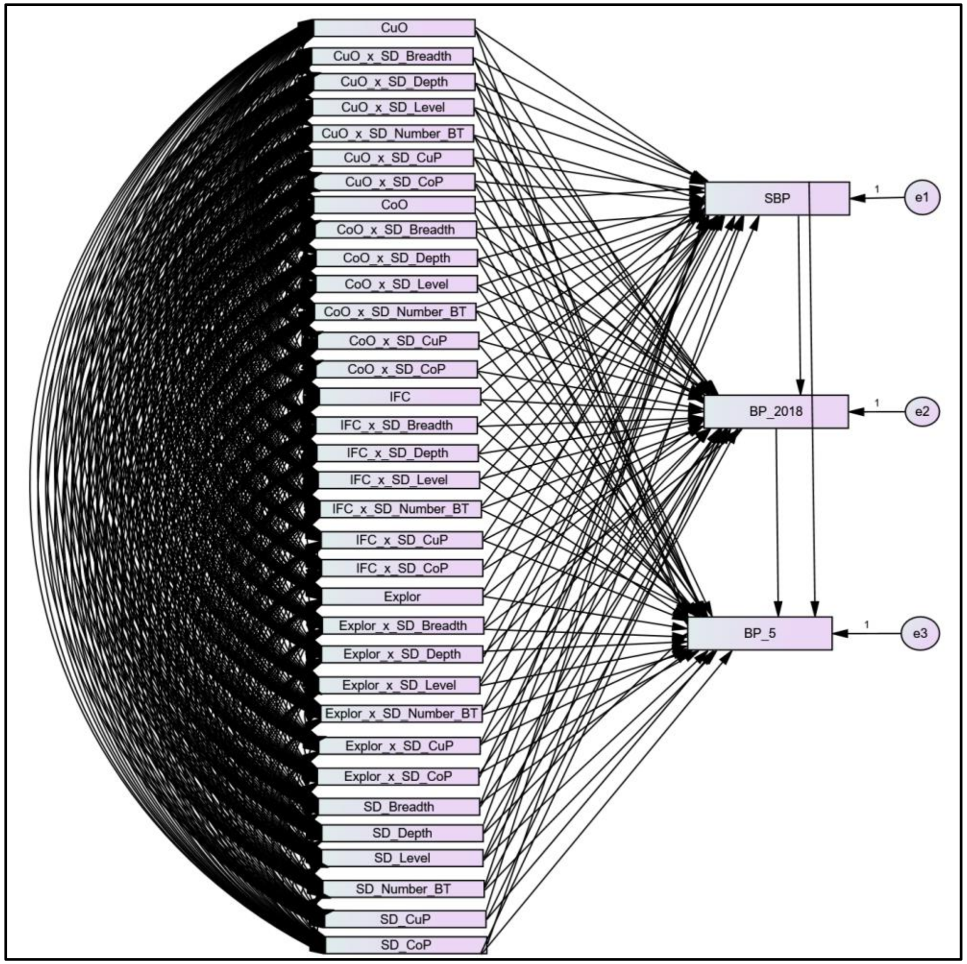


Figure 27: Overview of the hypothesised research model with direct effects in the moderation analysis.

Table 12: Path coefficients (β-values) addressing direct effects of Model 1 (moderation).

Independent variable		Dependent variable	Estimate β	SE	C.R.
CuO	--->	SBP	.120 (n/s)	.086	1.401
CuO	**--->**	**BP_2018**	**–.529*** **	**.123**	**–4.315**
CuO	**--->**	**BP_5**	**.364*** **	**.111**	**3.289**
CoO	**--->**	**SBP**	**–.279*** **	**.077**	**–3.634**
CoO	**--->**	**BP_2018**	**.743*** **	**.113**	**6.601**
CoO	**--->**	**BP_5**	**–.346*** **	**.107**	**–3.248**
IFC	**--->**	**SBP**	**.337*** **	**.057**	**5.871**
IFC	--->	BP_2018	.089 (n/s)	.088	1.009
IFC	--->	BP_5	–.049 (n/s)	.077	–.635
Explor	**--->**	**SBP**	**.219*** **	**.074**	**2.973**
Explor	**--->**	**BP_2018**	**–.313*** **	**.107**	**–2.913**
Explor	--->	BP_5	.150 (n/s)	.094	1.590
SD_Breadth	--->	SBP	.054 (n/s)	.049	1.113
SD_Breadth	--->	BP_2018	–.077 (n/s)	.07	–1.108
SD_Breadth	--->	BP_5	.002 (n/s)	.061	.039
SD_Depth	--->	SBP	.152***	.049	3.089
SD_Depth	--->	BP_2018	.014 (n/s)	.072	.193
SD_Depth	--->	BP_5	.061 (n/s)	.062	.978
SD_Level	--->	SBP	.006 (n/s)	.048	.116
SD_Level	--->	BP_2018	.018 (n/s)	.069	.269
SD_Level	--->	BP_5	–.086 (n/s)	.06	–1.439
SD_Number_BT	--->	SBP	.079*	.044	1.807

SD_Number_BT	--->	BP_2018	–.055 (n/s)	.063	–.881
SD_Number_BT	--->	BP_5	–.078 (n/s)	.054	–1.444
SD_CuP	--->	SBP	–.428***	.054	–7.988
SD_CuP	--->	BP_2018	–.049 (n/s)	.087	–.57
SD_CuP	--->	BP_5	.169*	.075	2.251
SD_CoP	--->	SBP	.027 (n/s)	.05	.543
SD_CoP	--->	BP_2018	–.054 (n/s)	.071	–.762
SD_CoP	--->	BP_5	–.062 (n/s)	.062	–1.006
CuO_x_SD_Number_BT	--->	SBP	.094 (n/s)	.085	1.105
CuO_x_SD_Breadth	--->	SBP	–.012 (n/s)	.083	–.149
CuO_x_SD_Depth	--->	SBP	.018 (n/s)	.087	.21
CuO_x_SD_CuP	--->	BP_2018	.026 (n/s)	.116	.226
CuO_x_SD_Level	--->	SBP	.088 (n/s)	.082	1.079
CuO_x_SD_CuP	--->	SBP	–.077 (n/s)	.081	–.946
CuO_x_SD_CoP	--->	SBP	.065 (n/s)	.09	.72
CuO_x_SD_Breadth	--->	BP_2018	.098 (n/s)	.118	.824
CuO_x_SD_Depth	--->	BP_2018	–.126 (n/s)	.125	–1.009
CuO_x_SD_Level	--->	BP_2018	.053 (n/s)	.117	.455
CuO_x_SD_Number_BT	--->	BP_2018	–.189 (n/s)	.121	–1.562
CuO_x_SD_CoP	--->	BP_2018	–.064 (n/s)	.128	–.5
CuO_x_SD_Breadth	--->	BP_5	–.007 (n/s)	.103	–.065
CuO_x_SD_Depth	--->	BP_5	.169 (n/s)	.108	1.569
CuO_x_SD_Level	--->	BP_5	.021 (n/s)	.102	.208
CuO_x_SD_Number_BT	--->	BP_5	–.005 (n/s)	.105	–.044
CuO_x_SD_CuP	--->	BP_5	–.071 (n/s)	.101	–.706

CuO_x_SD_CoP	--->	BP_5	.170 (n/s)	.106	1.601
CoO_x_SD_Depth	**--->**	**BP_5**	**–.171***	**.093**	**–1.845**
CoO_x_SD_Number_BT	--->	BP_5	.046 (n/s)	.095	.481
CoO_x_SD_CuP	--->	BP_5	–.038 (n/s)	.095	–.401
CoO_x_SD_CoP	**--->**	**BP_5**	**–.186***	**.096**	**–1.938**
CoO_x_SD_Depth	--->	BP_2018	.034(n/s)	.107	.315
CoO_x_SD_Level	--->	BP_2018	.155(n/s)	.117	1.330
CoO_x_SD_Number_BT	--->	BP_2018	–.133(n/s)	.11	–1.209
CoO_x_SD_CuP	**--->**	**BP_2018**	**.192***	**.11**	**1.747**
CoO_x_SD_CoP	--->	BP_2018	.045(n/s)	.112	.4
CoO_x_SD_Depth	--->	SBP	.053(n/s)	.075	.713
CoO_x_SD_Level	--->	SBP	–.079(n/s)	.082	–.97
CoO_x_SD_CuP	--->	SBP	–.054(n/s)	.077	–.701
CoO_x_SD_CoP	--->	SBP	–.076(n/s)	.078	–.975
CoO_x_SD_Breadth	--->	BP_2018	.057(n/s)	.114	.505
CoO_x_SD_Number_BT	--->	SBP	–.070(n/s)	.077	–.907
CoO_x_SD_Breadth	--->	SBP	–.125(n/s)	.079	–1.579
CoO_x_SD_Level	--->	BP_5	–.106(n/s)	.102	–1.046
CoO_x_SD_Breadth	--->	BP_5	.088(n/s)	.096	.912
IFC_x_SD_Depth	**--->**	**SBP**	**–.120***	**.065**	**–1.846**
IFC_x_SD_CuP	--->	SBP	.099(n/s)	.067	1.487
IFC_x_SD_CoP	--->	SBP	–.080(n/s)	.065	–1.44
IFC_x_SD_CoP	--->	BP_2018	.155(n/s)	.092	1675
IFC_x_SD_CuP	--->	BP_2018	–.218*	.096	–2.272
IFC_x_SD_Number_BT	--->	BP_2018	.179*	.099	1.819

IFC_x_SD_Level	--->	BP_2018	–.095(n/s)	.088	–1.079
IFC_x_SD_Level	--->	SBP	.059(n/s)	.062	.956
IFC_x_SD_Breadth	--->	SBP	–.021(n/s)	.065	–.322
IFC_x_SD_Number_BT	--->	SBP	.080(n/s)	.069	1.159
IFC_x_SD_Depth	--->	BP_2018	–.027(n/s)	.094	–.293
IFC_x_SD_Breadth	--->	BP_2018	–.022(n/s)	.093	–.234
IFC_x_SD_Breadth	--->	BP_5	.033(n/s)	.08	.413
IFC_x_SD_Level	--->	BP_5	.032(n/s)	.075	.42
IFC_x_SD_Number_BT	--->	BP_5	.094(n/s)	.086	1.092
IFC_x_SD_CuP	--->	BP_5	–.004(n/s)	.082	–.048
IFC_x_SD_Depth	--->	BP_5	–.076(n/s)	.081	–.936
Explor_x_SD_Breadth	--->	BP_5	.052(n/s)	.094	.553
Explor_x_SD_Level	--->	BP_5	.187*	.104	1.807
Explor_x_SD_Number_BT	--->	BP_5	–.069(n/s)	.09	–.772
Explor_x_SD_CuP	--->	BP_2018	.011(n/s)	.109	.101
Explor_x_SD_Breadth	**--->**	**SBP**	**.152***	**.075**	**2.027**
Explor_x_SD_Depth	--->	SBP	–.036(n/s)	.074	–.485
Explor_x_SD_Level	--->	SBP	–.078(n/s)	.084	–.932
Explor_x_SD_Number_BT	--->	SBP	–.086(n/s)	.072	–1.207
Explor_x_SD_CoP	--->	SBP	.082(n/s)	.083	.991
Explor_x_SD_CuP	--->	SBP	.069(n/s)	.076	.897
Explor_x_SD_Breadth	--->	BP_2018	–.140(n/s)	.108	–1.288
Explor_x_SD_Level	--->	BP_2018	–.086(n/s)	.12	–.712
Explor_x_SD_Depth	--->	BP_2018	.047(n/s)	.105	.444
Explor_x_SD_CoP	--->	BP_2018	–.054(n/s)	.118	–.46

Explor_x_SD_Number_BT	**--->**	**BP_2018**	**.181***	**.103**	**1.770**
Explor_x_SD_CoP	--->	BP_5	.005(n/s)	.102	.052
Explor_x_SD_CuP	--->	BP_5	.069(n/s)	.095	.728
Explor_x_SD_Depth	--->	BP_5	.042(n/s)	.091	.465

Note: SMC (R^2): SBP = 0.676; BP_2018 = 0.341; BP_5 = 0.504; *p < 0.05; **p < 0.01; ***p < 0.001
Besides independent variables and dependent variables (dimensions), moderator variables and interaction terms were considered.
Significant values are in bold.

Model fit: CMIN/df = 1.507; p > 0.220; GFI = 1.000; AGFI = 0.742; CFI = 1.000; RMSEA = 0.048

The table presents 7 columns and 31 rows. From left to right are the dimensions, items, the estimated regression weights (β-values), the standard errors (SEs), critical ratios (C.R.s). P-values are asterisked. Below are the 30 regression paths, which are the focus.

At first, the model showed good model fit to the data. The values tended nearly to 1, which indicates a nearly perfect fit and high reliability. The model was therefore almost saturated (Thakkar, 2020). The number of degrees of freedom (1) divided by CMIN also gave no reason for concern, as the CMIN/DF was 1.507 and on an acceptable level with the threshold of 3.

The Bollen–Stine bootstrap indicated a p-value of 0.326, which is far above the 0.05 threshold. Hence, 0 fell outside both intervals with a 95% CI. Accordingly, the null hypothesis had to be rejected and the alternative hypothesis supported. Thus, the model fit the data well.

7.2.1.2 Direct effects originating from Model 1 (mediation)

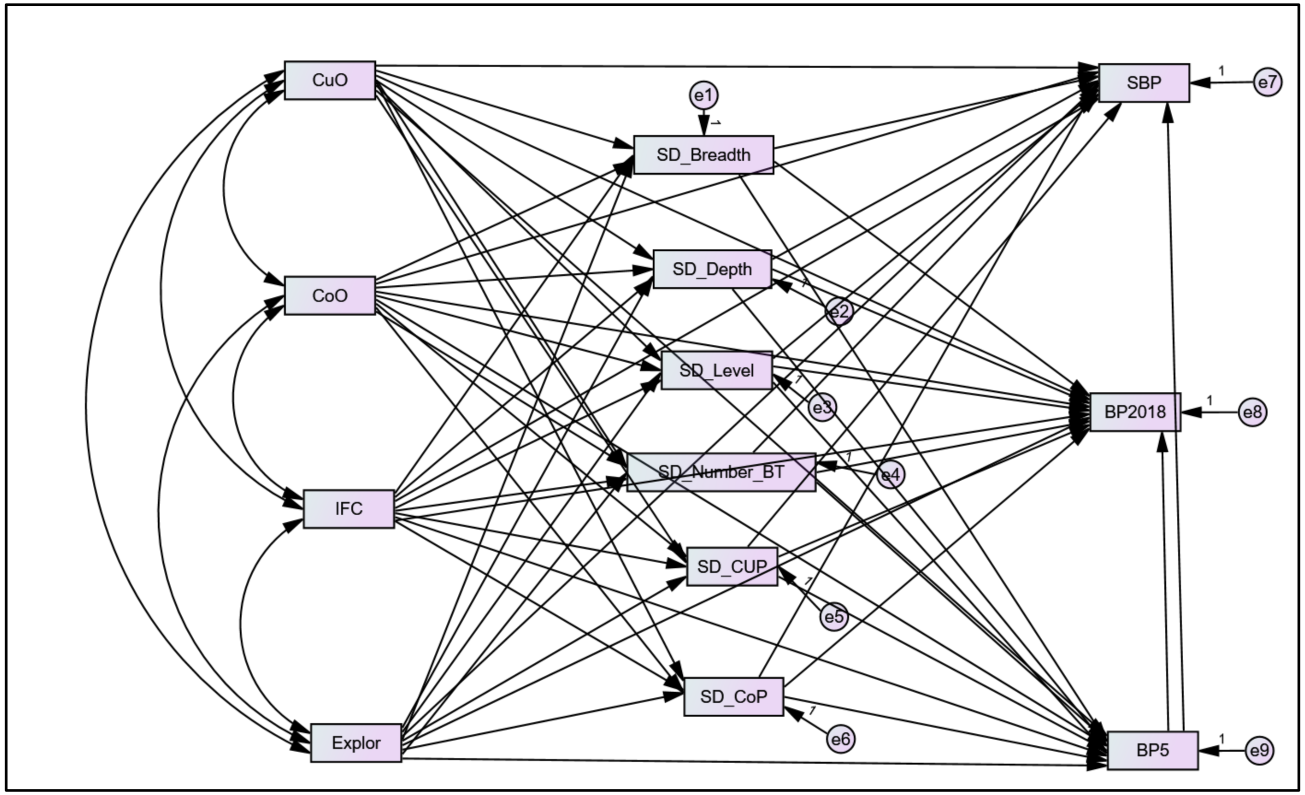


Figure 28: Overview of the hypothesised research model with direct effects in the mediation analysis.

Table 13: Path coefficients (β-values) addressing direct effects of Model 1 (mediation).

Independent variable	--->	Dependent variable	Estimate β	SE	C.R.
CuO	--->	SBP	.047 (n/s)	.056	.839
CuO	**--->**	**BP_2018**	**–.532*** **	**.098**	**–5.428**
CuO	**--->**	**BP_5**	**.196***	**.104**	**1.876**
CoO	**--->**	**SBP**	**–.187*** **	**.053**	**–3.528**
CoO	**--->**	**BP_2018**	**.639*** **	**.092**	**7.533**
CoO	--->	BP_5	–.110 (n/s)	.101	–1.089
IFC	**--->**	**SBP**	**.214*** **	**.035**	**6.114**
IFC	**--->**	**BP_2018**	**.169** **	**.071**	**2.380**
IFC	**--->**	**BP_5**	**.142***	**.077**	**1.844**
Explor	**--->**	**SBP**	**.117** **	**.047**	**2.489**
Explor	**--->**	**BP_2018**	**–.224** **	**.083**	**–2.698**
Explor	--->	BP_5	.029 (n/s)	.091	3.820
SD_Breadth	**--->**	**SBP**	**.090** **	**.036**	**2.500**
SD_Breadth	--->	BP_2018	–.088 (n/s)	.066	–.133
SD_Breadth	--->	BP_5	.037 (n/s)	.072	.513
SD_Depth	**--->**	**SBP**	**.107** **	**.049**	**2.184**
SD_Depth	--->	BP_2018	.047 (n/s)	.072	.653
SD_Depth	--->	BP_5	.111 (n/s)	.076	1.460
SD_Level	--->	SBP	.013 (n/s)	.021	.619
SD_Level	--->	BP_2018	.029 (n/s)	.038	.763
SD_Level	--->	BP_5	–.034 (n/s)	.038	–.894
SD_Number_BT	**--->**	**SBP**	**.036***	**.017**	**2.117**
SD_Number_BT	--->	BP_2018	.008 (n/s)	.031	.258
SD_Number_BT	--->	BP_5	–.038 (n/s)	.032	1.187
SD_CuP	**--->**	**SBP**	**–.182*** **	**.027**	**–6.740**
SD_CuP	**--->**	**BP_2018**	**–.126*** **	**.038**	**–3.316**
SD_CuP	--->	BP_5	–.044 (n/s)	.047	–.936
SD_CoP	--->	SBP	.041 (n/s)	.034	1.206
SD_CoP	--->	BP_2018	–.010 (n/s)	.050	–.200
SD_CoP	--->	BP_5	–.056 (n/s)	.054	–1.037

Note: Significant values are in bold.

SMC (R^2): SBP = 0.594; BP_2018 = 0.031; BP_5 = 0.286; *p < 0.05; **p < 0.01; ***p < 0.001

Model fit: CMIN/df = 2.980; p > 0.000; GFI = 0.960; AGFI = 0.773; CFI = 0.958; RMSEA = 0.016

Interpretation

The table presents 7 columns and 31 rows. From left to right are the dimensions, items, the estimated regression weights (β-values), standard errors (SEs) and critical ratios (C.R.s). P-values are asterisked. Below are the 30 regression paths, which are the focus.

At first, the model showed good model fit to the data. The values tended nearly to 1, which indicates a nearly perfect fit and high reliability. The model was therefore almost saturated (Thakkar, 2020). The number of degrees of freedom (1) divided by CMIN (2.980) also gave no reason for concern, as the CMIN/DF was 2.980 and on an acceptable level below the 3 threshold (Jogaratnam, 2017b; Niemand and Mai, 2018; Tarka, 2018; Subudhi and Mishra, 2019b). Thus, the model was reliable.

To identify potential problems with multicollinearity, an examination was conducted at an earlier stage (see Section 6.6). As the output showed, there were no problems with correlations that were too high between the independent variables.

The Bollen–Stine bootstrap indicated a p-value of 0.091, which is above the 0.05 threshold. Hence, 0 fell outside both intervals with a 95% CI. Accordingly, the null hypothesis had to be rejected and the alternative hypothesis accepted. The model fit the data well.

7.2.2 Comparing the models with direct effects

Both models showed similar outcomes, measured by the number of significant regression paths – 12, respectively 14. This difference is easily explained because the models included a different number of variables. This is caused by the large number of moderator variables and interaction terms in the Model 1 (moderation), which produced different outcomes. This aligns with the principles of structural equation modelling, where any variable impacts the networking (Field, 2000; Byrne, 2016; Kline, 2016).

Despite the different number of significant relationships, the values of the path coefficients (β-values) were quite similar, and the signs were identical. Thus, they are mostly on the same level, without significant outliers.

Regarding model fit, both models are acceptable, even though the first model fits best. To find an acceptable basis for addressing the first analyses with direct effects, which relate to the first research gap, the researcher continued with data from this moderation model, as best model fit exists, and the values are represented well. The two variables which differed are discussed in sections 7.23 and 7.2.4.3.

All path coefficients are presented in Table 15. The significant path coefficients (β-value) are in bold. The hypothesised, structural model is presented in Figure 27, and the results of the entire hypothesised, structural model addressing all direct effects related to the first research gap are illustrated in Figure 29. Before continuing, Hypotheses 1a–1c, 2a–2c and 3a–3f are presented.

Table 14: Overview of Hypotheses 1–3.

Hypothesis	Dimension
1	**Market orientation**
1a	Customer orientation has a positive effect on business performance.
1b	Competitor orientation has a positive effect on business performance.
1c	Interfunctional coordination has a positive effect on business performance.
2	**Service innovativeness**
2a	Exploratory innovation has a positive effect on business performance.
2b	Exploitative innovation has a positive effect on business performance.
2c	Ambidextrous innovation has a positive effect on business performance.
3	**Service differentiation**
3a	Horizontal differentiation (service breadth) has no significant effect on business performance.
3b	Vertical differentiation (service depth) has a positive effect on business performance.
3c	The level of service differentiation has a positive effect on business performance.
3d	The number of business types, assuming a higher level of departmentalisation, has a positive effect on business performance.
3e	Service differentiation by customer preference has a positive effect on business performance.
3f	Service differentiation by competitor preference has a positive effect on business performance.

Table 15: Path coefficients (β-values) addressing direct effects of Model 1 (moderation).

H	IV		DV	Estimate β	SE	C.R.	Support
H1a	CuO	--->	SBP	.120 (n/s)	.086	1.401	No
H1a	CuO	--->	BP_2018	–.529***	.123	–4.315	No
H1a	**CuO**	**--->**	**BP_5**	**.364*** **	**.111**	**3.289**	**Yes**
H1b	CoO	--->	SBP	–.279***	.077	–3.634	No
H1b	**CoO**	**--->**	**BP_2018**	**.743*** **	**.113**	**6.601**	**Yes**
H1b	CoO	--->	BP_5	–.346***	.107	–3.248	No
H1c	**IFC**	**--->**	**SBP**	**.337*** **	**.057**	**5.871**	**Yes**
H1c	IFC	--->	BP_2018	.089 (n/s)	.088	1.009	No
H1c	IFC	--->	BP_5	–.049 (n/s)	.077	–.635	No
H2a	**Explor**	**--->**	**SBP**	**.219*** **	**.074**	**2.973**	**Yes**
H2a	Explor	--->	BP_2018	–.313***	.107	–2.913	No
H2a	Explor	--->	BP_5	.150 (n/s)	.094	1.590	No
H3a	**SD_Breadth**	**--->**	**SBP**	**.054 (n/s)**	**.049**	**1.113**	**Yes**
H3a	**SD_Breadth**	**--->**	**BP_2018**	**–.077 (n/s)**	**.07**	**–1.108**	**Yes**
H3a	**SD_Breadth**	**--->**	**BP_5**	**.002 (n/s)**	**.061**	**.039**	**Yes**
H3b	**SD_Depth**	**--->**	**SBP**	**.152*** **	**.049**	**3.089**	**Yes**
H3b	SD_Depth	--->	BP_2018	.014 (n/s)	.072	.193	No
H3b	SD_Depth	--->	BP_5	.061 (n/s)	.062	.978	No
H3c	SD_Level	--->	SBP	.006 (n/s)	.048	.116	No
H3c	SD_Level	--->	BP_2018	.018 (n/s)	.069	.269	No
H3c	SD_Level	--->	BP_5	–.086 (n/s)	.06	–1.439	No
H3d	**SD_Number_BT**	**--->**	**SBP**	**.079***	**.044**	**1.807**	**Yes**
H3d	SD_Number_BT	--->	BP_2018	–.055 (n/s)	.063	–.881	No
H3d	SD_Number_BT	--->	BP_5	–.078 (n/s)	.054	–1.444	No
H3e	SD_CuP	--->	SBP	–.428***	.054	–7.988	No

H3e	SD_CuP	--->	BP_2018	–.049 (n/s)	.087	–.57	No
H3e	**SD_CuP**	**--->**	**BP_5**	**.169***	**.075**	**2.251**	**Yes**
H3f	SD_CoP	--->	SBP	.027 (n/s)	.05	.543	No
H3f	SD_CoP	--->	BP_2018	–.054 (n/s)	.071	–.762	No
H3f	SD_CoP	--->	BP_5	–.062 (n/s)	.062	–1.006	No

Note: Supported hypotheses are in bold.
SMC (R^2): SBP = 0.676; BP_2018 = 0.341; BP_5 = 0.504; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Model fit: CMIN/df = 1.507; $p > 0.220$; GFI = 1.000; AGFI = 0.742; CFI = 1.000; RMSEA = 0.048

Interpretation

This table is identical to Table 12, except for the interaction terms, as they are not important in addressing the first research gap. The table presents 8 columns and 31 rows. From left to right are the hypothesis, independent variables (IV), direction, dependent variables (DV), the estimated regression weights (β-values), the standard errors (SEs), critical ratios (C.R.s) and hypothesis support. Below are 30 regression paths with direct effects of the independent on the dependent variables.

At first, the model showed good model fit to the data. The values tended nearly to 1, which indicates a nearly perfect fit and high reliability. The model was therefore almost saturated (Thakkar, 2020). The number of degrees of freedom (1) divided by CMIN also gave no reason for concern, as the CMIN/DF was 1.507 and on an acceptable level with the threshold of 3.

The Bollen–Stine bootstrap indicated a p-value of 0.326, which is far above the 0.05 threshold. Hence, 0 fell outside both intervals with a 95% CI. Accordingly, the null hypothesis had to be rejected and the alternative hypothesis supported. The model fit the data well.

To identify potential problems with multicollinearity, an examination was conducted at an earlier stage (see Section 6.6). As the output showed, there were no problems with correlations that were too high between the independent variables. Thus, the model was reliable.

The squared multiple correlations (R^2) showed that 67.6% of the total variance was explained by subjective performance: The remaining 31.9% of variance were accounted for by the unique factors e2 and e3. With objective performance_2018 34.1%, and objective performance on a 5-year term, only 50.4% were explained by all three dimensions. The analysis reveals 12 significant regression paths.

7.2.3 Addressing the hypotheses

The hypotheses were then tested by examining the path coefficients between the independent and dependent variables. The critical ratios of all significant relationships between the variables had a regression weight > 1.96. This confirmed that most paths were significant at the 0.05 level or higher (Arbuckle, 2017) and that the data were non-normally distributed.

Approximation with ML estimation method testing showed the following direct relationships:

- Customer orientation had a strong but negative effect on objective performance_2018 (β = -529, $p < 0.001$).
- Customer orientation had a positive effect on objective performance_5 (β = 0.364, $p < 0.001$).

As a positive effect of customer orientation on business performance was assumed, and at least one constellation agreed, H1a was supported.

- Competitor orientation had a negative effect on subjective performance (β =-0.279, $p < 0.001$).
- Competitor orientation had a strong, positive effect on objective performance_2018 (β = 0.743, $p < 0.001$).
- Competitor orientation had a negative effect on objective performance_5 (β =-0.346, $p < 0.001$).

As a positive effect of competitor orientation on business performance was assumed, and at least one constellation agreed, H1b was supported.

- Interfunctional coordination had a positive effect on subjective performance ($\beta = 0.337$, $p < 0.001$).

As a positive effect of interfunctional coordination on business performance was assumed, and at least one constellation agreed, H1c was supported.

- Exploratory innovation had a positive effect on subjective performance ($\beta = 0.219$, $p < 0.001$).
- Exploratory innovation had a negative effect on objective performance_2018 ($\beta =- 0.313$, $p < 0.001$).

As a positive effect of exploratory innovation on business performance was assumed, and at least one constellation agreed, H2a was supported.

- There was no significant effect of service differentiation_breadth with business performance.

As no significant effect of service differentiation_breadth on business performance was assumed, H3a was supported.

Differences between Models 1 and 2 exist. Model 2 (mediation analysis) showed the following result:

- Service differentiation_breadth had a positive effect on subjective performance ($\beta = 0.090$, $p < 0.01$).

Thus, as no significant effect of SD_Breadth was assumed, and at least one constellation agreed, H3a was rejected.

- Service differentiation_depth had a positive effect on subjective performance ($\beta = 0.152$, $p < 0.001$).

As a significant effect of SD_Depth was assumed, and at least one constellation agreed, H3b was supported.

- Service differentiation_Number_BT had a slight but positive effect on subjective performance ($\beta = 0.079$, $p < 0.05$).

As a significant effect of SD_Number_BT was assumed, and at least one constellation agreed, H3d was supported.

- Service differentiation_CuP had a negative effect on subjective performance (β =-0.428, $p < 0.001$).
- Service differentiation_CuP had a positive effect on objective performance_5 ($\beta = 0.169$, $p < 0.05$).

As a significant effect of SD_CuP was assumed, and at least one constellation agreed, H3e was supported.

- There were no effects of service differentiation_level, and service differentiation by competitor orientation on business performance.

As a significant effect of SD_Level and SD_CoP were assumed, and no effect was found, H3c and H3e were rejected.

7.2.4 Conclusions

Two different Models 1 existed, which originated from different but similar research constellations in moderation and mediation models. They have been intensively discussed. Given the better model fit of the moderation model, this was applied in the subsequent procedure.

7.2.4.1 Market orientation

Addressing the first research gap, the researcher assumed each concept had a positive, direct relationship with performance. For these constellations, the alternative hypothesis was set. The assumptions were supported with customer orientation and objective performance_5, competitor orientation and objective performance _2018, and with interfunctional coordination and subjective performance. The strengths of these three relationships, as measured by β-values, showed reasonable power (Field, 2015), but especially competitor orientation showed high power, with estimates above 0.7. This indicates a strong relationship between competitor orientation and objective performance_2018. It can be concluded that the more companies focus on these constellations, the more likely they are to achieve economic success.

Even though the hypotheses a priori assumed positive effects with performance, several the dimensions also showed significant but negative effects. There is a negative but strong relationship with customer orientation and objective performance_2018, and with competitor orientation and subjective performance and objective performance_5. It can be concluded that a less intense company focus on these factors increases the likelihood of improved business performance.

Given this, addressing the research gap ‘multiple performance indicators’, there was no congruency between subjective performance, objective performance_2018, and objective performance_5, as all three measurements were affected. Thus, no consistent picture emerged to allow clear recommendations on practice.

7.2.4.2 Service innovativeness

The alternative hypothesis was set to test against the null hypothesis, and a positive, direct effect with exploratory innovation and business performance was assumed a priori. This was supported with exploratory innovation and subjective performance, indicating that the more attention is focused on new services, the more likely is success.

Subjective performance means that the participants in their opinion agreed with financial and non-financial improvements through exploratory innovation. On the other hand, exploratory innovation and objective performance_2018 also showed negative effects, indicating, in turn, that those companies suffered economic losses when creating new services in the last business year. These different outcomes show that while addressing calls for multiple performance indicators, there was also no congruency between subjective and objective performance, as both measurements were affected. The interpretation of exploratory innovation and business performance must be handled with care and specified on different modes of assessment.

7.2.4.3 Service differentiation

Unlike the previous dimensions, not only the alternative hypothesis but also the null hypothesis was set. With service differentiation_breadth, it was a priori assumed that there is no significant, direct effect on business performance. The results revealed no significant relationship, which supported the hypotheses. It can be concluded that the horizontal differentiation, portfolio variety, in products or services has no impact on economic success.

The second Model 1 originating from mediation analysis yielded different outcomes, where direct effects with SD_Breadth and subjective performance were positive and significant, although at the > 0.05 level. Hence, interpretation must be handled with care.

However, the other dimensions related positively to subjective performance: whereas the SD_Depth allows one to conclude that positive performance occurs when more additional products or services are offered. This indicates positive vertical differentiation at a high significant level with $p < 0.001$.

Furthermore, a weak, but positive relationship of the number of business types with subjective performance might show that success becomes more likely as the number of self-contained departments increases, as this could indicate a more sophisticated organisational structure.

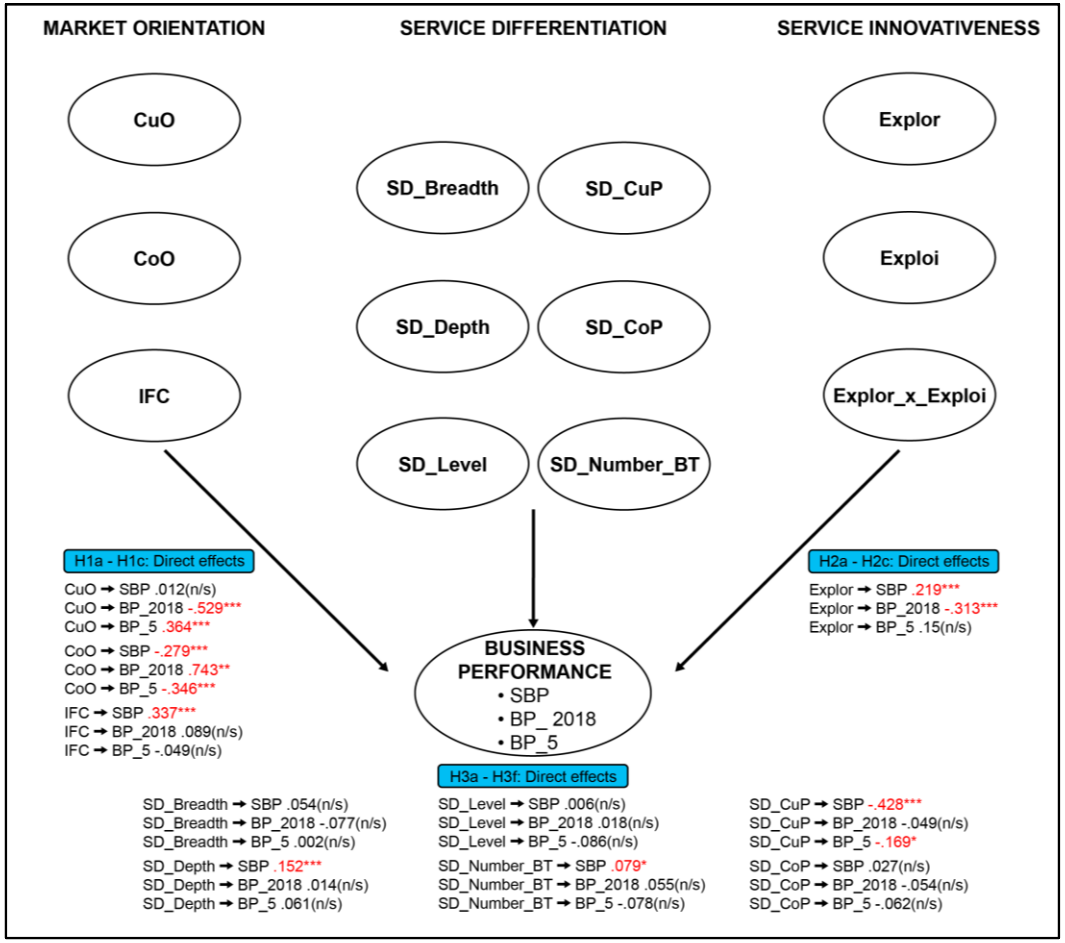
As with SD_CuP, the results showed high significant p-values at the 0.001 level on subjective performance, but with negative signs. This means, that there is a negative relationship with subjective performance, indicating that participants believed that success increased with a fewer focus on customer preferences.

With both objective performance_5 and objective performance_2018, there are different outcomes between the moderation Model 1 and the mediation Model 1, showing that interpretation with this criterion must be handled with care.

Despite these differences of both models, it became obvious, that the direct effects of the mediation Model 1, showed a negative relationship with objective performance_2018 at the 0.001 level. Alike with subjective performance, this might reveal better performances when the customer preferences are reduced.

These different outcomes show that while addressing calls for multiple performance indicators, there was also no congruency between subjective and objective performance, as both measurements were affected.

All results addressing the first research gap are illustrated in the hypothesised model (Figure 29). The appropriate hypotheses are marked in blue, and significant path coefficients (β-values) in red.



Note: Confidence interval = 95%.

Figure 29: Results of the entire hypothesised research model section addressing all direct effects due to the first research gap.

7.3 Hypothesis testing: indirect effects of service differentiation with moderation analysis

7.3.1 Introduction

Potential indirect effects were detected via moderation and mediation analyses of service differentiation within the relationships of all three concepts and business performance. In this section, moderating effects are presented.

Based on the principle that moderation analysis requires direct relationships between at least two independent or moderator variables (predictors) and performance (the criterion), the analysis is influenced by a third predictor: an interaction term. Mediation attempts to determine indirect effects on performance by adding another predictor variable into the model. There are then two routes to the criterion variable – direct and indirect – which show the strength and direction of the relationships (Jose, 2013; Kenny and Judd, 2014). Therefore, addressing the first research gap served as a pre-stage to addressing the second research gap (Loeys, Moerkerke and Vansteelandt, 2015).

Figure 30 provides an overview of the proposed research model addressing the indirect, moderating effects of service differentiation on market orientation, service innovativeness and business performance.

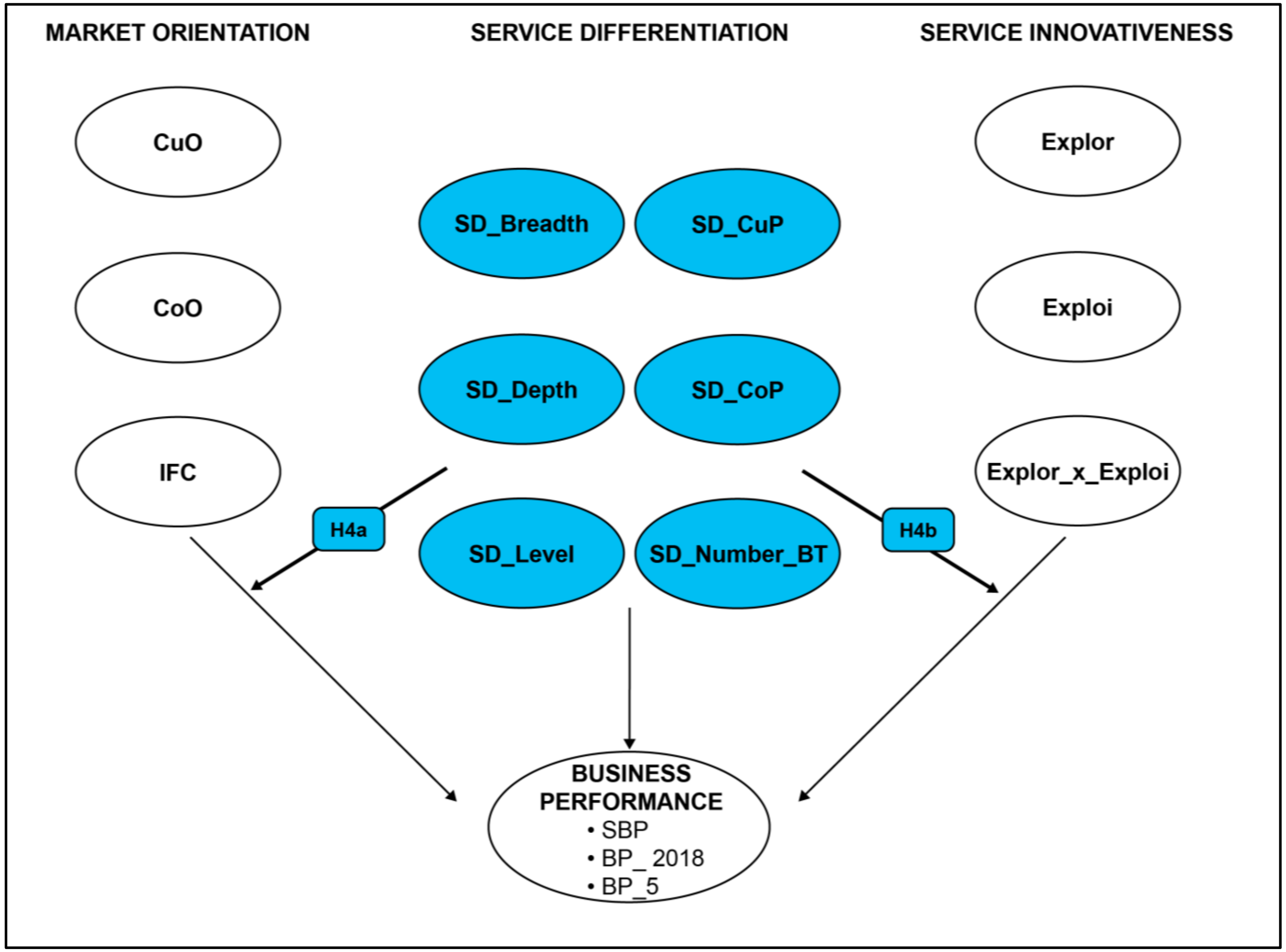


Figure 30: The entire proposed research model section addressing the indirect, moderating effects of service differentiation.

7.3.2 Model test

The results of the indirect, moderating effects of service differentiation on the relationship between market orientation, service innovativeness and business performance are shown in Table 17. Significant path coefficients (β-values) are in bold. The hypothesised, structural model is presented in Figure 27, and the plot models in Figures 32–37. Finally, the results of all moderating effects of service differentiation due to the second research gap are illustrated in Figure 38. First, Table 16 provides an overview of Hypothesis 4.

Table 16: Overview of Hypothesis 4.

Hypothesis	Strategic Concept/Dimension
4	**Moderating effects**
4a	Service differentiation has a partial moderating effect on the relationship between dimensions of market orientation and business performance.
4b	Service differentiation has a partial moderating effect on the relationship between dimensions of service innovativeness and business performance.

Table 17: Path coefficients (β-values) of Hypothesis 4a and 4b after bootstrapping.

Model 1 (Direct effects)						
Independent variable		**Dependent variable**	**Estimate β**	**SE**	**C.R.**	**Support**
CuO	--->	SBP	.120 (n/s)	.086	1.401	No
CuO	**--->**	**BP_2018**	**–.529*****	**.123**	**–4.315**	**Yes**
CuO	**--->**	**BP_5**	**.364*****	**.111**	**3.289**	**Yes**
CoO	**--->**	**SBP**	**–.279*****	**.077**	**–3.634**	**Yes**
CoO	**--->**	**BP_2018**	**.743*****	**.113**	**6.601**	**Yes**
CoO	**--->**	**BP_5**	**–.346*****	**.107**	**–3.248**	**Yes**
IFC	**--->**	**SBP**	**.337*****	**.057**	**5.871**	**Yes**
IFC	--->	BP_2018	.089 (n/s)	.088	1.009	No
IFC	--->	BP_5	–.049 (n/s)	.077	–.635	No
Explor	**--->**	**SBP**	**.219*****	**.074**	**2.973**	**Yes**
Explor	**--->**	**BP_2018**	**–.313*****	**.107**	**–2.913**	**Yes**
Explor	--->	BP_5	.150 (n/s)	.094	1.590	No
Moderator variable		**Dependent variable**	**Estimate β**	**SE**	**C.R.**	**Support**
SD_Breadth	--->	SBP	.054 (n/s)	.049	1.113	No
SD_Breadth	--->	BP_2018	–.077 (n/s)	.07	–1.108	No
SD_Breadth	--->	BP_5	.002 (n/s)	.061	.039	No
SD_Depth	--->	SBP	.152***	.049	3.089	No
SD_Depth	--->	BP_2018	.014 (n/s)	.072	.193	No
SD_Depth	--->	BP_5	.061 (n/s)	.062	.978	No

SD_Level	--->	SBP	.006 (n/s)	.048	.116	No
SD_Level	--->	BP_2018	.018 (n/s)	.069	.269	No
SD_Level	--->	BP_5	–.086 (n/s)	.06	–1.439	No
SD_Number_BT	--->	SBP	.079*	.044	1.807	No
SD_Number_BT	--->	BP_2018	–.055 (n/s)	.063	–.881	No
SD_Number_BT	--->	BP_5	–.078 (n/s)	.054	–1.444	No
SD_CuP	--->	SBP	–.428***	.054	–7.988	No
SD_CuP	--->	BP_2018	–.049 (n/s)	.087	–.57	No
SD_CuP	--->	BP_5	.169*	.075	2.251	No
SD_CoP	--->	SBP	.027 (n/s)	.05	.543	No
SD_CoP	--->	BP_2018	–.054 (n/s)	.071	–.762	No
SD_CoP	--->	BP_5	–.062 (n/s)	.062	–1.006	No
Model 2 (Indirect effects)						
Interaction terms		**Dependent variable**	**Estimate β**	**SE**	**C.R.**	**Support**
CuO_x_SD_Number_BT	--->	SBP	.094 (n/s)	.085	1.105	No
CuO_x_SD_Breadth	--->	SBP	–.012 (n/s)	.083	–.149	No
CuO_x_SD_Depth	--->	SBP	.018 (n/s)	.087	.21	No
CuO_x_SD_CuP	--->	BP_2018	.026 (n/s)	.116	.226	No
CuO_x_SD_Level	--->	SBP	.088 (n/s)	.082	1.079	No
CuO_x_SD_CuP	--->	SBP	–.077 (n/s)	.081	–.946	No
CuO_x_SD_CoP	--->	SBP	.065 (n/s)	.09	.72	No
CuO_x_SD_Breadth	--->	BP_2018	.098 (n/s)	.118	.824	No
CuO_x_SD_Depth	--->	BP_2018	–.126 (n/s)	.125	–1.009	No

CuO_x_SD_Level	--->	BP_2018	.053 (n/s)	.117	.455	No
CuO_x_SD_Number_BT	--->	BP_2018	–.189 (n/s)	.121	–1.562	No
CuO_x_SD_CoP	--->	BP_2018	–.064 (n/s)	.128	–.5	No
CuO_x_SD_Breadth	--->	BP_5	–.007 (n/s)	.103	–.065	No
CuO_x_SD_Depth	--->	BP_5	.169 (n/s)	.108	1.569	No
CuO_x_SD_Level	--->	BP_5	.021 (n/s)	.102	.208	No
CuO_x_SD_Number_BT	--->	BP_5	–.005 (n/s)	.105	–.044	No
CuO_x_SD_CuP	--->	BP_5	–.071 (n/s)	.101	–.706	No
CuO_x_SD_CoP	--->	BP_5	.170 (n/s)	.106	1.601	No
CoO_x_SD_Depth	**--->**	**BP_5**	**–.171***	**.093**	**–1.845**	**Yes**
CoO_x_SD_Number_BT	--->	BP_5	.046 (n/s)	.095	.481	No
CoO_x_SD_CuP	--->	BP_5	–.038 (n/s)	.095	–.401	No
CoO_x_SD_CoP	**--->**	**BP_5**	**–.186***	**.096**	**–1.938**	**Yes**
CoO_x_SD_Depth	--->	BP_2018	.034 (n/s)	.107	.315	No
CoO_x_SD_Level	--->	BP_2018	.155 (n/s)	.117	1.330	No
CoO_x_SD_Number_BT	--->	BP_2018	–.133 (n/s)	.11	–1.209	No
CoO_x_SD_CuP	**--->**	**BP_2018**	**.192***	**.11**	**1.747**	**Yes**
CoO_x_SD_CoP	--->	BP_2018	.045 (n/s)	.112	.4	No
CoO_x_SD_Depth	--->	SBP	.053 (n/s)	.075	.713	No
CoO_x_SD_Level	--->	SBP	–.079 (n/s)	.082	–.97	No
CoO_x_SD_CuP	--->	SBP	–.054 (n/s)	.077	–.701	No
CoO_x_SD_CoP	--->	SBP	–.076 (n/s)	.078	–.975	No
CoO_x_SD_Breadth	--->	BP_2018	.057 (n/s)	.114	.505	No

CoO_x_SD_Number_BT	--->	SBP	–.070 (n/s)	.077	–.907	No
CoO_x_SD_Breadth	--->	SBP	–.125 (n/s)	.079	–1.579	No
CoO_x_SD_Level	--->	BP_5	–.106 (n/s)	.102	–1.046	No
CoO_x_SD_Breadth	--->	BP_5	.088 (n/s)	.096	.912	No
IFC_x_SD_Depth	**--->**	**SBP**	**–.120***	**.065**	**–1.846**	**Yes**
IFC_x_SD_CuP	--->	SBP	.099 (n/s)	.067	1.487	No
IFC_x_SD_CoP	--->	SBP	–.080 (n/s)	.065	–1.44	No
IFC_x_SD_CoP	--->	BP_2018	.155 (n/s)	.092	1675	No
IFC_x_SD_CuP	--->	BP_2018	–.218*	.096	–2.272	No
IFC_x_SD_Number_BT	--->	BP_2018	.179*	.099	1.819	No
IFC_x_SD_Level	--->	BP_2018	–.095 (n/s)	.088	–1.079	No
IFC_x_SD_Level	--->	SBP	.059 (n/s)	.062	.956	No
IFC_x_SD_Breadth	--->	SBP	–.021 (n/s)	.065	–.322	No
IFC_x_SD_Number_BT	--->	SBP	.080 (n/s)	.069	1.159	No
IFC_x_SD_Depth	--->	BP_2018	–.027 (n/s)	.094	–.293	No
IFC_x_SD_Breadth	--->	BP_2018	–.022 (n/s)	.093	–.234	No
IFC_x_SD_Breadth	--->	BP_5	.033 (n/s)	.08	.413	No
IFC_x_SD_Level	--->	BP_5	.032 (n/s)	.075	.42	No
IFC_x_SD_Number_BT	--->	BP_5	.094 (n/s)	.086	1.092	No
IFC_x_SD_CuP	--->	BP_5	–.004 (n/s)	.082	–.048	No
IFC_x_SD_Depth	--->	BP_5	–.076 (n/s)	.081	–.936	No
Explor_x_SD_Breadth	--->	BP_5	.052 (n/s)	.094	.553	No
Explor_x_SD_Level	--->	BP_5	.187*	.104	1.807	No

Explor_x_SD_Number_BT	--->	BP_5	–.069 (n/s)	.09	–.772	No
Explor_x_SD_CuP	--->	BP_2018	.011 (n/s)	.109	.101	No
Explor_x_SD_Breadth	**--->**	**SBP**	**.152***	**.075**	**2.027**	**Yes**
Explor_x_SD_Depth	--->	SBP	–.036 (n/s)	.074	–.485	No
Explor_x_SD_Level	--->	SBP	–.078 (n/s)	.084	–.932	No
Explor_x_SD_Number_BT	--->	SBP	–.086 (n/s)	.072	–1.207	No
Explor_x_SD_CoP	--->	SBP	.082 (n/s)	.083	.991	No
Explor_x_SD_CuP	--->	SBP	.069 (n/s)	.076	.897	No
Explor_x_SD_Breadth	--->	BP_2018	–.140 (n/s)	.108	–1.288	No
Explor_x_SD_Level	--->	BP_2018	–.086 (n/s)	.12	–.712	No
Explor_x_SD_Depth	--->	BP_2018	.047 (n/s)	.105	.444	No
Explor_x_SD_CoP	--->	BP_2018	–.054 (n/s)	.118	–.46	No
Explor_x_SD_Number_BT	**--->**	**BP_2018**	**.181***	**.103**	**1.770**	**Yes**
Explor_x_SD_CoP	--->	BP_5	.005 (n/s)	.102	.052	No
Explor_x_SD_CuP	--->	BP_5	.069 (n/s)	.095	.728	No
Explor_x_SD_Depth	--->	BP_5	.042 (n/s)	.091	.465	No

Note: _x_ = interaction terms. SMC (R^2): Subjective performance = 0.676; objective performance_2018 = 0.341; objective performance_5 = 0.504; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Model fit: CMIN/df = 1.507; $p > 0.220$; GFI = 1.000; AGFI = 0.742; CFI = 1.000; RMSEA = 0.048

This is the same Model 1 as already illustrated in section 7.2 (direct effects).

The table presents 7 columns and 103 rows. From left to right are the independent variables (IV), direction, dependent variables (DV), the estimated regression weights (β values), the standard errors (SEs), critical ratios (C.R.s), and hypotheses support. Under these column headings, 102 regression paths are listed. Under the ‘Model 1’ subheading appear the 12 direct effects of the independent variables on the dependent variables, which are the dimensions of market orientation and service innovativeness, and the 18 direct effects of the moderator on dependent variables, which are the dimensions of service differentiation. Most regression paths are subsequent. These paths, listed under the subheading ‘Model 2’, are the interaction terms of all constellations with the independent and moderator variables. The significant effects of the moderating interaction terms of service differentiation are marked in bold.

At first, the moderation model showed good model fit to the data. The values tended nearly to 1, which indicates a nearly perfect fit and high reliability. The model was therefore almost saturated (Thakkar, 2020). The number of degrees of freedom (1) divided by CMIN (1.507) also gave no reason for concern, as the CMIN/DF was 1.507 and on an acceptable level below the 3 threshold (Jogaratnam, 2017b; Niemand and Mai, 2018; Tarka, 2018; Subudhi and Mishra, 2019b). Thus, the model was reliable.

The Bollen–Stine bootstrap indicated a p-value of 0.326, which is far above the 0.05 threshold. Hence, 0 fell outside both intervals with a 95% CI. Accordingly, the null hypothesis had to be rejected and the alternative hypothesis supported. The model fit the data well.

To identify potential problems with multicollinearity, an examination was conducted at an earlier stage (see Section 6.6). As the output showed, there were no problems with correlations that were too high between the independent variables.

The total variance on subjective performance was explained by 67.6% of the remaining elements, and 30.7% by the error terms e2 and e3. Variance in objective performance_5, however, was explained by 50.4%, and objective performance_2018 by 34.1%. Therefore, subjective performance predominated with the highest informative value.

7.3.3 Addressing the hypotheses

The hypotheses were then tested by examining the critical ratios as a first step. All significant relationships between the variables had a regression wight of almost > 1.96. This confirmed that these paths were significant at the 0.05 level or higher (Arbuckle, 2017) and that data were non-normally distributed.

In the next step, the path coefficients of the independent variables and interaction terms with the dependent variables were examined using the maximum likelihood estimation method.

To test for moderation, certain conditions must be considered (see 5.4.4). It is mandatory to have significant direct effects of the independent variables with the dependent variables (Model 1) and also with the interaction terms and dependent variables (Model 2).

Table 17 shows the significant path coefficients:

Model 1

- Independent variables: CuO, CoO, IFC and Explor
- Moderator variables: SD_Depth, SD_Number_BT, SD_CuP and SD_CoP
- Dependent variables: SBP, BP_2018 and BP_5
- Most independent variables are significant related with all performance variables. Thus, they are suitable for moderation:
    - CuO – BP_2018 (β = -.529, $p < 0.001$)
    - CuO – BP_5 (β = 0.364, $p < 0.001$)
    - CoO – SBP (β = -0.279, $p < 0.001$)
    - CoO – BP_2018 (β = 0.743, $p < 0.001$)
    - CoO – BP_5 (β = -0.346, $p < 0.001$)
    - IFC – SBP (β = 0.337, p =< 0.001)
    - Explor – SBP (β = 0.219, $p < 0.001$)
    - Explor – BP_2018 (β = -0.313, $p < 0.001$)

- There is no significant relationship with CuO – SBP, IFC – BP_2018, IFC – BP_5, and Explor – BP_5. They were excluded from further analyses.

Model 2

- Six interaction terms significantly related with performance: CoO_x_SD_Depth, CoO_x_SD_CoP, CoO_x_SD_CuP, IFC_x_SD_Depth, Explor_x_SD_Breadth and Explor_x_SD_Number_BT. Specifically:
  - CoO_x_SD_Depth has a negative effect on BP_5 ($\beta = -0.171$, $p < 0.05$).
  - CoO_x_SD_CoP has a negative effect on BP_5 ($\beta = -0.186$, $p < 0.05$).
  - CoO_x_SD_CuP has a positive effect on BP_2018 ($\beta = 0.192$, $p < 0.05$).
- Given three significant relationships with competitor orientation, this dimension is obviously a central variable.
- IFC_x_SD_Depth has a negative effect on subjective performance ($\beta = -0.120$, $p < 0.05$).

As there were moderating effects of three dimensions in service differentiation on the relationships between market orientation and business performance, there was a partial moderating effect. Thus, H4a was supported.

- Explor_x_SD_Breadth has a positive effect on subjective performance ($\beta = 0.152$, $p < 0.05$).
- Explor_x_SD_Number_BT has a positive effect on BP_2018 ($\beta = 0.181$, $p < 0.05$).

As there were moderating effects of two dimensions in service differentiation on the relationships between service innovativeness and business performance, there was a partial moderating effect. As a result, H4b was supported.

It is difficult to explain moderation well without a graph, which helps visualise the effects of changes when a third variable is embedded. Hence, the above findings were plotted. These take the form of a simple slope test (Dawson, 2014) using MS Excel 2016. Since all variables in the models were continuously scaled, the effect of the relationships could be measured through the slopes of the regression lines. The predicted values of the regression lines could then be plotted (see Figures 32–37).

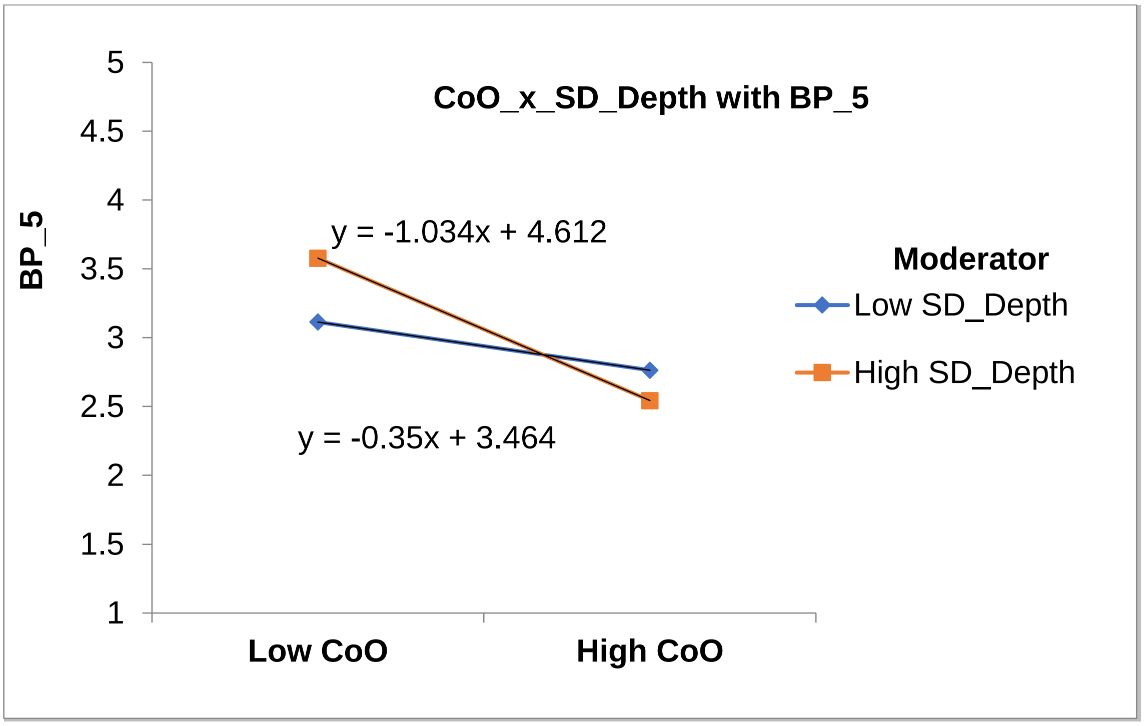


Figure 31: Plotting model with service differentiation_depth as moderator of the relationship between competitor orientation and objective performance_5 (bootstrapped).

Objective performance in the five-year period decreases the more the competitor is considered, in combination with a low moderating impact of vertical differentiation, which is service depth (blue slope). This negative effect is reinforced with increasing service depth (red slope). Thus, vertical differentiation with SD-Depth strengthens the negative relationship between CoO and BP_5.

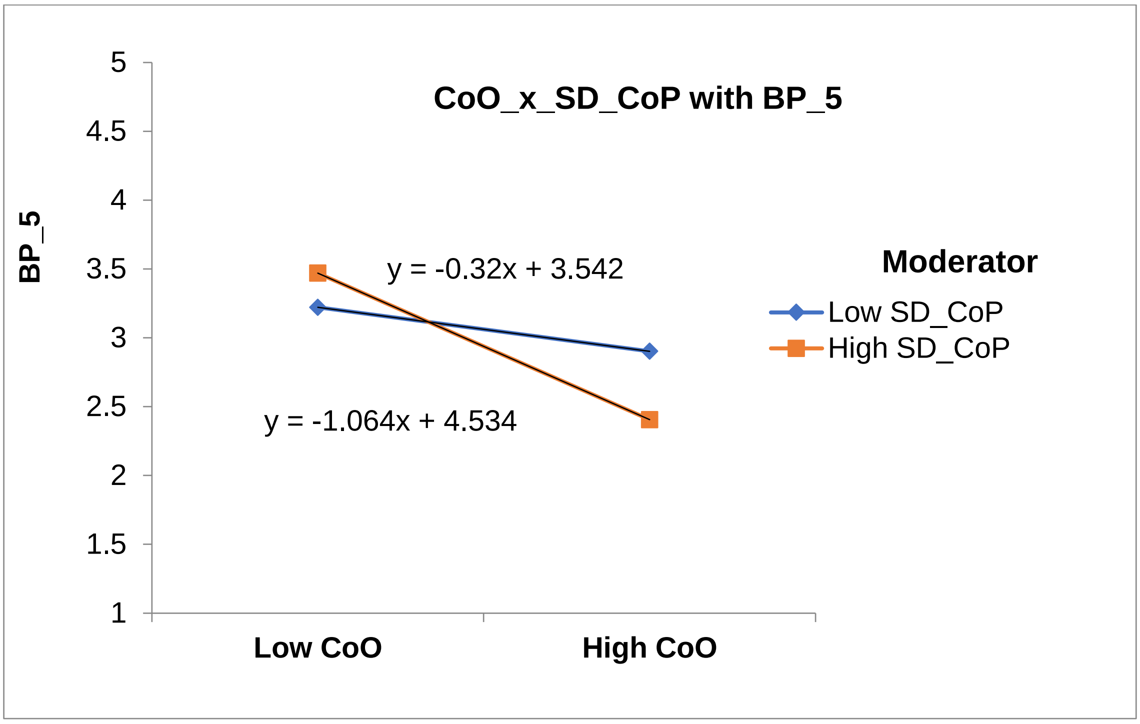


Figure 32: Plotting model with service differentiation_CoP as moderator of the relationship between competitor orientation and objective performance_5 (bootstrapped).

Like the former effects, objective performance in the five-year period also decreases the more the competitor is considered, but in this model, in combination with a low moderating impact of service differentiation, which is competitor preferences (blue slope). This negative effect is reinforced with an increasing level of SD_CoP (red slope). Thus, SD_CoP strengthens the negative relationship between CoO and BP_5.

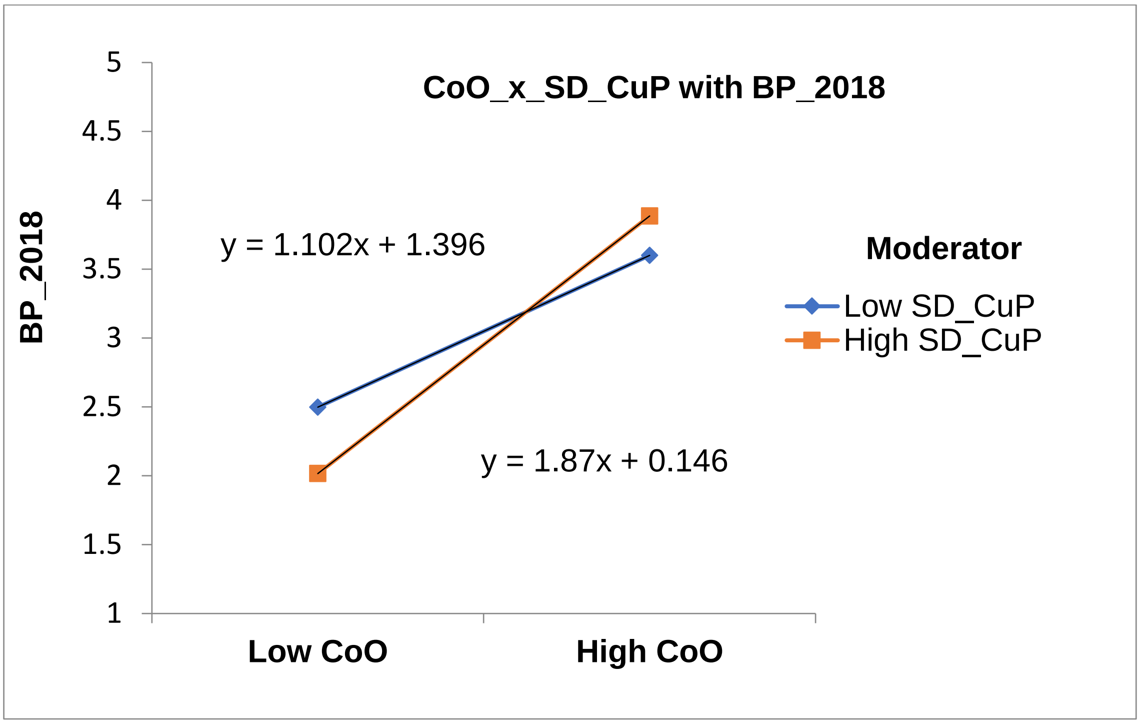


Figure 33: Plotting model with service differentiation_CuP as moderator of the relationship between competitor orientation and objective performance_2018 (bootstrapped).

In this model, objective performance in 2018 increases the more the competitor is considered, in combination with a low moderating impact of service differentiation with customer preferences (blue slope). This positive effect is reinforced with increasing service differentiation with customer preferences (red slope). Thus, SD_CuP strengthens the positive relationship between CoO and BP_2018.

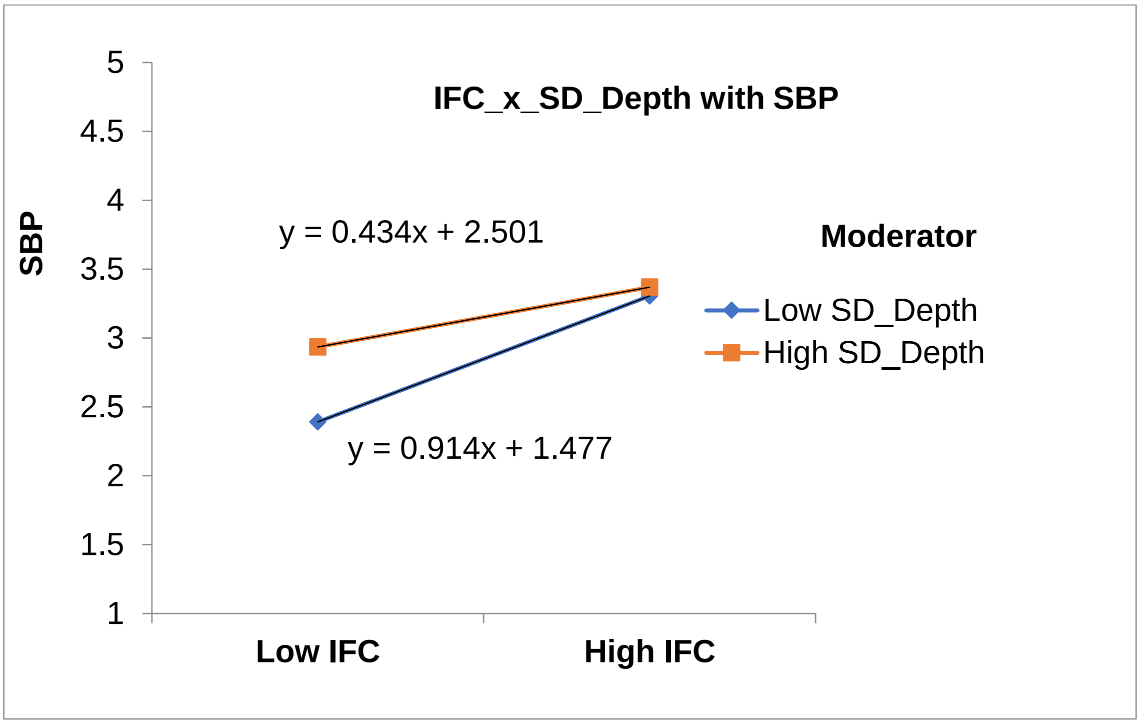


Figure 34: Plotting model with service differentiation_depth as moderator of the relationship between interfunctional coordination and subjective performance (bootstrapped).

In this model, subjective performance increases the more the companies' interfunctional coordination is considered, in combination with a low moderating impact of service depth (blue slope). This positive effect is reinforced with increasing service breadth (red slope). Thus, SD_Depth dampens the positive relationship between interfunctional coordination and subjective performance.

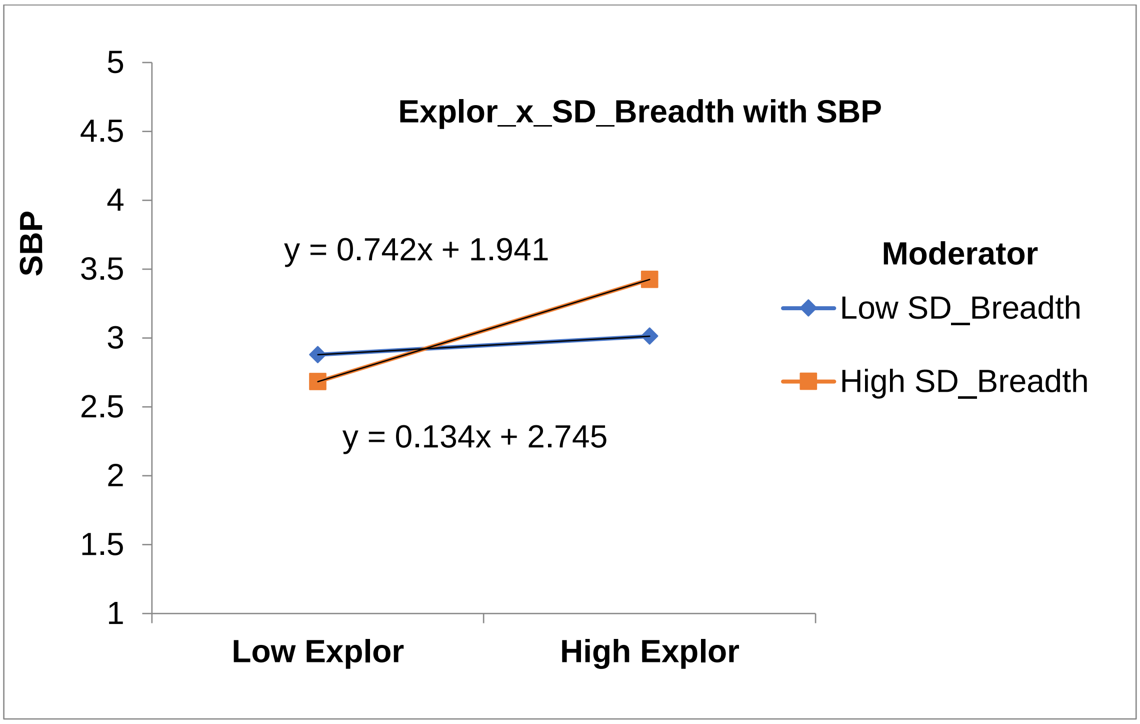


Figure 35: Plotting model with service differentiation_Breadth as moderator of the relationship between exploratory innovation and subjective performance (bootstrapped).

In this model, subjective performance is slightly increasing the more exploratory innovation is considered, in combination with a low moderating impact of service breadth (blue slope). This positive effect is reinforced with increasing service breadth (red slope). Thus, SD_Breadth strengthens the positive relationship between Explor and subjective performance.

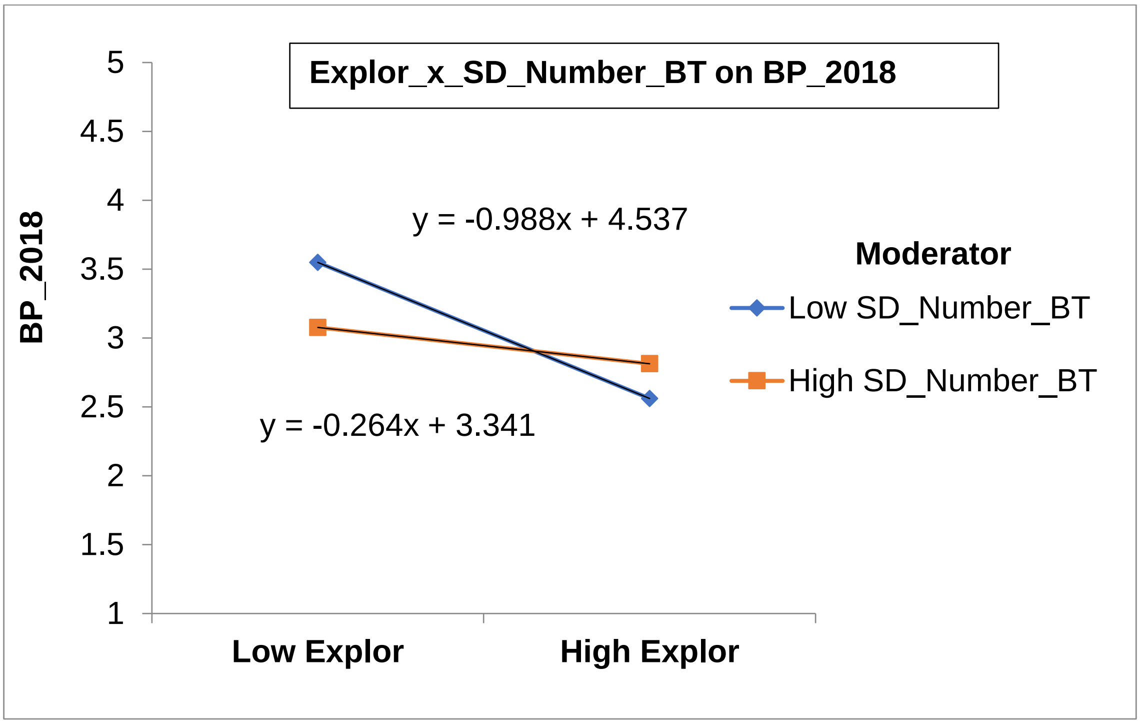
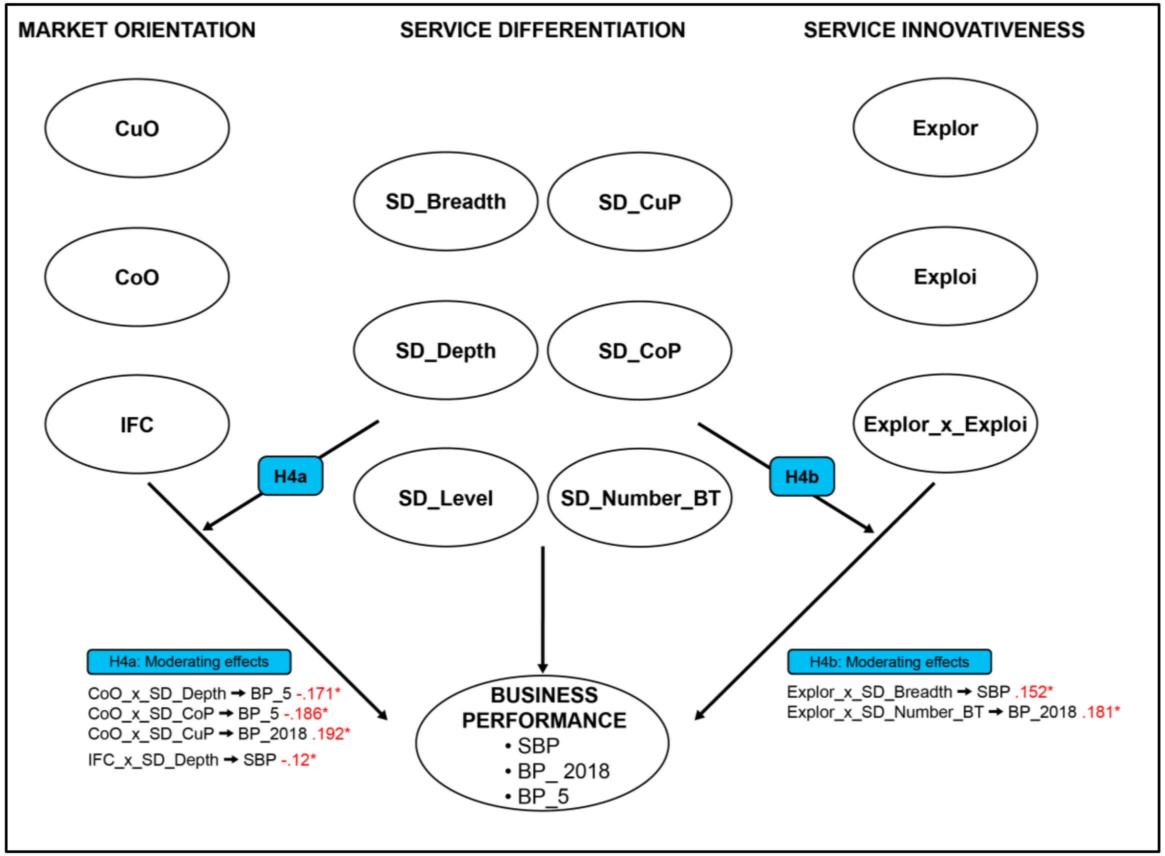


Figure 36: Plotting model with service differentiation_Number_BT as moderator of the relationship between exploratory innovation and objective performance_2018 (bootstrapped).

In this model, objective performance_2018 decreases the more exploratory innovation is considered, in combination with a low moderating impact of service differentiation_Number_BT (blue slope). This negative effect is slowed with increasing number of BT (red slope). Thus, SD_Number_BT dampens the negative relationship between Explor and BP_2018.

All results addressing the moderating effects are illustrated in the hypothesised, structural model (Figure 37). The appropriate hypotheses are marked in blue, and significant path coefficients (β-values) of the interaction terms are in red.



Note: Confidence interval = 95%.

Figure 37: Results of all moderating effects of service differentiation addressing the second research gap.

7.3.4 Conclusions

7.3.4.1 Market orientation

Addressing the second research gap, the researcher assumed that there was at least a partial moderating effect on the relationship between dimensions of market orientation and business performance. For these constellations, the alternative hypotheses were set. The assumption was supported with a moderating effect of service differentiation on three dimensions, which were SD_Depth, SD_CuP, and SD_CoP, and the affected independent variable was predominantly CoO, where three moderating effects were found. As all three dependent variables were affected, there is no tendency to a clear emphasis on one criterion.

In evaluating the effects of the interaction terms, the plotting models have helped to provide visual results, which revealed that by embedding the moderator variable into the direct relationships (Model 1) of competitor orientation and objective performance into one integrated model, the effects were strengthened, irrespective of the sign.

Vertical differentiation with SD-Depth strengthens the negative relationship between CoO and BP_5. Thus, by expanding the portfolio by adding services to the existing core products or services, objective performance in the last five years was decreased even more. This leads to the conclusion that when (a) both strategies are integrated into one model and (b) competitor orientation increases, vertical differentiation with added services must be limited to a minimum to avoid impairing business performance. In this constellation, the fewer added services are offered, the more likely is success.

SD_CoP strengthens the negative relationship between CoO and BP_5. As a result, by increasing the focus on competitor preferences, objective performance in the last five years was reduced even more. This leads to the conclusion that when (a) both strategies are integrated in one model and (b) competitor orientation increases, competitor preferences must be limited to a minimum to avoid impairing business performance. In this constellation, the lower the focus on competitor preferences, the more likely is success.

SD_CuP strengthens the positive relationship between CoO and BP_2018. Hence, by increasing the focus on customer preferences, objective performance in 2018 was enhanced even more. This leads to the conclusion that when (a) both strategies are integrated and (b) competitor orientation increases, the focus on customer preferences must be enhanced to a maximum to improve business performance. In this constellation, the greater the focus on customer preferences, the more likely is success.

Another effect was found with interfunctional coordination and subjective performance: SD_Depth dampens the positive relationship between interfunctional coordination and subjective performance. Hence, by expanding the portfolio by adding services to the existing core products or services, subjective performance is reduced. This is a reversed effect, and it leads to the conclusion that when (a) both strategies are integrated into one model and (b) interfunctional coordination increases, vertical differentiation with added services must be limited to a minimum to avoid impairing business performance even more. Interfunctional coordination is the communication and sharing of information and resources and the integration and collaboration of different functional areas or departments (Narver, Slater and MacLachlan, 2004). In this constellation, the fewer added services are offered, the more likely is success.

7.3.4.2 Service innovativeness

The assumption was supported with a moderating effect of service differentiation on two dimensions, namely SD_Breadth and SD_Number_BT, and the affected independent variable was exploratory innovation, where two moderating effects were found. As both subjective and objective dependent variables were affected, there is no tendency to a clear emphasis on one criterion.

In evaluating the effects of the interaction terms, the plotting models helped to visually present the results and revealed that by embedding the moderator variable into the direct relationships (Model 1) of exploratory innovation and performance variables into one integrated model, the effects change. SD_Breadth strengthens the positive relationship between Explor and subjective performance. Therefore, by expanding the portfolio with new independent core services, subjective performance is enhanced even more. This leads to the conclusion that when (a) both strategies are integrated into one model and (b) exploratory innovation increases, service breadth must be maximised to improve business performance. In this constellation, the more core services are offered, the more likely is success.

SD_Number_BT dampens the negative relationship between Explor and BP_2018. Therefore, by increasing the number of independent departments, which concerns the organisational structure, objective performance in 2018 was enhanced even more. This is a reversed effect, and it leads to the conclusion that when (a) both strategies are integrated into one model and (b) exploratory innovation is increasing, departmentalisation must be increased to reduce negative business performance. In this constellation, the greater the number of independent departments, the more likely is success.

7.4 Hypothesis testing: indirect effects of service differentiation with mediation analysis

7.4.1 Introduction

After presenting the findings of the moderating effects, this section examines the mediating effects of service differentiation on the relationship between the concepts and business performance. As previously described in Sections 5.4.4 and in 5.7.3, the basic mechanism in mediation is to operate on direct paths (Model 1), as well as indirect paths (Model 2) between two independent and dependent variables. 'Indirect paths' in mediation means that the route to performance is via another predictor variable. Hence, there is an indirect relationship (Jose, 2013).

In the present study, two methods were applied, namely the bootstrap method of Preacher and Hayes (2008) and the causal steps method of Baron and Kenny (1986). Both are widespread in academic research, and each technique has its advantages. For example, an aspect in favour of the bootstrap method is that it principally does not rely on the assumption of normality because it is a non-parametric resampling test. This supports the present sample, which is not normally distributed (see Section 6.4). It is also suitable for smaller sample sizes (Kline, 2016). Additionally, the individual research constellation influences direction, as does a lack of potency while measuring the strength of mediation (Meyer *et al.*, 2014) and unreliability of the outcomes while measuring non-significant relationships (Pardo and Roman, 2013). Moreover, the number of mediators is an important criterion.

Because most researchers prefer single mediation analyses, there is a lack of studies involving multiple simultaneous mediators, and bootstrapping and the causal steps method have yielded different outcomes in previous studies (Preacher and Hayes, 2008). As the researcher in this thesis sought to identify the impact of six mediator variables simultaneously, which are the dimensions of service differentiation, it was necessary to use two mediation techniques, the results of which are discussed in section 7.4.5.

The causal steps method of Baron and Kenny (1986) is based on four conditions that must be met to measure a mediating effect (Hadi, Abdullah and Sentosa, 2016). It is preferred for larger sample sizes. However, following the bootstrap method, Model 2 was split into two parts, paths *a* and *b* (see Figure 24). Model 1 featured one path, path *c*.

The four conditions of the causal steps method were applied in this research as follows:

1) **Direct effect (X–Y) without mediators** – a statistical significance between the dependent and independent variables in a first regression equation. In the present thesis, this is, for example, customer orientation and subjective performance. This is Model 1, also called path *c*.

2) **Direct effect (X–M)** – a statistical significance between the independent variable and the mediating variable in a second regression equation. In the present thesis, this is, for example, customer orientation and service differentiation_breadth. This is part one of Model 2, also called path *a*.

3) **Direct effect (M–Y)** – a statistical significance between the mediating variable and the dependent variable in a third-regression equation. In the

present thesis, this is, for example, service differentiation_breadth and subjective performance. Here, the mediator is entered as predictor. This is part two of Model 2, also called path *b*.

If conditions 1–3 are not met, there is no mediation. If successful, the direct effect after controlling for the mediating variable will be measured.

4) **Direct effect (X–Y) with mediators** – a statistical significance between the dependent and independent variables, including the mediator variable, in a fourth-regression equation. In the present thesis, this is, for example, customer orientation, service differentiation_breadth and subjective performance. If the inclusion of the mediator variable annuls the direct relationship, then there is full mediation (FM); otherwise, mediation is partial (PM) or absent. This is Model 3.

The bootstrap method, in contrast,

> is a computationally intensive method that involves repeatedly sampling from the data set and estimating the indirect effect in each resampled data set. By repeating this process thousands of times, an empirical approximation of the sampling distribution of *ab* is built and used to construct confidence intervals for the indirect effect. (Preacher and Hayes, 2008, p. 880)

Like the causal steps method, the bootstrap method involves Model 1 (direct effects before mediation), Model 2 (indirect effects) and Model 3 (direct effects after mediation). Conditions 1 and 4 above also had to be met, but the indirect effect was automatically computed in the AMOS program by calculating the *ab* paths (see Figure 24). In Table 19, the three models are presented side by side.

To evaluate the strength of the mediating effect, both methods are different. The causal steps method of Baron and Kenny (1986) evaluates the value of the mediator. When it nullifies the direct relationship, there is full mediation; otherwise, mediation is partial or absent (Becker and Brettel, 2017). As all mediator variables are tested, the relevant ones become visible.

The bootstrap method of Preacher and Hayes (2008) also requires a significant direct effect of independent and dependent variables before embedding the mediators. However, mediation exists when an indirect effect occurs. If this is given, the scale of the indirect effect can be calculated using the VAF, which determines the size or strength of the indirect effect in relation to the total effect (direct effect + indirect effect). According to Hair *et al.* (2019), a VAF value of greater than 80% is full mediation, a value between 20% and 80% is partial mediation, and a value less than 20% means there is no mediation.

Despite the different procedures used for the two models, the literature provides flexible constellations. For example, in bootstrapping, a third step can be included (Iyer *et al.*, 2018), or all four steps can be included, like in the causal steps method (Hadi, Abdullah and Sentosa, 2016). In the present thesis, the bootstrap method was designed with three steps. The results of both methods are later discussed in section 7.4.5.

The effects through all mediators simultaneously are called total effects. Yet in mediation, particular interest lies in determining which variables are responsible for the total effects. For this reason, specific indirect effects are applied in a final step (Jose, 2013); (Hair, 2017). Thus, hypothesis testing with bootstrapping begins with total effects and ends with specific indirect effects.

An overview of the research model showing the model addressing the mediating effects of service differentiation (Figure 38) is presented. All results related to the mediating effects are illustrated in the hypothesised model (Figure 39). Moreover, all results of the indirect analyses addressing the second research gap are displayed in Figure 40, and the entire hypothesised structural model, including all results addressing both research gaps, are illustrated in Figure 41.

To fully address the hypotheses, a summary of all results of both methods is presented in Appendices 15 and 16. At the end of this section, both mediation methods are discussed.

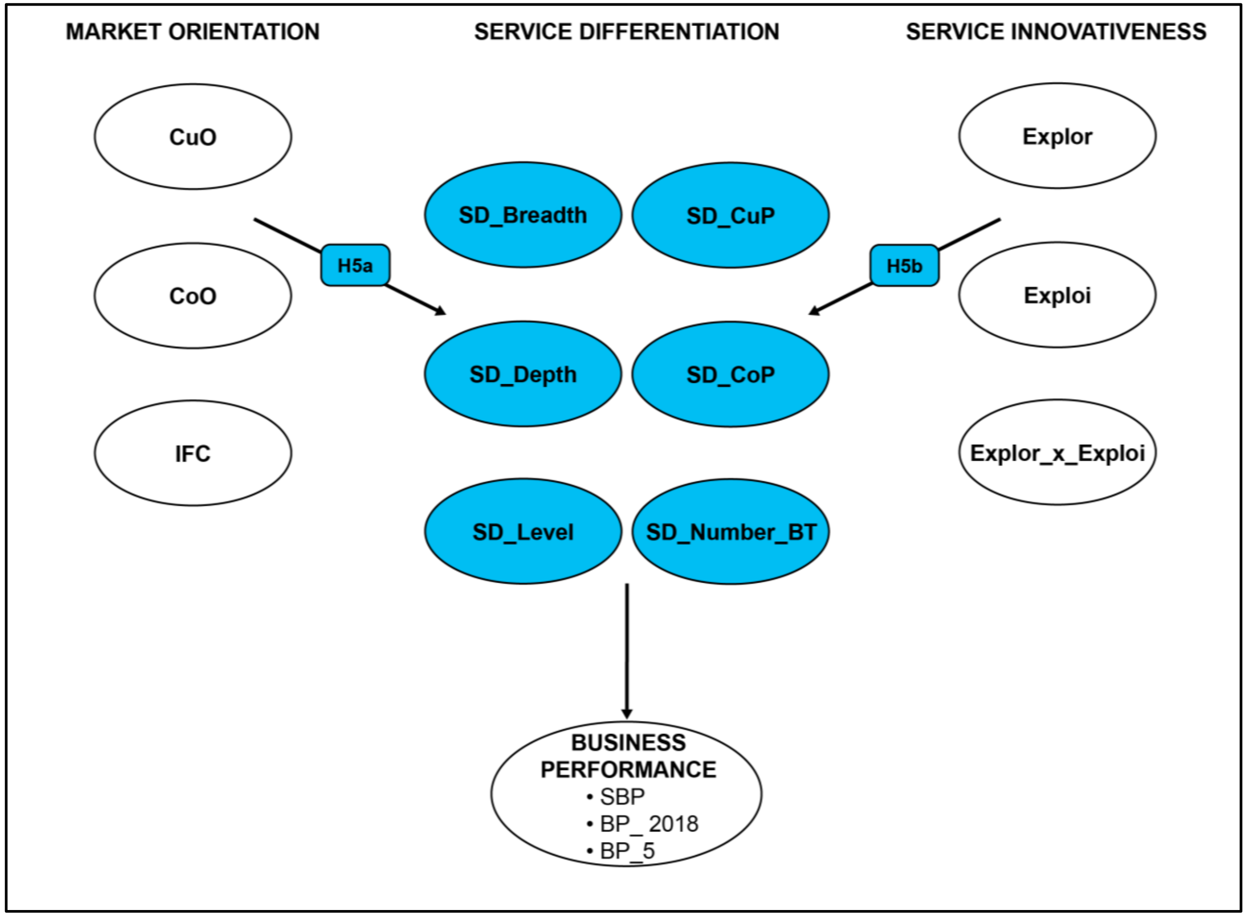


Figure 38: The proposed research model addressing the mediating effects of service differentiation.

7.4.2 Model test

Table 18: Overview of Hypothesis 5.

Hypothesis	Strategic Concept/Dimension
5	**Mediating effects**
5a	Service differentiation has at least a partial mediating effect on the relationship between dimensions of market orientation and business performance.
5b	Service differentiation has at least a partial mediating effect on the relationship between dimensions of service innovativeness and business performance.

Table 19: Bootstrap method with path coefficients (β-values) of Hypothesis 5a and 5b in the mediation analysis.

H	IV (X)	DV (Y)	Mo 1: Est. β	SE	C.R.	Mo 2: Est. β	SE	C.R.	Mo 3: Est. β	SE	C.R.	Support	TE	VAF %	ST	Spec. (M)
H5a	CuO	SBP	.223***	.063	3.56	.233***	.046	5.065	.047 (n/s)	.057	.827	Yes	.280***	83.03	FM	SD_CuP
H5a	CuO	BP_2018	–.417***	.094	-4.449	.253***	.072	3.514	–.532***	.099	-5.365	No	–.279**	-90.68	n/s	
H5a	CuO	BP_5	.237*	.097	2.449	.041 (n/s)	.052	.788	.196*	.104	1.876	No	.237*	17,30	n/s	
H5a	CoO	SBP	–.382***	.056	-6.845	–.233***	.042	-5.548	–.187***	.051	–3.638	Yes	–.421***	55.34	PM	SD_Depth, SD_CuP
H5a	CoO	BP_2018	.532***	.083	6.225	–.211***	.068	–3.103	.639***	.09	7.125	No	.427***	-49.41	PM	
H5a	CoO	BP_5	–.159*	.087	–1.831	–.049 (n/s)	.051	–.961	–.110 (n/s)	.095	–1.155	No	–.159*	30,82	n/s	
H5a	IFC	SBP	.227***	.045	5.068	.047 (n/s)	.038	1.237	.214***	.038	5.701	No	.261***	18.00	n/s	
H5a	IFC	BP_2018	.156**	.067	2.483	.079 (n/s)	.054	1.463	.169***	.065	2.577	No	.248**	31.85	n/s	
H5a	IFC	BP_5	.140*	.07	2.008	–.002 (n/s)	.020	–.100	.142*	.069	2.066	No	.140*	1.43	n/s	

H	IV (X)	DV (Y)	Mo 1: **Est. β**	SE	C.R.	Mo 2: **Est. β**	SE	C.R.	Mo 3: **Est. β**	SE	C.R.	Support	TE	VAF %	ST	Spec. (M)
H5b	**Explor**	**SBP**	**.242*****	**.047**	**5.11**	**.135*****	**.039**	**3.461**	**.117****	**.044**	**2.688**	**Yes**	**.252*****	**53.57**	**PM**	**SD_Depth, SD_CuP**
H5b	Explor	BP_2018	–.153**	.071	–2.165	.095 (n/s)	.064	1.484	–.224***	.036	5.815	No	–.129 (n/s)	-73.64	n/s	
H5b	Explor	BP_5	.042 (n/s)	.074	.569	.013 (n/s)	.041	.317	.029 (n/s)	.081	0.363	No	.042 (n/s)	30.95	n/s	

Notes: Mo = model; H = hypothesis; FM = full mediation; PM = partial mediation; Spec. = specific, indirect effect; TE = total effect;
IV (X) = independent variable; DV (Y) = dependent variable; ST = strength of mediation; M= mediator variable

Model 1 (X–Y): direct effects before mediation, without mediators; Model 2 (X–M–Y): indirect effects with mediators; Model 3 (X–Y): direct effects after mediation, with mediators

Model 1 fit: SMC (R^2): SBP = 0.539; BP_2018 = 0.375; BP_5 = 0.120
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$
CMIN/df = 2.446; $p > 0.004$; GFI = 0.989; AGFI = 0.703; CFI = 0.991; RMSEA = 0.084

Models 2, 3 fit: SMC (R^2): SBP = 0.594; BP_2018 = 0.031; BP_5 = 0.286
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$
CMIN/df = 2.980; $p > 0.000$; GFI = 0.960; AGFI = 0.773; CFI = 0.958; RMSEA = 0.016

The table contains 17 columns and 13 rows. From left to right are the hypotheses (H), independent variables (IV), dependent variables (DV), the estimated regression weights (β values), the standard errors (SEs) and critical ratios (C.R.s). These are repeated with Models 1–3. In column 14 is the hypotheses support, followed by total effects, the VAF, strength of mediation and finally the specific mediator variable. The lines below list the 12 regression paths of the independent variables. The significant mediating effects which support the hypotheses are in bold text.

7.4.2.1 Model 1

The model showed good model fit to the data. The values tended nearly to 1, which indicates a nearly perfect fit and high reliability. The model was therefore almost saturated (Thakkar, 2020). The number of degrees of freedom (1) divided by CMIN (2.446) also gave no reason for concern, as the CMIN/DF was 2.446 and on an acceptable level below the 3 threshold (Jogaratnam, 2017b; Niemand and Mai, 2018; Tarka, 2018; Subudhi and Mishra, 2019b). Thus, the model was reliable.

The Bollen–Stine bootstrap analysis indicated a p-value of 0.141, which is above the 0.05 threshold. Hence, 0 fell outside both intervals with a 95% CI. Accordingly, the null hypothesis had to be rejected and the alternative hypothesis supported. The model fit the data well.

In Model 1, the total variance on subjective performance was explained by 53.9% of the remaining elements, and 46.1% by the error terms e2 and e3. Variance in objective performance_2018, however, was explained by 37.5%, and objective performance_2018 by 12.0%. As a result, subjective performance predominated with the highest informative value. Business performance_5 is not of interest in this model.

7.4.2.2 Models 2 and 3

Like before, Models 2 and 3 showed good model fit to the data. The values tended nearly to 1, which indicates a nearly perfect fit and high reliability. The model was hence almost saturated (Thakkar, 2020). The number of degrees of freedom (1) divided by CMIN (2.980) also gave no reason for concern, as the CMIN/DF was 2.980 and on an acceptable level below the 3 threshold (Jogaratnam, 2017b; Niemand and Mai, 2018; Tarka, 2018; Subudhi and Mishra, 2019b). Thus, the model was reliable.

The Bollen–Stine bootstrap indicated a p-value of 0.091, which is above the 0.05 threshold. Hence, 0 fell outside both intervals with a 95% CI. Accordingly, the null hypothesis had to be rejected and the alternative hypothesis supported. The model fit the data well.

To identify potential problems with multicollinearity, an examination was conducted at an earlier stage (see Section 6.6). As the output showed, there were no problems with correlations that were too high between the independent variables. (Jogaratnam, 2017b; Niemand and Mai, 2018; Tarka, 2018; Subudhi and Mishra, 2019b).

Total variance in subjective performance was explained by 59.4% of the four elements and 40.6% by the error terms e2 and e3. Variance in BP_2018 was explained by 3.6%, and BP_5 was explained by 28.6%. As a result, subjective performance predominates with the highest informative value by far, whereas BP_2018 is of minor interest subsequently.

In all models, the subjective performance variable predominated as the appropriate mode of assessment.

7.4.3 Addressing the hypotheses with the bootstrap method

The critical ratios of all significant relationships between the variables had a regression weight of > 1.96 for. This confirms that all paths were significant at the 0.05 level or higher (Arbuckle, 2017) and that the data were non-normally distributed.

7.4.3.1 Model 1 (direct effects X–Y before mediation)

It emerged that in market orientation all – and in exploratory innovation most – dimensions relate significantly to business performance. Hence, the first condition is fulfilled.

7.4.3.2 Model 2 (indirect effects X–M–Y)

The following relationships with the independent variables and business performance via the mediator variables were revealed to be significant:

- CuO–SBP ($\beta = 0.233$, $p < 0.001$)
- CUO–BP_2018 ($\beta = 0.253$, $p < 0.001$)
- CoO–SBP ($\beta = -0.233$, $p < 0.001$)
- CoO–BP_2018 ($\beta = -0.211$, $p < 0.001$)
- Explor–SBP ($\beta = 0.135$, $p < 0.001$)

7.4.3.3 Model 3 (direct effects X–Y after mediation)

These significant regression paths of the second condition served as the satisfactory ground for mediation condition three. When the inclusion of the mediator variable nullifies the direct relationship, full mediation occurs. If the effect is reduced, partial mediation occurs (Hadi, Abdullah and Sentosa, 2016).

Comparing the significant relationships of Model 1 showed that the former significant relationships changed:

- CuO–SBP ($\beta = 0.047$, $p > 0.05$), which is non-significant, indicating full mediation. This is supported by a critical ratio far below the 1.96 threshold (.827). VAF produced 0.83, which indicates full mediation (Hair, 2017).
- CoO–SBP ($\beta = -0.187$, $p < 0.001$). As the values are lower than in Model 1, partial mediation exists. Critical ratio (–3.638) is also far above the 1.96 threshold, and VAF produced 0.55, which indicates partial mediation.
- Explor–SBP ($\beta = 0.117$, $p < 0.001$). As the values are lower than in Model 1, partial mediation exists. Critical ratio (2.688) is also far above the 1.96 threshold, and VAF has a value of 0.54, confirming partial mediation.

Two contradictory relationships (CuO–BP_2018, CoO_BP_2018) are significant, but do not make sense, as the values are in reversed directions. This might indicate competitive mediation (or suppression; (Iyer *et al.*, 2018) 0.They were excluded from further analysis.

As there was a partial mediating effect of service differentiation on two dimensions in the market orientation–business performance relationship and a partial mediating effect of service differentiation on the service innovativeness–business performance relationship, both H5a and H5b were supported.

7.4.4 Specific indirect effects

All direct and indirect effects in sum, which are the paths *a*, *b* and *c*, represent the total effects in mediation (Jose, 2013). After determining five mediating effects in sum, it was important to identify the exact mediators responsible for the effects. This is called ‘specific indirect effect’. They were analysed in the next step. See Appendices 17–20 for the results of the regression coefficients of all four conditions: condition 4 provides an overview with the specific indirect effects.

7.4.4.1 Significant mediating factors: SD_Depth and SD_CuP

For this, all paths between the variables had to be calculated, which required manual coding of the paths. In AMOS, it is possible to define the single paths of the hypothesised, structural model with single codes. In this coding process, the appropriate paths could be analysed. These were the indirect paths to performance via the three dimensions.

The decoding revealed the following:

- SD_Depth was significantly related as a specific mediator between competitor orientation and subjective performance ($\beta = 0.107$, $p < 0.01$), indicating partial mediation.
- SD_Depth was significantly related as a specific mediator between exploratory innovation and subjective performance ($\beta = 0.107$, $p < 0.001$), indicating partial mediation.
- SD_CuP was significantly related as a specific mediator between customer orientation and subjective performance ($\beta = -0.182$, $p < 0.001$), indicating full mediation.

- SD_CuP was significantly related as a specific mediator between competitor orientation and subjective performance ($\beta = -0.182$, $p < 0.001$), indicating partial mediation.
- SD_CuP was significantly related as a specific mediator between exploratory innovation and subjective performance ($\beta = -0.182$, $p < 0.001$), indicating partial mediation.

These mediator variables were responsible for the total effects.

7.4.5 Comparing the results of the bootstrap method with those of the causal steps method

As comprehensively explained, the non-parametric bootstrap method entails 'forming a sample distribution of the indirect mediating effects, as a representation of the population, by selecting a large number… [in this thesis, 2,000 samples with 95% bias-corrected confidence interval] of replacement resamples to compute the required information regarding each sample' (Namazi and Namazi, 2016, p. 548).This is a major difference compared to other mediation methods, including the causal steps method, where no resampling takes place.

The two methods are identical in terms of first detecting the significant relationships of the independent and dependent variables without the mediator variable and testing for direct effects after the mediation process. Thus, steps 1 and 4 are mandatory irrespective the method. What differs is the indirect section, with it being run in one step when using the bootstrap method and two steps when using the causal steps method. In this thesis, both methods were employed, and the four model results addressing conditions 1–4 are reproduced in Appendices 17–20 and the results in Appendix 21.

Although the causal steps method involved more calculations related to each single path between the variables, both methods produced the same results. The output of the specific mediator variables in bootstrapping were identical to the single calculations in the causal steps method: SD_Depth and SD_CuP are the predominating mediators. What additionally became clear, and this an advantage of the causal steps method in the authors' opinion, is that this method led to greater transparency in each regression path, as all paths became visible now. This can aid the understanding of single paths better, as in bootstrapping the values are cumulated.

7.4.6 Conclusions

7.4.6.1 Market orientation

Addressing the second research gap, the researcher assumed that there was at least a partial mediating effect on the relationship between dimensions of market orientation and business performance through mediation with service differentiation. For these constellations, the alternative hypotheses were set. The assumption was supported with a mediating effect of service differentiation on two dimensions, which were customer orientation and competitor orientation relating to subjective performance. With customer orientation, the sign was positive in Model 1. Hence, the more attention is paid to the customer, the more likely is economic success, as measured by moderate coefficients.

In Model 2, an indirect effect was detected with moderate β-values, confirming a mediating effect with critical ratios far above the 1.96 threshold. Model 3, which was the direct path after mediation, showed a non-significant effect, indicating full mediation with CuO–SBP. This was supported with high VAF values of 83% (Hair, 2017). Thus, the direct path X–Y in Model 1 was totally replaced by the mediator in Model 2. The subsequent specific indirect analyses detected that this effect was caused by one mediator variable, SD_CUP. This means that customer orientation strategies relating to subjective performance are fully mediated via customer preferences. In other words, a strategic plan that simultaneously applies customer orientation and competitive advantage is successful only when customer preferences are considered.

Another mediating effect was detected: competitor orientation–subjective performance. Unlike before, there was not only an indirect but also a direct effect of the mediator after mediation: hence, it was partial mediation. The sign was negative in Model 1, which implies that the less attention is paid to market competition, the more likely is economic success. Thus, the companies' efforts do not far exceed those of their competitors, which can explain the general satisfaction with their competitive position. This is reinforced by both mediator variables in Model 2, where an indirect effect was detected, with a critical ratio far above the 1.96 threshold and an average VAF value of 55% (Hair, 2017).

As Model 3, which was the direct path after mediation, also showed a significant effect, partial mediation with CoO–SBP was indicated. Therefore, it is an indirect effect. This effect was caused by two mediator variables in combination: SD_Depth and SD_CuP. Hence, it can be assumed that vertical differentiation strategies, in this case services added to the core product offering, can drive this effect, but this is not mandatory, as both paths significantly respond to performance. This means that competitor orientation strategies relating to subjective performance are partially mediated via vertical differentiation. In other words, a strategic plan that simultaneously applies competitor orientation and competitive advantage is successful whether or not vertical differentiation is considered. This effect is also increased when customer preferences are mentioned instead of vertical differentiation.

7.4.6.2 Service innovativeness

Addressing the second research gap, the researcher assumed that there was at least a partial mediating effect on the relationship between dimensions of service innovativeness and business performance through mediation with service differentiation. For these constellations, the alternative hypotheses were set. The assumption was supported with a partial mediating effect of service differentiation on one dimension, which was exploratory innovation relating to subjective performance. As there was not only an indirect but also a direct effect of the mediator after mediation, it was partial mediation.

The sign was positive in Model 1, which implies that the more attention is paid to the new services, the more likely is economic success. Thus, companies engaging in greater efforts than their competitors regarding exploratory innovation are more likely to achieve a generally satisfactory economic position.

This is reinforced with both mediator variables in Model 2, where an indirect effect was detected, with a critical ratio far above the 1.96 threshold.

Model 3, which was the direct path after mediation, showed a significant effect, indicating partial mediation with CoO–SBP. Therefore, it is an indirect effect, supported by a VAF value of 53%, in line with Hair (2017). This effect was caused by two mediator variables, SD_Depth and SD_CuP. As a result, it can be assumed that vertical differentiation strategies, in this case services offered in addition to the core products, can push this effect, but this is not mandatory, as both paths significantly responded to performance. This effect is also increased when customer preferences are mentioned.

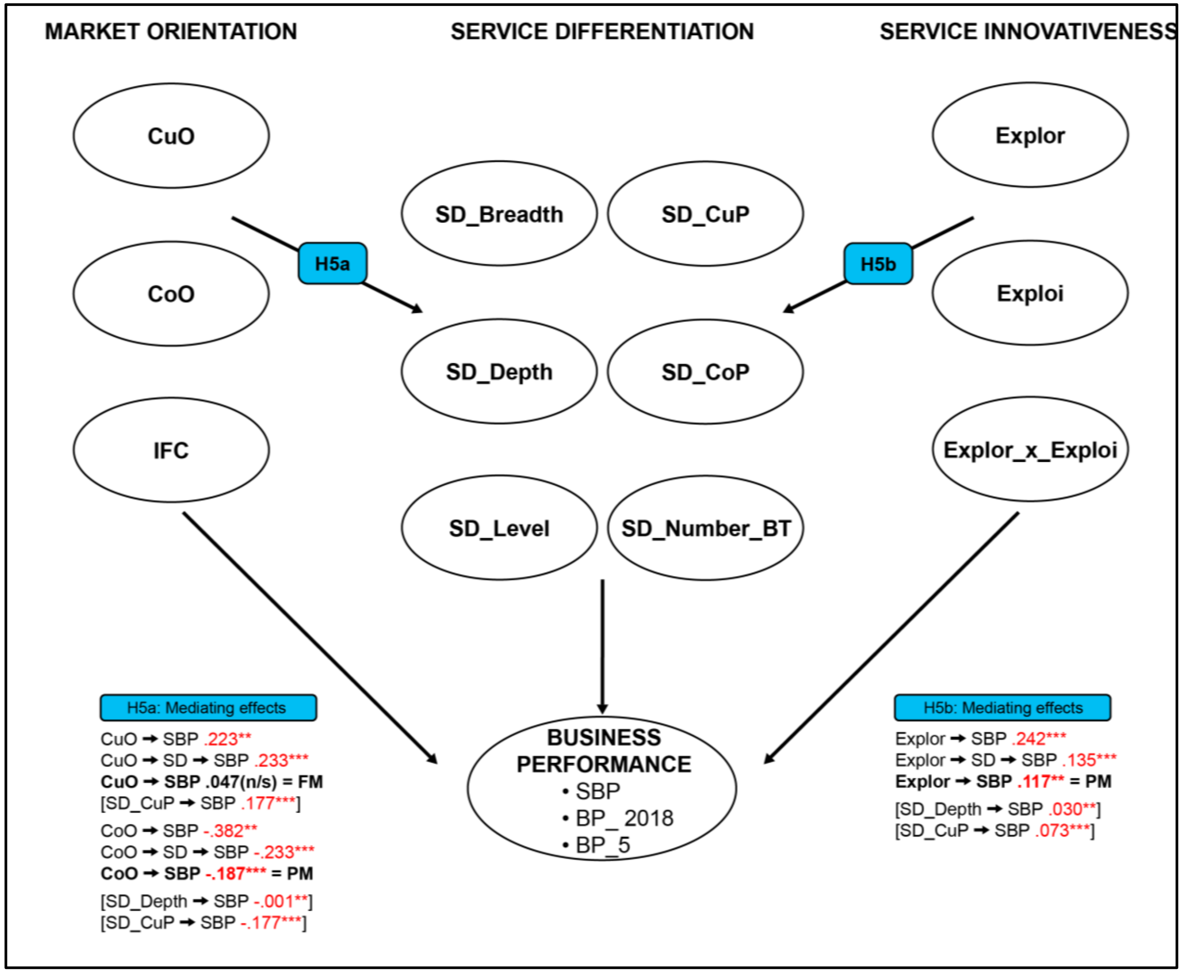
As all mediated relationships relied on the participants' subjective opinions, and as no effects with objective performance could be detected, this is the only mode of assessment. Hence, there is no congruency between the three dependent variables addressing the research gap of multiple performance items (Katsikeas *et al.*, 2016).

7.4.6.3 Comparing the bootstrap and causal steps methods

In the present study, two techniques were applied: Preacher and Hayes's (2008) bootstrap method and Baron and Kenny's (1986) causal steps. Both are widespread in academic research, and each technique has unique features. Because bootstrapping corresponds well with non-normal distribution, which is applies to the present study, this was the first choice. Three mediating effects were found with high critical ratios above the 1.96 threshold; the specific indirect effects indicated predominantly SD_Depth and SD_CuP as the responsible mediators. This was shown to be accurate by conducting the final step, direct effect analysis after mediation. Additionally, mediating effects were visible, as non-significant, respectively significant, paths X–Y were found.

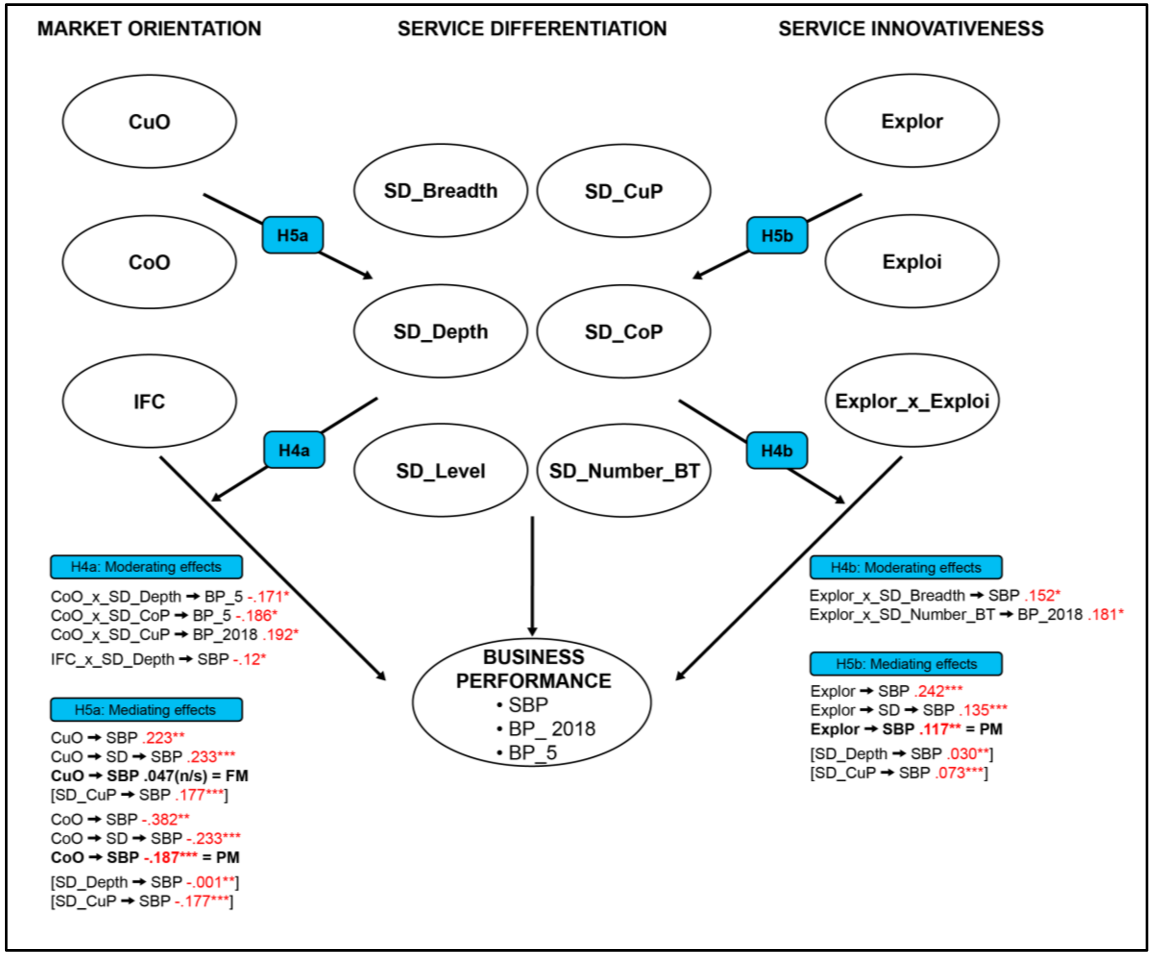
By comparing these findings with the results of the causal steps method, reproduced in Appendix 15, Model 1 (first condition) and Model 3 (third condition) were found to be identical (in the causal steps method, Model 3 is labelled Model 4, as two single steps, *a* and *b*, were conducted). The processes followed in the two methods were largely identical, but they differed in terms of the indirect effects in Model 2. Here, paths *a* and *b* were split in the causal steps method, and after selecting the significant path, this led to Model 4 as the direct effect after mediation. Both sets of results identified the same strengths of mediating effects and the same specific mediators responsible for the effects.

Thus, it can be concluded that, despite the non-normal distribution of the sample, both methods were suitable in this research. In non-linear models, ‘the total effect is not generally equal to the sum of the direct and indirect effects, but to a modified combination of the two variables’ (Namazi and Namazi, 2016).



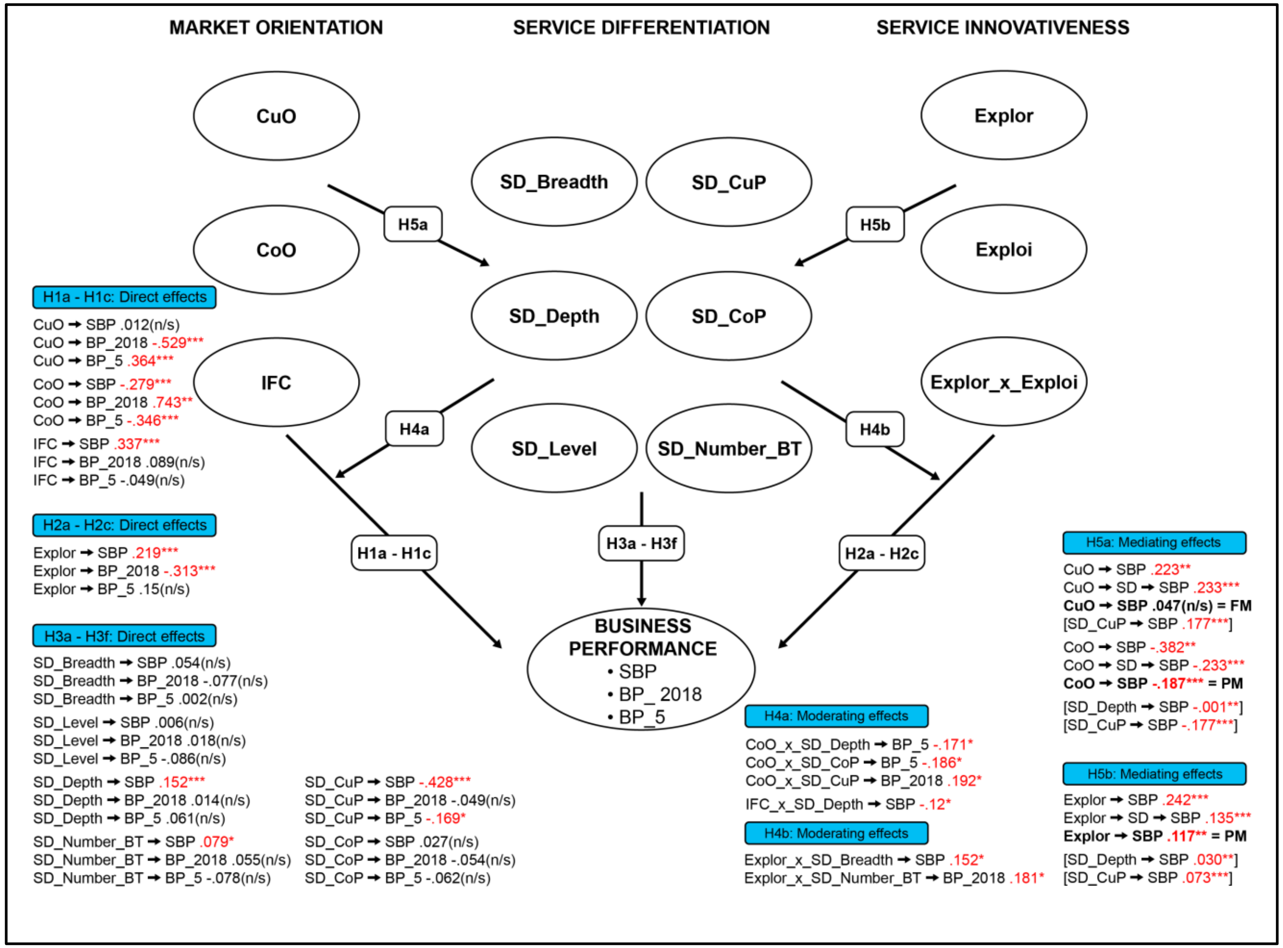
Note: Confidence interval = 95%. The first three rows of each block show condition 1–3, where each third row is in bold, indicating the strength of mediation. The fourth row (in square brackets) shows the specific indirect effects of the mediator.

Figure 39: Results addressing all mediating effects of the second research gap.



Note: Confidence interval = 95%. In mediation, the first three rows of each block show condition 1–3, where each third row is in bold, indicating the strength of mediation. The fourth row (in square brackets) shows the specific indirect effects of the mediator.

Figure 40: Results addressing all indirect effects of the second research gap.



Note: Confidence interval = 95%. In mediation, the first three rows of each block show condition 1–3, where each third row is in bold, indicating the strength of mediation. The fourth row (in square brackets) shows the specific indirect effect of the mediator.

Figure 41: Entire hypothesised, structural model, with all results addressing the direct and indirect effects of the research gaps.

8. DISCUSSION

8.1 Introduction

After presenting the data analysis through measurement modelling, the measurement models were provided for structural model testing. These steps addressed the hypotheses, which were formulated in alignment with the overall research aim, which in turn addressed the research gaps. There were two research gaps and 16 hypotheses. In this section, the research gaps (Sections 8.2–8.4) are discussed in light of the research aim (Section 8.5).

8.2 The first research gap (direct effects)

As elaborately described in Section 7.2.2, two models were available to provide information about the direct effects. Model 1 was implemented as a moderation and a mediation model, thus creating two Models 1. Both these models showed similar outcomes, measured by the number of significant regression paths, which differed from the number of independent variables. This difference can be ascribed to the inclusion of different moderator variables and interaction terms in the first model. They affect the networking of path coefficients in structural equation modelling (Field, 2000); (Byrne, 2016); (Kline, 2016).

Both models showed similar relationships between the variables, and regarding model fit, both models are acceptable, even though the first model fits best. To find an acceptable ground for addressing the first analyses with direct effects, which is the first research gap, the researcher continued with data from this moderation model, as best model fit existed and the values were represented well.

8.2.1 The direct effect of market orientation on business performance

- **H1a**: Customer orientation has a positive effect on business performance.
- **H1b**: Competitor orientation has a positive effect on business performance.
- **H1c**: Interfunctional coordination has a positive effect on business performance.

The results confirmed that most dimensions in market orientation were significantly related with business performance. The sign for customer orientation, however, differed, and as positive relationships were assumed, only H1a was supported. Customer orientation was positively related to performance in the last five years, which indicates that efforts in customer orientation make economic success more likely, which supports the findings of Racela (2014). Like competitor orientation, one dimension was positively related with business performance in 2018, confirming H2a. This relationship was strong, and economic success is highly likely with an increase in competitor surveillance, which aligns with Takata (2016).

In interfunctional coordination, success was expected to increase with intra-organisational communication and dissemination of information. This supported prior results (Javalgi, Hall and Cavusgil, 2014) and H1c.

Overall, the results give the impression that GRH companies are market oriented to at least three dimensions. This conclusion supports the prior results from Bundesministerium für Ernährung (2013b), but as these had not been empirically verified, the present results create a stable foundation and an important contribution to the field.

Even though the hypotheses a priori assumed positive effects with performance, several dimensions also showed significant but negative effects. There is a negative but strong relationship with customer orientation and objective performance_2018, with competitor orientation and subjective performance, and objective performance_5. It can be concluded that a less intense focus on these factors leads to improved business performance.

Both subjective and objective measures – the long-term evaluation – could be determined. From this viewpoint, the measures were found to be proportionate, depending on the individual dimension. This answered calls for more research on multiple performance indicators (van Looy and Shafagatova, 2016) and confirmed the prior findings of Singh, Darwish and Potočnik (2016). Thus, in market orientation, there is congruency, and both measures can be applied to gain robust evidence.

8.2.2 The direct effect of service innovativeness on business performance

- **H2a:** Exploratory innovation has a positive effect on business performance.
- **H2b:** Exploitative innovation has a positive effect on business performance.
- **H2c:** Ambidextrous innovation has a positive effect on business performance.

It was found that only one of the three dimensions was significantly related to business performance: exploratory innovation. Hence, only H2a was supported. Neither exploratory nor ambidextrous innovation revealed any significant effects, and H2a and H2c were accordingly rejected. It was surprising that ambidextrous innovation could not be analysed further, but after exploitative innovation was deleted from the EFA (see Table 9), an interaction term could not be generated as a result, in accordance with the principles of data reduction in EFA (Marsh *et al.*, 2020).

Thus, the results showed that service innovativeness was restricted to developing or introducing new services, supporting Suhartanto (2017), whereas refining services and the ambidextrous innovation of new and existing services are not significant in GRH. This contradicts prior findings from Alpkan, Şanal and Ayden (2012), who found convincing evidence with both variables.

There were two significant relationships, although the signs of the β-values differed. There was a positive relationship between Explor–SBP, indicating that the respondents believed that a greater focus on providing new services would lead to economic success. This supports previous research from García Álvarez-Coque, Alba and López-García Usach (2012). On the other hand, there was a negative relationship between Explor–BP_2018, showing that from an objective perspective, it is better to reduce the number of new services in favour of economic success. In this light, the measurements differ regarding subjective and objective reasoning.

Previous research found that innovative companies outperformed non-innovative companies in terms of productivity levels and economic growth, but highly innovative products do not automatically imply highly innovative companies (García Álvarez-Coque, Alba and López-García Usach, 2012). From this viewpoint, as the results show, in GRH there is a tendency toward innovation, and high performance was achieved from subjective performance: increased exploratory innovation made improved business performance more likely. However, in 2018, the opposite occurred: contradictory to the former subjective measurements, negative performance with objective items was detected. Less exploratory innovation occurred, but performance was better.

Here, the measurements differ, and possible reasons for the contradiction could be that because the subjective performance was split into financial and non-financial items, both reveal different perspectives of success (see also Section 8.4.4). Furthermore, 2018 was an overall satisfactory business year, and in terms of financial outcomes, given the latest evaluation of the German horticulture industry, there was an economic boom not only on this industry but overall in German economy, and many companies realised good profits (Zentrum für Betriebswirtschaft im Gartenbau e.V., 2019).

Table 20: Profitability of identical companies (in euros), in five-year development. (Source: adapted and modified from Zentrum für Betriebswirtschaft im Gartenbau e.V., (2017); (2019)

Year	**2013–14**	**2014–15**	**2015–16**	**2016–17**	**2017–18**
Retail horticulture	53,777	69,105	75,442	85,354	87,720
Horticultural services	65,319	71,022	102,366	102,522	106,234

The table shows two categories that provide specialist services. Like retail horticulture, horticultural service is itemised, as quoted by Zentrum für Betriebswirtschaft im Gartenbau e.V., as another subsection in German horticulture. Only companies focusing on services were included. This comparison shows steady, positive growth measured by profitability over the years, and 2018 was the most successful year in the five-year period shown.

8.2.3 The direct effect of service differentiation on business performance

- **H3a**: Horizontal differentiation (service breadth) has no significant effect on business performance**.**
- **H3b**: Vertical differentiation (service depth) has a positive effect on business performance.
- **H3c**: The level of service differentiation has a positive effect on businesses performance.
- **H3d**: The number of business types, assuming a higher level of departmentalisation, has a positive effect on business performance.
- **H3e**: Service differentiation by customer preference has a positive effect on business performance.
- **H3f**: Service differentiation by competitor preference has a positive effect on business performance.

As the results reveal, three of the six items in service differentiation are significantly related to business performance. Whereas SD_Breadth was formerly tested against the null hypothesis, a priori assuming that there was no direct effect, the other variables were tested against the alternative hypotheses to find direct effects between both variables.

The results show three significant relationships: SD_Depth, SD_Number_BT and SD_CuP. Accordingly, H3b, H3d and H3e are supported. With SD_Breadth, there was no significant effect, but as the null was tested, H3a was also supported.

SD_Level (H3c) and SD_COP (H3f) were rejected.

As SD_Breadth is not significantly related to performance, the number of core services has no impact on economic success. As the horizontal differentiation strategy is advantageous because it offers all-inclusive solutions to customers but on different product lines (Kleinaltenkamp, 2006), in GRH, competitive advantage with a large service variety cannot be realised.

SD_Depth, however, is related to service depth and is another strategy related to service variety, but measured by the number of services added to the core services. Although only a low regression weight with subjective performance was detected ($\beta = 0.152$), the values are at a high significance level ($p < 0.001$). This means the more added services are included in a portfolio, the more likely is success, which confirms recent findings from Raddats *et al.* (2019). The survey participants believed that, in GRH, offering added services such as delivery and planting services supports economic success.

SD_Number_BT had only low β-values, and the relationship with performance was only at $p < 0.05$. Nonetheless, there is a significant effect, and as this is positive, it indicates that the more independent business departments exist, the more likely is subjective improved performance. This is a sign of better organisational structure in terms of departmentalisation (Wilson, Perepelkin and Di Zhang, 2019). Departmentalisation is important, as it optimises the division of work, enables the creation of independent departments and supports internal outsourcing, ancillary departments and external outsourcing, as Engelke, Lentz and Stützel (2016) discovered in an exploratory analysis of GRH.

Of these three dimensions, the highest factor loading was determined between SD_CuP and subjective performance ($\beta = -0.428$, $p < 0.001$). This regression weight indicates high predictability. As it contained negatively loaded means, the less attention paid to customer preference in terms of products and services, the higher the likelihood of economic success. This was surprising, as the traditional school of thought has assumed that greater customer orientation makes success more likely (Kirca, 2011; Racela, 2014), as was determined in Hypothesis 1.

This discovery could be explained by interferences between service differentiation and market orientation. This has so far not been proven, as (a) the EFA revealed a rough classification (Ockey, 2014), and especially the PCA, which was chosen for several reasons, removed the observed variables with high intercorrelations. Also, (b) total variance considering the descriptive statistics of the data showed acceptable correlations among all strategic concepts without risking multicollinearity (see Appendix 7).

On this basis, it can be concluded that, in GRH, service differentiation by customer preference is a key strategy for both subjective and objective performance, whereas the effect on subjective performance is more pronounced, given the high β-values. This means that when creating a company's portfolio of services, the less attention paid to customer preferences, the greater the likelihood of success. This is because the regression weights were negatively loaded. It remains to be critically debated whether this is positive in the sense of customer-oriented behaviour, but it could also be interpreted as meaning that horticultural companies that do not pay too much attention to customer preferences are more likely to succeed. It could be argued that this is only a subjective evaluation and that real performance differs (see Section 8.4). Still, as objective performance in 2018 showed a similar picture ($\beta = -0.169$, $p < 0.01$) despite lower factor loadings, the results must be accepted. Congruency between the two modes of assessment is therefore visible, implying that this item is trustworthy.

At the outset of the study, the researcher was astonished that customer preferences have seldom been applied. Only Gebauer, Gustafsson and Witell (2011) have closely examined this factor in the manufacturing industry, where they found similar effects. Given the lack of prior application in academic research, this is a notable discovery.

In sum, as three dimensions of service differentiation significantly affect business performance, competitive advantages might be expected. Thus, these strategies addressed the first research gap, and the results served as a pre-stage for the second research gap.

8.2.4 Summary and addressing the first research gap

In the first step, potential direct effects between each dimension and performance were examined based on prior research by other scholars. Sufficient evidence of a significant relationship between the dimensions and performance exists especially in terms of market orientation and service innovativeness. On the other hand, for service differentiation, considerably less evidence existed in the literature before the current research, and the author of this thesis has found calls for future research in these constellations. Hence, the lack of literature was the first gap in the research. An important aspect of this thesis, in contrast to prior research, is that the analysis focused not on composite factors (van Riel *et al.*, 2017) but on the single dimensions of each concept.

Given that all three dimensions in market orientation supported the alternative hypotheses, there are positive relationships with business performance. This supports prior arguments (Bundesministerium für Ernährung, 2013b) that in GRH, the market orientation strategy exists. Until now, this had not been empirically verified, and it was only a non-verified proposition. This study has now verified it as a safe baseline for future research with these dimensions. The results are therefore valuable and make an important contribution to this sector insofar as managers can identify their own constellations and the relevant dimensions.

The results paint a different picture for service innovativeness, as only one dimension was found to be significant regarding performance: exploratory innovation. In contrast to other scholars who identified the ambidextrous innovation dimension as the most statistically significant for performance (Alpkan, Şanal and Ayden, 2012), the present study has determined that innovation in GRH exists through the development of new services.

Both market orientation and service innovativeness were applied using the prebuilt three-dimensional hypotheses often applied in marketing research (Laukkanen *et al.*, 2016). These hypotheses are standardised and widely accepted, which speaks favourably of the high reliability of the questionnaire (Keilow *et al.*, 2019). This stands in contrast to service differentiation as the focus of the thesis, where no prebuilt set of hypotheses existed; hence, the present thesis collected single dimensions from the literature. As the findings show, three of the six dimensions, which were mostly assessed subjectively, responded significantly to performance: service depth, the number of independent business departments and customer preferences.

To date, research in differentiation concentrated on products, and limited knowledge has been available on service differentiation. A gap existed that highlighted the need to formulate a more nuanced understanding of service differentiation (Song, Nason and Di Benedetto, 2008; Gebauer, Gustafsson and

Witell, 2011; Ralston, Grawe and Daugherty, 2013; Junior *et al.*, 2020). This was initially vital, as in service provision, the customer is always involved, which is a significant difference between product and service differentiation (Islami *et al.*, 2020). The study has addressed this research gap by uncovering relevant dimensions to foster business performance with services in future.

8.3 The second research gap (indirect effects)

The focus of the thesis was to determine the indirect effects of service differentiation strategies on the direct relationships with dimensions in market orientation, service innovativeness, and performance. The interaction in the triumvirate of these concepts relating to business performance had been only partially explained because most previous studies concentrated on product differentiation, leaving service differentiation relatively unexplored. Thus, the challenging task for the author was to create an integrated model that allows the simultaneous application of multiple simultaneous moderators and mediators which corresponded to the second research gap (Preacher and Hayes, 2008); (Chen and Hung, 2016). After the direct effects (Model 1) were discussed in the last section, which addressed the first research gap, now the interaction in the triumvirate of the three concepts relating to business performance are explained.

When service differentiation strategies were embedded in the existing measurement models, it was assumed that they could change their former direct relationships (Chin, Lo and Ramayah, 2014). This was done in Model 2, which represents the indirect effects of service differentiation. Here, two approaches were used: moderation and mediation analyses.

8.3.1 The moderating effects of service differentiation on market orientation and business performance

- **H4a:** Service differentiation has a partial moderating effect on the relationship between dimensions of market orientation and business performance.

Since the preceded analysis determined the direct effects of market orientation on all dimensions, this analysis showed that on indirect paths via moderation, two dimensions significantly reacted with performance: competitor orientation and interfunctional coordination.

8.3.1.1 Competitor orientation

Competitor orientation is defined through various measures such as market or environmental turbulence and competitive intensity (Kirca, Jayachandran and Bearden, 2005). At first, the direct effects (see Section 8.2.1) revealed that competitor orientation significantly relates to performance, not only with the strong relationship to objective performance in 2018 ($\beta = 0.743$, $p < 0.001$) but also with subjective performance and BP_5, even though with a different sign, which was negative. Structural equation modelling revealed three moderating effects in Model 2, with the following dimensions responsible for the effects: SD_Depth, SD_CuP and SD_CoP. These were the moderators. In contrast, the other dimensions in service differentiation showed no moderating effect and could hence be ignored.

Accordingly, three significant interaction terms were detected: CoO_x_SD_Depth, CoO_x_SD_CoP and CoO_x_SD_CuP. Given this, competitor orientation was of central importance to performance, which is an important outcome in terms of market orientation in this industry. Thus, as the intention of addressing the second research gap was to detect a partial moderating effect, H4a was supported.

It became clear that by embedding the moderator variable into the direct relationships (Model 1) of competitor orientation and objective performance into one integrated model, all effects were strengthened, irrespective of the different sign. Embedding SD_Depth as moderator strengthens the negative relationship between CoO and BP_5. ($\beta = -0.171$, $p < 0.05$). Thus, by expanding the portfolio with services added to the existing core products or services, which are hybrid products, objective performance in the last five years was reduced even more. This leads to the conclusion that when (a) both strategies are integrated into one model and (b) competitor orientation increases, vertical differentiation with added services must be limited to a minimum to avoid impairing business performance. In this constellation, the fewer added services are offered, the more likely is success. This favours specialisation of the portfolio, which is in line with Baron (2020).

SD_CoP strengthens the negative relationship between CoO and BP_5 ($\beta = -0.186$, $p < 0.05$). As a result, by increasing attention on the competitor preferences, objective performance in the last five years was reduced even more. This leads to the conclusion that when (a) both strategies are integrated into one model and (b) competitor orientation is increasing, competitor preferences must be limited to a minimum not to impair business performance. In this constellation, the less focus there is on competitor preferences, the more likely is success, which confirms the findings of González-Benito, González-Benito and Muñoz-Gallego (2014). They argued that those companies are disadvantaged by a high level of competition and that interrelationships are inhibited by competitive intensity.

Even though CoO and SD_CoP are similar by term, they are asssociated with different items. To compensate for potential problems with multicollinearity, an examination was conducted at an earlier stage (see Section 6.6). As the output showed, there were no problems with high intercorrelations between the independent variables, as the PCA removed the observed variables with high intercorrelations during the very first data analysis (see Section 7.1.2). Therefore, both dimensions represented independent dimensions.

SD_CuP strengthens the positive relationship between CoO and BP_2018 ($\beta = 0.192$, $p < 0.05$). Consequently, by increasing the focus on customer preferences, objective performance in 2018 was enhanced even more. This leads to the conclusion that when (a) both strategies are integrated and (b) competitor orientation increases, customer preferences must be maximised to improve business performance. In this constellation, the greater the focus on customer preferences, the more likely is success. This aligns with several previous studies, such as Gebauer, Gustafsson and Witell (2011) and Junior *et al.* (2020).

8.3.1.2 Interfunctional coordination

The importance of interfunctional coordination for performance in marketing research has long been proven (Narver, Slater and MacLachlan, 2004; Tomaskova, 2018). As most studies have examined only direct effects, however, the significance of interfunctional coordination as a term interacting with service differentiation has not been investigated in recent years. Previous findings in this context were produced by Ralston, Grawe and Daugherty (2013) in their work on the logistics industry and in the hotel and manufacturing industries. These factors were either positively influenced by market orientation and service differentiation on direct paths to business performance (Chin, Lo and Ramayah, 2014; Kharabsheh, Jarrar and Simeonova, 2015) or on indirect paths via service quality, leading to a higher level of service differentiation and thus market orientation (Lam *et al.*, 2012). Disregarding existing confirmation in other industries, the present findings confirm the importance of interfunctional coordination in the new context of GRH.

The direct effects in Model 1 (see Section 8.2.1) revealed that interfunctional coordination positively relates to subjective performance ($\beta = 0.337$, $p < 0.001$). Furthermore, structural equation modelling revealed a moderating effect in Model 2, and SD_Depth is solely responsible for the effect. In contrast, the other dimensions in service differentiation showed no moderating effect and could hence be ignored. Accordingly, one significant interaction term was detected: IFC_x_SD_Depth with subjective performance ($\beta = -0.120$, $p < 0.05$). Like before, as the focus of the study's second research gap was to identify a partial moderating effect in market orientation, H4a was supported.

It transpired that the sign had reversed. Whereas in Model 1 it was positive, in Model 2 it was negative. Therefore, SD_Depth dampens the positive relationship between interfunctional coordination and subjective performance. As a result, by expanding the portfolio by adding services to the existing core products or services, subjective performance will be reduced. This leads to the conclusion that when (a) both strategies are integrated into one model and (b) interfunctional coordination increases, vertical differentiation with added services must be limited to a minimum to avoid impairing business performance even more. Interfunctional coordination is the communication and sharing of information and resources and the integration and collaboration of different functional areas or departments (Narver, Slater and MacLachlan, 2004). In this constellation, the fewer added services are offered, the more likely is success. This means that there is a correlation between internal organisation and service variety: in the presence of service variety, the direct path to performance is negatively affected and negative outcomes are expected. In other words, the more limited the service variety with hybrid products and the greater the concentration on core services, the more effective the internal processes and thus performance in GRH.

The literature is heterogeneous on this matter, as there is ongoing debate among practitioners regarding generalisation versus specialisation (Engelke, 2017c; Botz, 2019). Given the present results, specialisation favours higher performance. These findings correspond to another call from Davcik and Sharma (2016), who claimed that there is often intra-firm competition for a company's resources to increase competitive advantage. The present study has made an important contribution in this respect.

Furthermore, given that previous research on portfolio management has determined that too much variety in physical products is negatively associated with performance (Morgan, 2012; Wan, Evers and Dresner, 2012), it is a new insight to apply to services from an interfunctional perspective.

As stated, these effects were found only with subjective performance from the participants' personal assessments. There was no clear evidence given by objective key figures; consequently, there was no congruency between subjective and objective performance. This corresponds to future calls for more research through both modes of assessment (Katsikeas *et al.*, 2016; van Looy and Shafagatova, 2016). The present study has made a critical contribution and provides reason to believe that the service portfolio must be controlled carefully, as it is the result of managers' subjective opinion.

8.3.2 The moderating effects of service differentiation on service innovativeness, and business performance

- **H4b**: Service differentiation has a partial moderating effect on the relationship between dimensions of service innovativeness and business performance.

Since the previous analysis detected the direct effects of service innovativeness on all dimensions, this analysis showed that on indirect paths via moderation, one dimension significantly affects performance: exploratory innovation. By definition, exploratory innovation uses new technologies to create new services and necessitate new knowledge and departures from existing skills (Popadić and Černe, 2016). Initially, the direct effects (see Section 8.2.2) in Model 1 revealed that exploratory innovation significantly relates to performance with two performance measurements, subjective performance ($\beta = 0.219$, $p < 0.001$) and BP_2018 ($\beta = -0.313$, $p < 0.001$), and a different sign appeared.

Structural equation modelling detected two moderating effects in Model 2, and SD_Breadth and SD_Number_BT are the dimensions responsible for the effects. These are the moderators. In contrast, the other dimensions in service differentiation showed no moderating effect and could hence be ignored. Accordingly, two significant interaction terms identified: Explor_x_SD_Breadth with subjective performance ($\beta = 0.152$, $p < 0.05$) and Explor_x_SD_Number_BT with BP_2018 ($\beta = 0.181$, $p < 0.05$). Thus, as the focus of the study's second research gap was to detect a partial moderating effect, H4b was supported.

It became clear that by embedding the moderator variable SD_Breadth into the direct relationships (Model 1) of exploratory innovation and subjective performance into one integrated model, the effects were strengthened (Model 2). As a result, by expanding the portfolio with new independent core services, subjective performance was enhanced even more. This leads to the conclusion that when (a) both strategies are integrated into one model and (b) exploratory innovation increases, the service breadth must be maximised to improve business performance. In this constellation, the more core services are offered, the more likely is success. This is in accordance to Lin (2019) and Gebauer, Gustafsson and Witell (2011).

Moreover, as exploration accompanies variety, the greater the service variety, the better the performance. Likewise, with the market orientation–service differentiation relationship, the literature on this matter is diverse, as there is ongoing debate among practitioners about generalisation versus specialisation (Engelke, 2017c; Botz, 2019), and the results enable satisfactory interpretations. At most, creating new services can improve economic success. As it is positively loaded, this simplifies the fact that new services enhance subjective performance in the presence of service differentiation. Companies, therefore, are well advised to broaden their service portfolio. There is no safe evidence, then, of 'too much of a good thing', as suggested by Wan, Evers and Dresner (2012, p. 316) regarding product differentiation. The researcher has found an upper limit to product variety that will maximise performance. Beyond that point, more products will decrease performance.

Despite the positive outcomes, the results provide reason to believe that the service portfolio must be controlled carefully, as it is sensitive to business performance. The findings correspond to the problems found in previous studies, in which researchers requested a focus on portfolio management (the first research gap). This is mostly the case in family companies, which often use different innovation strategies to other types of companies (Broekaert, Andries and Debackere, 2016; Feranita, Kotlar and Massis, 2017). As most GRH business are family firms (Schwarz, 2008), the findings are useful, and the present results contribute here.

SD_Number_BT dampens the negative relationship between exploratory innovation and objective performance in 2018. Thus, by increasing the number of independent departments, which concerns the organisational structure, objective performance in 2018 was enhanced even more. This leads to the conclusion that when (a) both strategies are integrated into one model and (b) exploratory innovation increases, departmentalisation must be increased to reduce negative business performance. In this constellation, the greater the number of independent departments, the more likely is success. This confirms prior findings from Cheng and Krumwiede (2012) that interfunctional coordination can enhance especially radical innovation of new services.

8.3.3 The mediating effects of service differentiation on market orientation and business performance

In this section, mediating effects are discussed, which are also indirect effects.

- **H5a**: Service differentiation has at least a partial mediating effect on the relationship between dimensions of market orientation and business performance

Another task in addressing the second research gap was to determine the potential mediating effects. As in the moderation process, it was the intention to determine changes in Model 1 when service differentiation strategies were embedded, and it was assumed that embedding these strategies would change their former direct relationships (Chin, Lo and Ramayah, 2014). These were illustrated in Model 2.

Two mediation methods were compared: the bootstrap method of Preacher and Hayes (2008) and the causal steps method of Baron and Kenny (1986). The advantage of the former is that it principally relies on non-normal distribution of the sample, which was clearly the case in the present study, as the data screening (Section 6.4) showed. Thus, this method was applied and, at the end, compared to the causal steps method.

The results showed three mediating effects, and even though the methods involved different procedures (Becker and Brettel, 2017), they produced congruent results: in bootstrapping, the critical ratios of Model 2 were > 1.96, indicating mediation, and in causal stepping (Models 3 and 4), these were accompanied by VAF values > 50%. Thus, both methods transpired to be suitable in this research. This gave confidence in the results and the adjacent interpretation. This was the first run, and all dimensions of service differentiation were summarily analysed in total effects.

Two dimensions in market orientation were mediated through service differentiation, a good first output. Full mediation was found in the customer orientation–subjective performance relationship ($\beta = 0.233$, $p < 0.001$), and the direct path X–Y in Model 1 was therefore totally replaced by the mediator, which is excellent output (Jose, 2013). This total effect was specified with an adjacent analysis, and customer preferences transpired to be solely responsible for this effect. This means that in this constellation, the customer orientation strategy relating to performance is fully mediated via customer preferences. In other words, a strategic plan involving the simultaneous application of customer orientation and competitive advantage is successful only via customer preferences.

Horticultural companies that focus on customer preferences emphasise customer satisfaction throughout the whole process, which increases performance. This was measured with the observed items 1, 3 and 6, following the exploratory and confirmatory factor analyses (see Tables 9 and 10). When customer preferences were also considered, the positive effects on performance derive solely from this strategy. From the labelling, the dimensions might seem similar, but this is not the case, as (a) the data reduction techniques filtered out two significant dimensions, without multicollinearity problems. As a result, there is no risk of high intercorrelations between them, and both transpired to be individual dimensions. Additionally, (b) another indication that they a priori not significantly related is that they represent individual scales in the literature, and customer preferences are also not included in the MKTOR scale from Narver and Slater (1990; see Section 5.4), which was chosen.

As customer orientation showed no significant effects in the moderation analysis but mediating effects existed, the two methods had different outcomes. This confirms that the methods have different goals (Müller, 2009); (Jose, 2013).

Another mediating effect was detected in the competitor orientation–subjective performance relationship CoO–SBP ($\beta = -0.233$, $p < 0.001$). Unlike before, there was not only an indirect but also a direct effect of the mediator after mediation; hence, it was partial mediation. As the sign was negative in Model 1, it can be simplified as the less attention is paid to market competition, the more likely is economic success. Thus, the companies do not exert excess effort on competitors, which can explain the general satisfaction with competitive position. This is reinforced in Model 2, and the mediating effects were confirmed with both a critical ratio far above the 1.96 threshold, following the bootstrap method, and with an average VAF value of 55%, following the causal steps method (Hair, 2017).

This means that competitor-orientation strategies relating to subjective performance are partially mediated via vertical differentiation. In other words, a strategic plan that includes the simultaneous application of competitor orientation and competitive advantage is successful whether or not vertical differentiation is considered, for both paths X–M–Y, and X–Y are significant on performance.

This total effect was determined through an adjacent analysis, and two dimensions transpired to be solely responsible for this effect: SD_CuP and SD-Depth. Given the path coefficients, predominantly customer preferences were responsible for the effect.

Since the presence of service differentiation is negative for the competitor orientation–performance relationship, this contrasts with prior findings, where there is agreement that differentiation strategies favour gaining a competitive advantage and improving economic performance (Didonet *et al.*, 2012; Takata, 2016). In GRH, differentiation was expected (Engelke, 2017c; Gabriel and Bitsch, 2018), but the new findings shed additional light onto it, as these effects are inhibited when competitor preferences and differentiation strategies are combined. Lam *et al.* (2012) learned that in a service company's indirect relationship with competitor orientation and performance, service quality serves as a mediator. Consequently, the differentiation strategies are improved. Therefore, which dimension of service differentiation is responsible for these negative effects should be further explored. Irrespective of the equivocal results, a contribution is made to calls for investigation into intra-firm competition for resources in securing a competitive advantage (Davcik and Sharma, 2016).

Besides customer preferences, the specific indirect analysis has clearly pointed out that the above findings were also influenced by vertical differentiation. This means the number of services added to the core products or services reinforces the negative, direct effects of competitor orientation on performance. Accordingly, managers are advised to consider both customer preferences and vertical differentiation while organising their companies' portfolios.

8.3.4 The mediating effects of service differentiation on service innovativeness and business performance

- **H5b**: Service differentiation has at least a partial mediating effect on the relationship between dimensions of service innovativeness and business performance.

Like before, mediating effects were found in service innovativeness. This was with exploratory innovation and subjective performance ($\beta = 0.135$, $p < 0.001$). Thus, as the alternative hypothesis assumed a partial mediating effect, H5b was supported. There was not only an indirect but also a direct effect of the mediator after mediation; hence, it was partial mediation. Moreover, as the sign was positive in Model 1, it can be simplified that the more innovation is in new services, the more likely is economic success. This supports previous research from García Álvarez-Coque, Alba and López-García Usach (2012) on agriculture, which is comparable with German horticulture in several aspects, such as seasonal peaks and similarities in organisational structure. This is reinforced in Model 2, and the mediating effect was confirmed with both a critical ratio far above the 1.96 threshold, following the bootstrap method, and with an average VAF value of 53%, following the causal steps method (Hair, 2017). In other words, a strategic plan that involves the simultaneous application of exploratory innovation and competitive advantage is successful, whether new services are considered or not, for both paths X–M–Y, and X–Y reacted significantly with performance.

This total effect was determined through an adjacent analysis, and two dimensions transpired to be solely responsible for this effect: SD_CuP and SD-

Depth. Given the path coefficients, predominantly customer preferences was responsible for the effect.

From a practitioner’s point of view, ostensibly, service differentiation is relevant to improving performance, in combination with the company’s innovativeness. As with exploratory innovation, however, a positive sign appears, and performance increases the more service differentiation is involved. Then, innovativeness can become highly effective. Thus, if management pursues a goal of both differentiation and exploration strategies, performance will be enhanced. Exploratory innovation means new services or products. By their labelling, innovativeness and differentiation are associated with ‘service’. Because of this, and based on the literature review, it was assumed that both strategic concepts are interrelated. The direct effects confirmed this, in agreement with other research such as Ralston, Grawe and Daugherty (2013).

Isolated relationships between each concept and business performance were found, as well as in combination. Lin (2019) found, in the retail industry, that perceived retailer service innovativeness, an industry-specific subsection, has become a critical strategic tool for service differentiation. More research has been conducted in this context. An important question now is the extent to which these interrelations could be specific to GRH. For this, in a survey from Röd (2016) on innovativeness and portfolio management, there was a call for more attention to be paid to different types of innovation. As stated, most GRH companies are family run (Bundesministerium für Wirtschaft und Energie, 2018), and based on partial mediation, given the results, there are both direct and indirect relationships with exploratory innovation and performance. Thus, in GRH, performance is not only likely on direct paths with exploration but also in a combination with exploration, customer preferences and vertical differentiation. Three strategies are working in solidarity.

8.3.5 Summary and addressing the second research gap

The direct effects in the previous section (Model 1) served as a pre-stage to the second research gap, which now examined the indirect paths (Loeys, Moerkerke and Vansteelandt, 2015). In the thesis’ research constellation, two models to test indirect effects were available: moderation and mediation analysis. These were the Models 2 (respectively 3 in mediation, where two different mediation methods were opposed to each other). They were intensively discussed.

The focus of the thesis was to determine the indirect effects of service differentiation strategies on the direct relationships with dimensions in market orientation, service innovativeness and performance. In the extant literature, the interaction in the triumvirate of these concepts relating to business performance is only partially explained because most studies have concentrated on product differentiation, whereas service differentiation has remained relatively unexplored. Thus, the challenging task for the author was to create an integrated model that allows the simultaneous application of multiple moderators and mediators which corresponded to the research gaps (Preacher and Hayes, 2008); (Chen and Hung, 2016). Path analysis with structural equation modelling detected both moderating and mediating effects.

In H4a (market orientation), the assumption was supported with a moderating effect of service differentiation on three dimensions, SD_Depth, SD_CuP and SD_CoP, and the affected independent variable was predominantly CoO, where three moderating effects were found. It transpired that most indirect effects (Model 2) strengthened the former direct effects (Model 1), except for interfunctional coordination, where the effects were dampened in the presence of service differentiation.

In H4b (service innovativeness), the assumption was supported with a moderating effect of service differentiation on two dimensions, SD_Breadth and SD_Number_BT, and the affected independent variable was exploratory innovation, where two moderating effects were found. It transpired that whereas SD_Breadth strengthened the former direct effects (Model 1), SD_Number_BT dampened it.

As there were moderating effects of three dimensions in service differentiation on the market orientation–performance relationship, and of two dimensions in service differentiation on the service innovativeness-performance relationship, there were partial moderating effects in both concepts. Thus, H4a and H4b were supported.

In H5a (market orientation), the assumption was supported with a mediating effect of service differentiation on two dimensions, customer orientation and competitor orientation. These total effects were further analysed, and it transpired that solely two dimensions were responsible: SD_Depth and SD_CuP. They changed the former direct relationships (Model 1): customer orientation was fully mediated in the presence of SD_CuP, which means that the direct path X–Y in Model 1 was totally replaced by the mediator in Model 3. Competitor orientation was partially mediated in presence of SD_Depth and SD_CuP, which means that (a) two mediators in combination were responsible for the effects and (b) performance was addressed on both direct and indirect paths.

In H5b (service innovativeness), the assumption was supported with a mediating effect of service differentiation on one dimension, which was exploratory innovation. This total effect was further analysed, and it transpired that the same dimensions as before were responsible: SD_Depth and SD_CuP. As a result, competitor orientation was partially mediated in the presence of SD_Depth and SD_CuP, which means that (a) two mediators in combination were responsible for the effects and (b) performance was addressed on both direct and indirect paths.

As there was a partial mediating effect of service differentiation on two dimensions in the market orientation–performance relationship and a partial mediating effect of service differentiation on the service innovativeness–performance relationship, both H5a and H5b were supported.

The intention of the second research gap was to shed new light on the mutual impact of service differentiation on two other concepts. The results indicate that by creating an integrated model that allows the simultaneous application of multiple dimensions of three strategic concepts, new knowledge on this industry has been revealed. Especially the interplay with SD_Depth and SD_CuP on the relationships of each concept with performance simplified the major impact when those strategies of competitive advantage are embedded: the former direct effects have changed.

In sum, the study has addressed the second research gap, as all four hypotheses were supported, indicating partial moderating and mediating effects in this research constellation.

8.4 Discussion on multiple performance indicators

Addressing the two research gaps, the present study also aligns with multiple performance indicators, whether subjective or objective performance is preferred. As both are common in research, the researcher believed a combination should be tested. This aimed to respond to calls from other scholars (Katsikeas *et al.*, 2016; van Looy and Shafagatova, 2016) to investigate whether multiple performance indicators should be combined. Since subjective measures rely on participants' self-assessment, interpretation is inevitable. These items, which were both financial and non-financial measures, stand in contrast to objective measures, where mostly financial items were requested. For consistency, mostly 5-point Likert scales were chosen to support the high validity of the questionnaire.

Clearly, the research gaps differed in their measurements, which is known as the mode of assessment (Katsikeas *et al.*, 2016). The models of the first research gap (direct effects) showed significant relationships with both subjective and objective items (H1a, H1b, H2a, H3e). In these cases, there was congruency, indicating the high reliability of the outcomes. Subjective measures were most likely, whereas objective measurements were only seldom available. In indirect effects, there was also no clear picture, as all measurements were addressed, except for competitor orientation, which affected mostly the objective measurements in moderation, and in mediation mostly subjective performance. The other relationships were inhomogeneous.

Despite the different measurements, it must be considered that the subjective performance items in the questionnaire related to financial and non-financial items. This can bias the outcomes, and it might be the case, as the different outcomes are caused by this division: whereas the financial items could agree with the objective items, the non-financial items could not. Accordingly, the financial items could match with the objective items, but the non-financial could not, which could be the reason for the different outcomes. As a separate analysis was not possible, this could be a basis for future research to enable a subdivision of both subjective items. Despite this bias, these specific subjective performance measures are accepted, often applied, and adapted from Avlonitis, Papastathopoulou and Gounaris (2001) and Cooper (1994).

To conclude, whereas direct effects were clearly congruent between the modes of assessment, which addresses the first research gap, in indirect effects there was no homogeneous picture for outcomes. This addresses the second research gap. Nonetheless, applying all three modes of assessment in every model was beneficial, because otherwise any significant relationships would not have been determinable. This has created a broader view that allows theoretical contributions to be made, as it creates new space for future research with more multiple performance indicators.

8.5 Achieving the research aim

It was assumed that dimensions in service differentiation could affect the relationships of both market orientation and service innovativeness with business performance, on both direct and indirect paths. Thus, using the example of GRH, moderation and mediation analyses were applied to provide a strategic orientation for a diversely structured industry. When it transpired that service differentiation could positively impact performance in the interplay of a simultaneous constellation of two related concepts, the goal was to employ the study to bring forward the most important dimensions: those responsible for these effects.

Against this background, the intention was to receive new explicit knowledge in the field of strategic marketing, using an integrated model that enabled the simultaneous application of multiple simultaneous moderators and mediators (Preacher and Hayes, 2008); Chen and Hung, 2016) to investigate service differentiation. Service differentiation had remained relatively unexplored compared to product differentiation. This could help managers gain an improved understanding of strategic organisation and develop a sound foundation to manage potential shifts in the market. This was the research aim.

The results confirmed that relationships exist between all concepts and performance. By creating a complex integrated model that included 15 dimensions of 3 strategic concepts and performance, which were simultaneously analysed with structural equation modelling, the research aim could be approached in a structured manner.

One of the many new findings is that two dimensions in competitive advantage can be highlighted: service depth and customer preferences. They were the central dimensions in several analyses. Thus, on both direct and indirect paths to performance, GRH firms could do well to implement those dimensions in constellation with the other significant dimensions in market orientation and service innovativeness.

9. CONCLUSION

9.1 Introduction

The overall research aim of the thesis was to develop a strategic orientation by exploring the indirect and direct effects of service differentiation on the relationships between market orientation, service innovativeness and business performance. Through the example of GRH, moderation and mediation analyses were applied to represent a diversely structured industry.

The intention was to receive new explicit knowledge in the field of strategic marketing through an integrated model that enables the simultaneous application of multiple simultaneous moderators and mediators (Preacher and Hayes, 2008); (Chen and Hung, 2016), as service differentiation remains relatively unexplored. Interconnections between the concepts were found in prior studies, but these studies concentrated mostly on product differentiation. The present research could help management develop a clearer understanding of strategic organisation and develop a sound foundation for dealing with potential market shifts.

In structural equation modelling, the path coefficients between the independent and dependent variables change when new variables are added. According to Field (2000, p. 4), ‘all variables that affect both the cause and effect variables must be included. Therefore, any variable that could produce a spurious relation between the cause-and-effect variable must be considered within the model’. Therefore, it was expected that when adding new variables – the dimensions of service differentiation – into the model, the direct effects, which addressed the first research gap, would change, revealing the indirect effects, which addressed the second research gap.

In response to the increasing demand for service provision, competitive advantages derived from services are a promising research area that could address numerous research gaps. Thus, this thesis began by examining three interrelated strategic concepts (Ralston, Grawe and Daugherty, 2013; Chin, Lo and Ramayah, 2014; Kharabsheh, Jarrar and Simeonova, 2015; Lin, 2019):

service differentiation (competitive advantage), which was the focus of this research; market orientation and service innovativeness. Drawing on a sample of GRH companies, covariance-based structural equation modelling was first applied to find the direct effects of all three concepts on performance. Subsequently, the indirect effects were sought through moderation and mediation analysis by embedding service differentiation into the market orientation, service innovativeness and business performance relationships. The direct and indirect effects represented two major gaps, and 16 hypotheses were formulated to respond to the two research gaps. Based on the findings, the present study makes key contributions to the literature in strategic orientation for both academics and practitioners.

9.2 Theoretical contributions

This research has important theoretical implications regarding the effect of service differentiation (competitive advantage) on business performance.

First, the researcher met the challenge of creating the required integrated model, and all dimensions of the three concepts were embedded into one model from the beginning, thus creating a complex constellation. This aspect of the study was a significant motivator for the researcher, as often only isolated model frameworks were used in previous studies (Williams and McGonagle, 2016). Some authors have argued that this isolation is not solely the result of a reduction in the model's complexity (Brunetti *et al.*, 2020), but it is clear that in data analysis, especially structural equation modelling, complexity increases with the number of factors. Consequently, parsimony in the research design can be useful indeed (Hair and Patel, 2014). This might be a possible reason for the lack of multiple factor designs. Nevertheless, at this point it must be critically questioned whether it is at all tolerable settle on only one (direct) strategic concept with performance when conditions in practice often differ, as more than one dimension is considered parallel. This is in line with Fjeldstad and Snow (2018) and supports the research aim. On this basis, several theoretical contributions have been revealed in addressing the research gaps shown in Figure 1.

Second, interconnections between the three concepts of service differentiation, market orientation and service innovativeness had been analysed in prior research, but these studies focused mainly on the well-known product differentiation (Wan, Evers and Dresner, 2012). This thesis, however, has concentrated on service differentiation, in response to calls for more research on service differentiation as a strategic concept (Kowalkowski, Gebauer and Oliva, 2017). This constellation had been relatively unexplored, and the thesis has contributed to filling this research gap.

Third, against this background, besides established strategies in product differentiation, such as brand identity, functions and features, this study concentrated on service variety, as one strategy in service differentiation that responds to a call for more research in service-portfolio management (Röd, 2016). Thus, service variety was superordinated.

The literature review uncovered six strategies relating to service differentiation: service breadth, service depth, level of differentiation, number of business types (as a sign of higher specialisation), customer preference and competitor preference. Hypothesis testing ultimately highlighted two significant strategies, revealing that predominantly service depth and customer preference were the most important strategies for performance throughout the study, as their effects were significant in almost every analysis. This has explicit practical implications, which are explained in subsequent sections (8.3.3 and 8.3.4).

Fourth, as service depth is therefore an essential element of a company's portfolio, as found in previous studies (Kleinaltenkamp and Jacob, 2006; Jacobs and Swink, 2011; Fließ *et al.*, 2015), this implies that the more added services a portfolio includes, the more likely is success, which confirms recent findings from Raddats *et al.* (2019). In GRH, companies offering added services, such as delivery and planting services, achieve greater economic success in the survey participants' opinion.

Fifth, while conducting the literature review, the researcher found it astonishing that customer preference has seldom been investigated. Only Gebauer, Gustafsson and Witell (2011) have closely examined it in the manufacturing industry, where they found similar effects as the present study. Given this lack of prior application in academic research, that customer preferences were found significant in most indirect analyses has transpired to be a notable discovery.

Sixth, more generally, although some strategies were not significantly supported, this may not mean the outcomes are not of interest, because external factors outside the research frame might have an effect. Thus, some researchers believe that hypothesis testing against the null is overvalued, and 'the contribution of a study should not depend on the statistical significance of the results or support for hypotheses but to the extent the researcher is able to conduct meaningful and academically sound research' (Tzempelikos and Kooli, 2018, p. 22).

This could imply that service breadth – portfolios' core services, most of which have not been statistically verified – might be relevant to performance after all because prior research has shown that they are central to daily business in the creation of portfolio variety (Engelke, 2017c). This is a subject for prospective research. However, this discussion must not overlook the fact that the present research was thorough and well prepared, and because it encountered such potential methodological concerns, hypothesis testing was conducted via several techniques to support the study's reliability.

Seventh, against this background, there was a related call from Junior *et al.* (2020) to consider more internal and external factors in the relationship between service differentiation and business performance. Deductively, this connected service differentiation and the concepts of market orientation and service innovativeness. Specifically, Davcik and Sharma (2016) have claimed that, from a resource-based view, there is demand for more research into marketing resources in the product or service portfolio (Baron, 2020) that produce competitive advantages. Principally, both market orientation and service innovativeness are marketing resources, including internal and external factors, and the effect of service differentiation has indeed responded to this gap. Incidentally, these research gaps also address earlier calls from Wan (2011) and Bustinza *et al.* (2015). Since then, only a few studies have been undertaken in this context.

Eighth, this study responded to calls for more research on adapting service differentiation into other strategic concepts (Gebauer, Gustafsson and Witell, 2011; Davcik and Sharma, 2016; Junior *et al.*, 2020). To date, limited research has been conducted on all three concepts in one model (Kowalkowski, Gebauer and Oliva, 2017).

Ninth, this study responded to another gap highlighted by Laukkanen *et al.* (2016) and Hair (2017). So far, only composite factors (van Riel *et al.*, 2017) in structural equation modelling have been applied in most studies. This was not least because of parsimony (Hair, Gabriel and Patel, 2014). The present study went beyond that, applying decomposed dimensions. This is a promising approach, as it has made it possible to detect the exact localisation of potential effects. Thus, the theoretical informative value was improved.

Tenth, as there was a lack of evidence of competitive advantage on the quantitative level (Ralston, Grawe and Daugherty, 2013), applying structural equation modelling was the appropriate statistical technique to test hypotheses on a quantitative level, and a contribution was made to enable generality. Within this frame, testing hypotheses with more than one statistical technique enabled solid foundations for the results. Whereas in structural equation modelling there is a choice between testing the null hypothesis and approximation, this study used both techniques, as well as two more applications: critical ratio and VAF. Here, a contribution was made to methodological improvements.

Finally, future calls for multiple performance indicators, including not only financial and non-financial items but also objective and subjective items (Katsikeas *et al.*, 2016; Laukkanen *et al.*, 2016) were encountered. As, to date, most advocates have preferred objective indicators (van Looy and Shafagatova, 2016), the thesis therefore requested data from two objective measurements (data from 2018 and from the last five years) as well as subjective measurements. The results revealed that, in several models with a predominantly direct effect, there is congruency between both measurements. This implies that the evidence is reliable. On the other hand, with indirect effects, there is usually only one significant performance indicator in each model. At any rate, this topic advances the prevailing debate with explicit evidence of a higher level of knowledge. It thus makes a major contribution to marketing research.

9.3 Practical contributions

As for practical implications, the study can help managers better understand the consequences of service differentiation for performance on a solid basis in the future, in line with Zghidi and Zaiem (2017). The study successfully developed new, explicit knowledge in support of management, giving managers new approaches to decision-making processes towards strategic orientation. This must now be transferred into practice.

Overall, practical contributions can be derived through an examination of the signs of the significant path coefficients. It transpired that they differ within the dimensions, indicating that there is no homogeneous representation between the modes of assessment (see Section 8.4), which are subjective performance (SBP), objective performance in 2018 (BP_2018) and objective performance in the last five years (BP_5). Nevertheless, as the hypotheses were set with the general term ‘performance’, we continued with it.

9.3.1 Addressing direct effects

The aim was to provide managers with information about the consequences of direct effects of single dimensions for performance.

9.3.1.1 Market orientation

Given that all three dimensions in market orientation supported the alternative hypotheses, there are significant relationships with business performance. This supports prior arguments (Bundesministerium für Ernährung, 2013b) that in GRH the market orientation strategy exists. Until now, this had not been empirically verified. This study has now verified it as a safe baseline for future research with these dimensions. The results are therefore valuable and make an important contribution to this sector, as managers can identify their own constellations and the relevant dimensions.

Positive relationships with performance were supported with customer orientation, competitor orientation and interfunctional coordination. The strengths of these three relationships showed reasonable power, but especially competitor orientation exceeded expectations with a high estimate power above 0.7. This indicated a strong relationship between competitor orientation and performance. Thus, it can be concluded that the more companies focus on these constellations, the more likely is economic success.

Even though the hypotheses a priori assumed positive effects with performance, several dimensions also showed significant but negative effects. There is a negative but strong relationship between performance and both customer orientation and competitor orientation. It can be concluded that the less the company focuses on these, the greater the likelihood of improved business performance.

Despite the different signs, it was conspicuous that the highest values were measured with objective performance_2018 for customer orientation and competitor orientation alike. This can lead to the conclusion that participants clearly remembered the results of the last business year and knew them in more detail that the results for the preceding five years.

9.3.1.2 Service innovativeness

In service innovativeness, a different picture emerged, as only one dimension was found to be significant regarding performance: exploratory innovation. In contrast to other studies that identified the ambidextrous innovation dimension as the most statistically significant for performance (Alpkan, Şanal and Ayden, 2012), the present study found that innovation in GRH occurs only through developing new services. This is in line with prior research by Popadić and Černe (2016).

As before, it was a priori assumed that this direct effect of exploratory innovation on business performance would have a positive sign. This was supported with exploratory innovation and subjective performance, indicating that the more attention is paid to offering new services, the more likely is success. On the other hand, negative effects also appeared with exploratory innovation and objective performance_2018, indicating in turn that some companies experienced economic losses when creating new services in the 2018 business year. Again, these different outcomes show that there was no congruency between subjective and objective performance, as both measurements were affected. The interpretation of exploratory innovation and business performance must be handled with care and must be specified in the different modes of assessment.

9.3.1.3 Service differentiation

Unlike for the previous dimensions, not only the alternative hypothesis but also the null hypothesis was set. For service differentiation_breadth, it was a priori assumed that is has no significant, direct effect on business performance. The results revealed no significant relationship, which supported the hypotheses. It can thus be concluded that horizontal differentiation, which is portfolio variety with services, has no impact on economic success. The outcomes differed with Model 1 that originated from mediation analysis, where direct effects with service differentiation_breadth and subjective performance were positive and significant, though at the > 0.05 level. Hence, interpretation must be handled with care.

The other dimensions related positively to subjective performance. The service differentiation_depth indicated positive performance when more additional services, which are hybrid products, are offered. This indicates positive vertical differentiation, in line with Baron (2020).

Furthermore, a large number of business types was detected, which suggests that the likelihood of success increases with the number of self-contained departments organised. This could indicate a higher level of departmentalisation, and confirms previous findings (Wilson, Perepelkin and Di Zhang, 2019): the better the internal organisation, the more success is fostered.

As with customer preferences, the results show a weak, but positive relationship with subjective performance, indicating that participants believed that a greater focus on customer preferences leads to success. These results differ from the other Model 1 (mediation), where no effects were found. Like service breadth, interpretation must be handled with reservation.

On the other hand, there are also negative effects with customer preferences and objective performance_2018, indicating that the companies had experienced economic losses, possibly by focusing too narrowly on customers in the preceding business year. Again, this result should be interpreted with caution.

In sum, when managers settle for a particular strategic concept to improve performance, they should consider the outcomes of the study, shown in Figure 29.

9.3.2 Addressing indirect effects

The indirect effects were examined to provide managers with information on their consequences for performance when multiple dimensions of all concepts are applied in their organisations.

9.3.2.1 Indirect effects in market orientation

In market orientation, the direct effects between market orientation and service differentiation changed when predominantly service depth and customer preferences were embedded as moderators, and the predominant affected independent variable was competitor orientation, for which three moderating effects were found. It transpired that most indirect effects strengthened the former direct effects, except for interfunctional coordination, for which the effects were dampened in the presence of service differentiation.

Embedding service depth as a moderator strengthened the negative relationship between competitor orientation and objective performance_5. Thus, by expanding the portfolio by adding services to the existing core products or services, which are hybrid products, objective performance in the preceding five years was reduced even more. This leads to the conclusion that when (a) both strategies are integrated into one model and (b) competitor orientation increases, vertical differentiation with added services must be minimised to avoid impairing business performance. In this constellation, the fewer added services are offered, the more likely is success. This leans towards increasing specialisation of the portfolio, which is in line with Baron (2020).

Embedding competitor preferences strengthened the negative relationship between competitor orientation and objective performance_5. Consequently, by increasing the focus on competitor preferences, objective performance in the preceding five years was reduced even more. This leads to the conclusion that when (a) both strategies are integrated into one model and (b) competitor orientation increases, the focus on competitor preferences must be minimised to avoid impairing business performance. In this constellation, the fewer competitor preferences, the more likely is success, which confirms González-Benito, González-Benito and Muñoz-Gallego (2014). They argued that under those circumstances, companies are disadvantaged by a high level of competition and that interrelationships are inhibited by competitive intensity.

Embedding customer preferences strengthened the positive relationship between competitor orientation and objective performance_2018. As a result, by increasing the focus on customer preferences, objective performance in 2018 was enhanced even more. This leads to the conclusion that when (a) both strategies are integrated and (b) competitor orientation increases, customer preferences must be maximised to improve business performance. In this constellation, the greater the focus on customer preferences, the more likely is success. This goes along with a number of previous studies, for example, by Gebauer, Gustafsson and Witell (2011) and Junior *et al.* (2020).

In interfunctional coordination, it transpired that the sign reversed from positive direct effects to negative indirect effects. This means that service depth dampened the positive relationship between interfunctional coordination and subjective performance. Accordingly, expanding the portfolio by adding services to the existing core products or services reduces subjective performance. This leads to the conclusion that when (a) both strategies are integrated into one model and (b) interfunctional coordination increases, vertical differentiation with added services must be minimised to avoid impairing business performance even more. Interfunctional coordination is the communication and sharing of information and resources and the integration and collaboration of different functional areas or departments (Narver, Slater and MacLachlan, 2004). In this constellation, the fewer added services are offered, the more likely is success. This means that there is a correlation between internal organisation and service variety: in the presence of service variety, the direct path to performance is negatively affected, and negative outcomes are expected. In other words, the lower the service variety with hybrid products and the greater the concentration on core services, the more effective the internal processes and thus performance in GRH.

The literature is divergent regarding this matter, as there is ongoing debate among practitioners regarding generalisation versus specialisation (Engelke, 2017c; Botz, 2019). Given the present results, specialisation favours higher performance. These findings correspond to a call from Davcik and Sharma (2016), who claimed that there is often intra-firm competition for a company's resources to increase competitive advantages. The present study has made an important contribution in this respect. Also, given that previous research on portfolio management has determined that too much variety in physical products is negatively associated with performance (Morgan, 2012; Wan, Evers and Dresner, 2012), it is a new insight to apply to services from an interfunctional perspective.

When dimensions of competitive advantage were embedded as mediators, a total effect was found on two dimensions: customer orientation and competitor orientation. It transpired that solely two dimensions were responsible for this total effect: SD_Depth and SD_CuP. They changed the former direct relationships insofar that customer orientation was fully mediated in the presence of SD_CuP, and competitor orientation was partially mediated in the presence of SD_Depth and SD_CuP. Specifically, the direct customer orientation–subjective performance relationship was totally replaced by customer preferences. This means that in this constellation, the customer-orientation strategy relating to performance is fully mediated via customer preferences: a strategic plan involving the simultaneous application of customer orientation and competitive advantage is only successful via customer preferences. Horticultural companies who focus on customer preferences improve their performance, according to respondents personal, subjective beliefs.

In the competitor orientation–subjective performance relationship, the direct relationship was partially replaced by customer preferences and service depth. Consequently, unlike before, there is not only an indirect but also a direct effect. As the sign was negative, it simplifies that the less attention is paid to market competition, the more likely is economic success. Thus, the companies do not spend excess effort on their competitors, which can explain the general satisfaction with their competitive position. This is reinforced when the mediating effects are embedded. In other words, a strategic plan involving the simultaneous application of competitor orientation and competitive advantage is successful, whether vertical differentiation is considered or not, because both direct and indirect paths have a significant effect on performance.

Since the presence of service differentiation is negative for the competitor orientation–performance relationship, this contrasts with prior findings. In previous studies, agreement exists that differentiation strategies favour gaining a competitive advantage and improving economic performance (Didonet *et al.*, 2012; Takata, 2016). In GRH, differentiation was expected (Engelke, 2017c; Gabriel and Bitsch, 2018), but the new findings shed additional light on it, as these effects are inhibited when competitor preference and differentiation strategies are combined. Lam *et al.* (2012) learned that, in a service company's indirect relationship with competitor orientation and performance, service quality serves as a mediator. Given this, the differentiation strategies improve. Therefore, which dimension of service differentiation is responsible for these negative effects should be further explored. Irrespective of the equivocal results, the results contribute to calls to investigate intra-firm competition for resources related to competitive advantage (Davcik and Sharma, 2016).

Besides customer preferences, the above findings were also influenced by vertical differentiation as the other mediator. This means the number of services added to the core products or services reinforces the negative, direct effects of competitor orientation on performance even more. Accordingly, managers are advised to consider both customer preferences and vertical differentiation while organising their companies' portfolios.

9.3.2.2 Indirect effects in service innovativeness

In service innovativeness, the direct effects between service innovativeness and service differentiation changed when service breadth and the number of self-contained business departments were embedded as moderators, and the only affected independent variable was exploratory innovation. It transpired that whereas service breadth strengthened the former direct effects, the number of self-contained business departments dampened it. Thus, by expanding the portfolio with new independent core services, subjective performance was enhanced even more. This leads to the conclusion that when (a) both strategies are integrated into one model and (b) exploratory innovation increases, service breadth must be maximised to improve business performance. In this constellation, increasing the number of core services fosters success.

Like before, total mediating effects were also found in service innovativeness, namely exploratory innovation. It transpired that the same dimensions as before were responsible – for this effect, customer preferences and service depth. They changed the former direct relationships insofar that exploratory innovation was partially mediated in the presence of both. As the sign was positive in the direct effect, it can be assumed that the more innovation is performed in new services, the more likely is economic success. This supports previous research from García Álvarez-Coque, Alba and López-García Usach (2012) on agriculture, which is to some extent comparable with German horticulture in terms of aspects such as seasonal peaks and organisational structure. This effect was reinforced when both mediators were embedded. In other words, a strategic plan that involves the simultaneous application of exploratory innovation and competitive advantage is successful, whether new services are considered or not, because both direct and indirect paths reacted significantly with performance.

Thus, from a practitioner's view, ostensibly, competitive advantage is relevant to improving performance in combination with the company's innovativeness. As with exploratory innovation, however, a positive sign appeared, and performance increases the more service differentiation is involved in combination. Under these circumstances, innovativeness can become exceedingly effective. Therefore, if management pursues a goal of both differentiation and innovation strategies, performance will be enhanced. An important question now is the extent to which this interplay could be specific to GRH. This creates space for future research.

Efforts at exploration by developing new services have had only a shadow existence so far. The new findings must lead to a rethinking of this practice because the economic benefit is clearly high for exploratory activities. Moreover, as exploration accompanies variety, the higher the service variety, the better the performance.

Likewise, with the market orientation–service differentiation relationship, the literature is divergent on this matter, as there is ongoing debate among practitioners about generalisation versus specialisation (Engelke, 2017c; Botz, 2019), and the results enable satisfactory interpretations. At most, creating new services can improve economic success. As it is positively loaded, this implies that new services enhance subjective performance in the presence of service differentiation. Companies, therefore, are well advised to broaden their service portfolio. There is no safe evidence, then, of 'too much of a good thing', as suggested by Wan, Evers and Dresner (2012, p. 316) regarding product differentiation. The researcher has found an upper limit to product variety that will yield maximum performance. Beyond that point, more products will decrease performance.

Despite the positive outcomes, the results suggest that the service portfolio must be controlled carefully, as it is sensitive to business performance. The findings correspond to the problems found in previous studies, in which researchers requested a greater focus on portfolio management (the first research gap). This is mostly the case in family-owned companies, which often employ different innovation strategies compared to other business types (Broekaert, Andries and Debackere, 2016; Feranita, Kotlar and Massis, 2017). As GRH firms are to a great extent family-owned (Schwarz, 2008), the findings of the present study are useful, as its results contribute to this context.

Another important outcome is that the number of independent departments (SD_Number_BT) dampens the negative relationship between exploratory innovation and performance. Thus, by increasing the number of independent departments, which concerns the organisational structure, objective performance in 2018 was enhanced even more. This leads to the conclusion that when (a) both strategies are integrated into one model and (b) exploratory innovation increases, departmentalisation must be increased to reduce the negative effects on business performance. In this constellation, the higher the number of independent departments, the more likely is success. This confirms prior findings from Cheng and Krumwiede (2012) insofar that interfunctional coordination can enhance especially the radical innovation of new services. Departmentalisation is a sign of a more sophisticated organisational structure (Wilson, Perepelkin and Di Zhang, 2019), and it is important, as it optimises the division of work, enables the creation of independent departments and supports internal outsourcing, ancillary departments and external outsourcing, as Engelke, Lentz and Stützel (2016) found in an exploratory analysis of GRH.

Based on the results, this is a uniquely focused study for the German horticulture sector that has examined both single and simultaneous strategic concepts extensively through the example of the diversely structured GRH sector. When management is willing to implement this new explicit knowledge in their organisations, called internalisation (Nonaka and Krogh, 2009), an important contribution will be made not only to service provision but also to knowledge transfer.

Moreover, the thesis transpired to be a promising study from a practical perspective, because the effects of service differentiation have been comprehensively discussed. It is therefore relevant to companies that are (a) shifting their portfolio into servicing, which is a transition process, and (b) focusing on both market orientation and service innovativeness to improve their economic situation. As market requirements are continuously changing in GRH (BVE, 2020), the implementation of not only single but multiple strategies is the key to long-term success because it is a heterogenous industry with multiple requirements. Thus, the strategic alignment of management must be rethought o be well prepared for changes in market development, such as the transition in recent four decades from a manufacturing to a servicing era (Schafran *et al.*, 2018). Unexpected shifts in the market, such as those caused by the coronavirus crisis, require a strategic alignment to be well prepared (Meristö, 2020).

These are change-management processes, and as they usually accompany the insecurity of the participants (Busby, 2017), which typically leads to resistance, it is recommended that one-step operations be accepted in practice. When this new understanding attracts the attention of decision-makers, both the research aim and the initial motivation will have been satisfactorily achieved.

9.4 Limitations and future research

Although it has made a respectable number of contributions, this thesis has some limitations that can be addressed in future studies. In particular, the new findings can be adapted for other service industries where heterogeneity prevails. Remembering that GRH is characterised by variety in products and services, distribution and organisation, the initial motivation was not least to aid restructuring. At present, the study has enabled the determination of significant effects of three strategic concepts on performance. These are critical in the research context of servicing. Considering these facts, management can now make the correct decisions for their organisations.

The basic problem in quantitative data collection is sufficient participation (Nardi, 2018). In the present study, the contact details of numerous companies were gathered before the research began. This long-term process was necessary because there was no extant database. In future research, contact information leading to other data sources in German horticulture would be desirable, such as addresses from the Central Association for Horticulture (ZVG) or the Federal Statistical Office, but only when there is no longer a concern about ethical issues, as has so far been the case.

The current sample was limited to N = 222, adequate in terms of power (Anderson, Kelley and Maxwell, 2017); thresholds of 100–400 are typical in the social sciences (Combrisson and Jerbi, 2015), as detailed in Section 5.6.5. This was hence acceptable, and, given the great efforts made in data analysis, the results are reliable. Nonetheless, larger sample sizes could further improve reliability, because the larger the sample size, the smaller the margin of error and the higher the probability of rejecting the null hypothesis if it is wrong (Aberson, 2015b). In the present study, many findings support the alternative hypotheses, so the results are trustworthy. Yet in future research, it would also be desirable to increase the response rate to improve the samples.

To address the first research gap, direct effects were detected that relied on decomposed dimensions. In future research, more dimensions of each concept could be analysed to respond to other research gaps. For example, the MKTOR scale could be refined with additional specific subdimensions. Especially in customer orientation, there is great potential in this respect; for example, the level of integration offers a good starting point.

In terms of the main concept, service differentiation, the present study has made several significant contributions. Although both major strategies, service depth and customer preference, are promising findings, there remains a large and unexplored field of potential research. Customer preference in particular enables new perspectives, as service provision is now contained in one context with customer orientation. Accordingly, both concepts are closely connected and could be applied as a pre-set combination, with other concepts added in future.

As with service depth, there is more knowledge available in reviewing the literature. This strategy is central to portfolio management, as the thesis has shown. In future, more research could help optimise portfolio variety. This responds to product differentiation, where ‘too much of good thing’ (Wan, Evers and Dresner, 2012, p. 316) describes the number of products in a yield curve; beyond the peak, outcomes decrease with increasing variety. Therefore, subsequent research might specify the number of services in a yield curve, as a counterpoint to Belvedere (2014), who determined an upper limit of product variety in the portfolio: when it increases even more, cannibalisation effects limit the performance rate.

Finally, corresponding to the call for marketing research on multiple performance indicators, the present thesis applied three performance indicators: objective measurements in 2018 and in the preceding five years, and subjective measurements of the participants' personal assessments. As the risk of common method bias is always present when using questionnaires (Bell, 2019), the questionnaire could in future be tailored with both measurements. The present findings show that there is in fact congruency in some constellations, so the same outcomes were detected by both objective and subjective variables. On this basis, in future research, more simultaneous research constellations with these concepts could be performed to allow management to develop a deeper understanding of strategic orientations.

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APPENDIX 1

ENGLISH QUESTIONNAIRE

Type of business

How do you classify your company? Multiple choices are possible.

- *Cemeteries*
- *Crop growing*
- *Fruits*
- *Floristry*
- *Landscape building*
- *Garden Centre*
- *Interior gardening*
- *Ornamental plants*
- *Retail horticulture*
- *Tree growing*
- *Vegetables*
- *Others*

Market orientation

How do you evaluate your customer orientation? Please evaluate every item:

1 = totally disagree, 5 = totally agree

- We give close attention to after-sales service.
- We have a strong commitment to satisfy our clients.
- We define service quality in terms of customer satisfaction.
- We encourage customer suggestions to learn how to serve them better.
- We train our staff to provide satisfactory services.
- We carefully select staff that interact with customers.
- We continuously look for ways to increase customer value.
- We carry out research to detect any changes in customers' needs.
- We regularly analyse and take track of the needs of customers.
- We measure customer satisfaction systematically and frequently.
- We target customers and customer groups where we have, or can develop, a competitive advantage.

How do you evaluate your competitor orientation? Please evaluate every item:

1 = totally disagree, 5 = totally agree

- We analyse our competitors' marketing programmes.
- We collect market data to help direct new service plans.
- We respond rapidly to competitors' actions.
- We encourage staff to report on competitors' activities.
- We have sufficient knowledge of our competitors' strengths and weaknesses.
- We have sufficient knowledge of our competitors' capabilities.
- We look for ways to differentiate ourselves from competitors.

How do you evaluate your interfunctional coordination? Please evaluate every item:

1 = totally disagree, 5 = totally agree

- We have regular meetings with all business functions to discuss market trends and development.
- We coordinate the activities of all business functions to provide a satisfactory service.
- Customer information is shared with all business functions.
- All business functions are involved in preparing the company plans.
- The activities of all business functions within the organisation are well integrated.
- People from one department interact well with the people from another business function.
- All business functions within the organisation are equally important in marketing our customer value.
- The business functions know how the staff can help to generate value for the customer.
- Customers are regularly visited by executives to quality control.

Service innovativeness

How do you evaluate your service innovativeness? Please evaluate every item:

1 = totally disagree, 5 = totally agree

Exploitative innovation

- We frequently refine the provision of existing services.
- We introduce the improved version of our existing services in our local market.
- We improve our provision's efficiency of services.
- Our company expands services for existing clients.

Exploratory innovation

- Our company accepts demands that go beyond existing services.
- We invent new services.
- We experiment with new services in our local market.
- We commercialize services that are completely new to our company.
- We frequently utilize new opportunities in new markets.
- Our company regularly uses new distribution.
- Our company regularly uses new cooperation.
- We regularly search for and approach new clients in new markets.

Service differentiation

Compared to the previous 5 years, did any of the following decreased, stayed the same or increased: 1 = decreased, 2 = stayed the same, 3 = increased, 4 = not applicable

- Number of core services offered (service breadth)
- Number of added services offered (service depth)

Please rate the following items: 1 = totally disagree, 5 = totally agree

- We focus on products, but we deliver services if the customers require them.
- Customers choose us for our products, services come second.
- Customers choose us for our services, products come second.
- Our services are highly differentiated.
- Compared to competing firms, our services offer unique features or attributes to the customer.

Control variables

Age

How many years does your company exist? One choice

- < 10
- 11 - 30
- 31 - 60
- 61 – 100
- > 101

Size
How many people are working in your company per month, family members and management included? Please evaluate every item

- Full-time employed (169 h)
- Part-time employed (61-120 h)
- Part-time employed (40-60 h)
- Trainee

Type of customers
What are your customers? Please fill in to 100 %

- End consumers
- Business consumers
- Government (municipal) consumers

How many people are living in your company's location? One choice

- < 2,000
- 2,001 – 10,000
- 10,001 – 50,000
- 50,001 – 100,000
- 100,001 – 500,000
- 500,00 – 1,000,000
- > 1,000,001

Demographic factors

What is your age? One choice

- < 18
- 19-30
- 31-45
- 46-60
- 61- 70
- > 71

What is your position in the company? One choice

- CEO
- Owner
- Departmental Manager
- Factory Manager
- Working family member
- Other

What is your sex? One choice

- Male
- Female
- Divers

Objective business performance 2018

What is your company’s turnover (€)? One choice

- < 100,000
- 100,001 – 200,000
- 200,001 – 350,000
- 350,001 – 600,000
- 600,001 – 1,500,000
- > 1,500,001

What is your company’s profitability (€)? One choice

- < 20,000
- 20,001 – 40,000
- 40,001 – 60,000
- 60,001 – 80,000
- 80,001 – 100,000
- 100,001 – 120,000
- 120,001 – 140,000
- > 140,001

Objective business performance in the last 5 years

Compared to the last 5 years, how have turnover and profitability changed?
Please evaluate every item: 1 = worst, 5 = best

- Sales revenues growth
- Profitability growth

Subjective business performance

How do you evaluate your business performance on your service portfolio?
Please evaluate every item: 1 = totally disagree, 5 = totally agree

<u>Financial performance</u>

- Our services were profitable
- Total sales of our services were high
- The profitability of our service exceeded its objectives
- Our service exceeded its sales objectives

<u>Non-financial performance</u>

- Our services had a positive impact on the company's perceived image
- Our services improved the loyalty of the company's existing customers
- Our introduction of the services enhanced the profitability of other company products
- Our services attracted a significant number of new customers to the company
- Our services gave to the company an important competitive advantage

APPENDIX 2

GERMAN QUESTIONNAIRE

Teil A: Fachsparte

Welcher Fachsparte ordnen Sie Ihr Unternehmen am ehesten zu?
Bitte eine Option ankreuzen.

- Baumschule
- Einzelhandelsgartenbau
- Floristik
- Friedhofsgartenbau
- Gemüsebau
- Gartencenter
- Garten- und Landschaftsbau
- Obstbau
- Zierpflanzenbau
- Sonstige

Teil B: Marktorientierung

Wie schätzen Sie Ihre betriebliche Marktorientierung ein?

Bitte bewerten Sie jede Position.

1 = stimme überhaupt nicht zu, 5 = stimme voll und ganz zu

- Auch nach ausgeführtem Kundenauftrag halten wir regelmäßig Kontakt zu diesem, um die Kundenbeziehung zu stärken
- Die Kundenzufriedenheit steht bei uns an erster Stelle
- Die Kundenzufriedenheit wird bei uns systematisch und regelmäßig gemessen
- Eine hohe Dienstleistungsqualität ist für uns ein wichtiger Beitrag zur Kundenzufriedenheit
- Dienstleistungsqualität und Kundenzufriedenheit gehören für uns zusammen
- Wir schulen unsere Mitarbeiter, um eine gute Dienstleistung zu bieten

- Verbesserungsvorschläge vom Kunden nehmen wir sehr ernst, um diesen zukünftig noch besser bedienen zu können
- Wir sind immer bestrebt, die passenden Mitarbeiter für unsere Kunden auszuwählen
- Wir sind immer bestrebt, den Nutzen für unsere Kunden zu verbessern
- Wir sind immer bestrebt, neue Kundenwünsche zu ermitteln
- Wir arbeiten aktiv daran, bestimmte Kundengruppen anzusprechen

Wie schätzen Sie Ihre betriebliche Wettbewerbsorientierung ein?
Bitte bewerten Sie jede Position.

1 = stimme überhaupt nicht zu, 5 = stimme voll und ganz zu

- Wir analysieren genau die Marketingaktivitäten unserer Mitbewerber
- Zur Weiterentwicklung unseres Leistungsportfolios beobachten wir regelmäßig die aktuelle Marktlage
- Wir reagieren schnell auf die Aktionen der Mitbewerber
- Wir ermutigen die Mitarbeiter, von Aktivitäten der Mitbewerber zu berichten
- Stärken und Schwächen der Mitbewerber sind uns bekannt
- Die Fähigkeiten der Mitbewerber sind uns bekannt
- Wir richten uns an die Kunden / Kundengruppen, von denen wir uns einen Wettbewerbsvorteil versprechen

Wie schätzen Sie Ihre interne Koordination zwischen den Geschäftsbereichen (Teams, Abteilungen) ein?
Bitte bewerten Sie jede Position.
1 = stimme überhaupt nicht zu, 5 = stimme voll und ganz zu

- Es finden regelmäßige Mitarbeiterbesprechungen zwischen den Geschäftsbereichen statt, um Trends, Entwicklungen und Erfahrungen des Marktes auszutauschen
- Wir koordinieren die Aktivitäten aller Geschäftsbereiche, um eine zufriedenstellende Dienstleistung anzubieten
- Kundeninformationen werden mit allen Geschäftsbereichen geteilt
- Alle Geschäftsbereiche sind bei der Erstellung von Unternehmensplänen involviert
- Alle Aktivitäten der einzelnen Geschäftsbereiche sind innerhalb unseres Unternehmens gut integriert

- Die Mitarbeiter der einzelnen Geschäftsbereiche interagieren gut miteinander
- Alle Geschäftsbereiche innerhalb unseres Unternehmens sind für die Vermarktung unseres Kundennutzens gleichermaßen wichtig
- Allen Geschäftsbereichen ist unsere Vorgehensweise bekannt, wie wir den größten Nutzen für den Kunden erreichen können
- Zur Qualitätskontrolle werden unsere Kunden regelmäßig von Führungskräften besucht

Innovationsfähigkeit von Dienstleistungen

Wie innovativ ist Ihr Unternehmen in Bezug auf Dienstleistungen?
Bitte bewerten Sie jede Position.

1 = stimme überhaupt nicht zu, 5 = stimme voll und ganz zu

- Wir versuchen, unsere Dienstleistungen permanent zu verfeinern
- Unsere bestehenden Dienstleistungen unterliegen einer permanenten Marktanpassung
- Verbesserte Dienstleistungen werden zunächst unseren Stammkunden vorgestellt
- Wir versuchen, die Effizienz unserer Ausführungen permanent zu verbessern
- Wir versuchen, unseren Stammkunden auch weitere Dienstleistungen anzubieten
- Neben bestehenden Dienstleistungen versuchen wir stets auch neue Dienstleistungen mit in unser Portfolio aufzunehmen
- Neue Dienstleistungen stellen wir zunächst unseren Stammkunden vor
- Außerhalb unserer Kernleistungen nehmen wir auch gänzlich neue Dienstleistungen mit auf
- Wir verstehen neue Märkte als Chance zur Weiterentwicklung unseres Unternehmens
- Wir bieten unsere Dienstleistungen auf verschiedenen Vermarktungskanälen an (Marketing Mix)
- Kooperationen mit anderen Betrieben sehen wir als Chance zur Weiterentwicklung
- Wir erschließen systematisch neue Märkte und Kunden

Differenzierung von Kern- und Zusatzdienstleistungen

Wie hat sich Ihr Dienstleistungsspektrum in den letzten 5 Jahren verändert?
Gefragt wird nach der Dienstleistungsbreite und -tiefe.
Dienstleistungsbreite: Dies ist die Anzahl Ihrer betrieblichen Kerndienstleistungen, die in eigenen Abteilungen und Zuständigkeiten ausgeführt werden. Zum Beispiel Abteilungen Friedhof, Garten- und Landschaftsbau, Einzelhandel, Raumbegrünung, Floristik, Pflanzenproduktion etc.
Dienstleistungstiefe: Dies sind die einzelnen Dienstleistungen innerhalb der Abteilungen, zum Beispiel Neuanlagen, Pflege, Winterdienst, Schwimmteichbau, Dachbegrünung etc, aber auch produktbegleitende Dienstleistungen wie Lieferservice Pflanzservice, Fleuropservice, Dauergrabpflege etc.

Bitte geben Sie die Veränderungen der letzten 5 Jahre an.
1 = abnehmend, 2 = gleichgeblieben, 3 = gestiegen, 4 = keine Angaben

- Anzahl von Kerndienstleistungen (Dienstleistungsbreite)
- Anzahl von Zusatzdienstleistungen (Dienstleistungstiefe)

Wie bewerten Sie Ihr Dienstleistungsportfolio aus Sicht des Kunden?
Bitte bewerten Sie jede Position.

1 = stimme überhaupt nicht zu, 5 = stimme voll und ganz zu

Wir konzentrieren uns auf Produkte, aber wir bieten Dienstleistungen an, wenn die Kunden sie benötigen.

- Kunden kommen hauptsächlich wegen unserer Produkte, weniger wegen unserer Dienstleistungen
- Wir konzentrieren uns auf den Produktverkauf, aber wir bieten auch Dienstleistungen an, wenn der Kunde sie wünscht.
- Kunden kommen hauptsächlich wegen unserer Dienstleistungen, weniger wegen unserer Produkte
- Unser Dienstleistungsportfolio weist eine starke Differenzierung in Kern- und Zusatzdienstleistungen auf (große Dienstleistungsbreite
- und -tiefe)
- Im Vergleich zu Mitbewerbern weisen unsere Dienstleistungen bessere Funktionen / Eigenschaften auf, um den Kunden zu überzeugen

Angaben zu Ihrem Unternehmen

Wie viele Jahre existiert Ihr Unternehmen? Bitte ankreuzen.

- < 10
- 11 - 30
- 31 - 60
- 61 – 100
- > 101

Wieviele Mitarbeiter sind in Ihrem Unternehmen beschäftigt, inkl. Geschäftsführung und mitarbeitende Familienmitglieder?
Bitte geben Sie die Anzahl in den 4 Feldern ein.

- Vollzeit
- Teilzeit
- Geringfügige Beschäftigung
- Ausbildung

Wie setzen sich Ihre Kunden zusammen?
Bitte tragen Sie Zahlen ein. Zusammen müssen es 100% sein.
Beispiel: 70% Privatkunden, 20% Firmenkunden, 10% kommunale Kunden.

- Privatkunden
- Firmenkunden
- Öffentliche Kunden

Wieviele Einwohner hat der Ort, an dem sich Ihr Hauptsitz befindet?
Bitte ankreuzen.

- < 2,000
- 2,001 – 10,000
- 10,001 – 50,000
- 50,001 – 100,000
- 100,001 – 500,000
- 500,00 – 1,000,000
- > 1,000,001

Angaben zu Ihrer Person

Wie alt sind Sie? Bitte ankreuzen

- < 18
- 19-30
- 31-45
- 46-60
- 61- 70

- > 71

Welche Position nehmen Sie im Unternehmen ein? Bitte ankreuzen.

- Geschäftsführer/in
- Inhaber/in
- Betriebsleiter/in
- Abteilungsleiter/in
- Mitarbeitendes Familienmitglied
- Sonstige

Was ist Ihr Geschlecht? Bitte ankreuzen

- Männlich
- Weiblich
- Divers

Geschäftsergebnisse

Wie hoch war Ihr Gesamtumsatz im Geschäftsjahr 2018? In Euro.
Bitte ankreuzen

- < 100,000
- 100,001 – 200,000
- 200,001 – 350,000
- 350,001 – 600,000
- 600,001 – 1,500,000
- > 1,500,001

Wie hoch war Ihr Gewinn im Geschäftsjahr 2018? In Euro.
Bitte ankreuzen.

- < 20,000
- 20,001 – 40,000
- 40,001 – 60,000
- 60,001 – 80,000
- 80,001 – 100,000
- 100,001 – 120,000
- 120,001 – 140,000
- > 140,001

Wie haben sich Gesamtumsatz und Gewinn in den letzten 5 Geschäftsjahren verändert? Bitte bewerten Sie jede Angabe.
1= viel schlechter geworden, 5 = viel besser geworden

- Gesamtumsatz

- Gewinn

Wie bewerten Sie den Geschäftserfolg Ihrer Dienstleistungen im Geschäftsjahr 2018? Bitte bewerten Sie jede Position.
1 = stimme überhaupt nicht zu, 5 = stimme voll und ganz zu

- Unsere Dienstleistungen waren profitabel
- Der Gesamtumsatz unserer Dienstleistungen war hoch
- Der Gesamtumsatz unserer Dienstleistungen übertraf unsere Ziele
- Der Gewinn unserer Dienstleistungen übertraf unsere Ziele
- Unsere Dienstleistungen haben sich positiv auf unser Image ausgewirkt
- Unsere Dienstleistungen haben die Kundentreue zu unserem Unternehmen erhöht
- Durch unsere Dienstleistungen hat sich auch der Produktverkauf erhöht
- Durch unsere Dienstleistungen haben wir deutlich mehr neue Kunden bekommen
- Mit unseren Dienstleistungen haben wir uns einen deutlichen Wettbewerbsvorteil verschaffen können

Vielen Dank für Ihre Unterstützung!

Christian Engelke

University of Worcester, St. John's Campus, Worcester, WR2, 64J, England
E-Mail: ENGC1_17@UNI.WORC.AC.UK

University of Worcester

APPENDIX 3

Text in the cover letter (e-mail)

Betreff: Einladung zu einer Umfrage über gartenbauliche Dienstleistungen

Sehr geehrte Damen und Herren,

mein Name ist Christian Engelke und ich arbeite nebenberuflich an einer wissenschaftlichen Arbeit an der englischen Universität Worcester.

Hauptberuflich bin ich Inhaber einer dienstleistungsorientierten Einzelhandelsgärtnerei in Bückeburg.

Vor dem Hintergrund, dass sich der deutsche Gartenbau immer mehr in Richtung Dienstleistungen bewegt, stellen sich die folgenden Fragen:

- Inwieweit steht das betriebliche Dienstleistungsspektrum im Einklang mit den Anforderungen des Marktes und auch der eigenen Innovationsfähigkeit?
- Welche Auswirkungen hat das Dienstleistungsspektrum auf das Betriebsergebnis?

Diese Fragen sollen in der Umfrage näher untersucht werden. Da es hierzu bisher keine vergleichbaren Studien gibt, kann Ihre Teilnahme einen wertvollen Beitrag leisten, um den Erfolg und nicht zuletzt auch die Zukunftsfähigkeit der Gartenbauunternehmen zu sichern.
Aus diesem Grund möchte ich Sie bitten, an der Umfrage teilzunehmen. Sie beinhaltet 18 Fragen und dauert circa 15 Minuten.

Sie haben diese Einladung erhalten, weil Sie mindestens eins der drei Kriterien erfüllen: Sie führen ein Gartenbauunternehmen, betreiben Einzelhandel in der grünen Branche, Sie bieten gärtnerische Dienstleistungen an.

Um die Daten statistisch auswerten zu können, ist eine möglichst hohe Rücklaufquote wichtig. Ihre Beteiligung ist also auch sehr wichtig für eine gute Aussagegenauigkeit.

Auf Wunsch schicke ich Ihnen nach der späteren Auswertung gerne ein Exemplar zu. Bitte schreiben Sie mir hierzu eine E-Mail.

Ich möchte Sie außerdem bitten, alle Fragen zu beantworten, da nur so eine sinnvolle Auswertung möglich ist.

Ich danke Ihnen sehr für die Teilnahme.
Mit freundlichen Grüßen.

Christian Engelke

University of Worcester, St John's Campus, Worcester, WR2 6AJ, England. https://www.worcester.ac.uk/

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Friedrich-Bach-Str. 29, 31675 Bückeburg.

E-Mail: c.engelke@engel-engelke.de

Mobil: (+49) 1788888819

Bestätigungsnachricht:

Vielen Dank für die Teilnahme an der Umfrage mit dem Titel 27.11.19 Untersuchung zur Marktorientierung.... Ihre Antworten wurden bei uns gespeichert.

Wenn Sie Fragen zu dieser E-Mail haben, kontaktieren Sie mich bitte unter

ENGC1_17@UNI.WORC.AC.UK.

Mit freundlichen Grüßen,

Christian Engelke

APPENDIX 4

Reminder letter (e-mail)

Sehr geehrte Damen und Herren,

In der vergangenen Woche haben wir Sie zu einer Online-Umfrage eingeladen. Wir möchten Ihnen mitteilen, dass die Umfrage noch aktiv ist und würden uns freuen, wenn Sie teilnehmen könnten. Bitte klicken Sie hierzu auf den untenstehenden Link.

Die Umfrage ist anonymisiert und eine Rückverfolgung nicht möglich. Aus diesem Grund ist nicht bekannt, ob Sie nicht vielleicht bereits teilgenommen haben. Ist dies der Fall, möchten wir uns für dieses Erinnerungsschreiben bei Ihnen entschuldigen.

Originaltext:

Mein Name ist Christian Engelke und ich arbeite nebenberuflich an einer wissenschaftlichen Arbeit an der englischen Universität Worcester. Hauptberuflich bin ich Inhaber einer dienstleistungsorientierten Einzelhandelsgärtnerei in Bückeburg.

Vor dem Hintergrund, dass sich der deutsche Gartenbau immer mehr in Richtung Dienstleistungen bewegt, stellen sich die folgenden Fragen:

- Inwieweit steht das betriebliche Dienstleistungsspektrum im Einklang mit den Anforderungen des Marktes und auch der eigenen Innovationsfähigkeit?
- Welche Auswirkungen hat das Dienstleistungsspektrum auf das Betriebsergebnis?

Diese Fragen sollen in der Umfrage näher untersucht werden. Da es hierzu bisher keine vergleichbaren Studien gibt, kann Ihre Teilnahme einen wertvollen Beitrag leisten, um den Erfolg und nicht zuletzt auch die Zukunftsfähigkeit der Gartenbauunternehmen zu sichern.

Aus diesem Grund möchte ich Sie bitten, an der Umfrage teilzunehmen. Sie beinhaltet 18 Fragen und dauert circa 15 Minuten.

Sie haben diese Einladung erhalten, weil Sie mindestens eins der drei Kriterien erfüllen: Sie führen ein Gartenbauunternehmen, betreiben Einzelhandel in der grünen Branche, Sie bieten gärtnerische Dienstleistungen an.

Um die Daten statistisch auswerten zu können, ist eine möglichst hohe Rücklaufquote wichtig. Ihre Beteiligung ist also auch sehr wichtig für eine gute Aussagegenauigkeit.

Auf Wunsch schicke ich Ihnen nach der späteren Auswertung gerne ein Exemplar zu. Bitte schreiben Sie mir hierzu eine E-Mail.

Ich möchte Sie außerdem bitten, alle Fragen zu beantworten, da nur so eine sinnvolle Auswertung möglich ist.

Ich danke Ihnen sehr für die Teilnahme.

Mit freundlichen Grüßen,

Christian Engelke
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Klicken Sie hier um die Umfrage zu starten: {SURVEYURL}

APPENDIX 5

TEST FOR NORMALITY

Tests of Normality						
	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
	Statistic	df	Sig.	Statistic	df	Sig.
CuO1	.178	222	.000	.914	222	.000
CuO2	.342	222	.000	.699	222	.000
CuO3	.206	222	.000	.900	222	.000
CuO4	.390	222	.000	.667	222	.000
CuO5	.407	222	.000	.639	222	.000
CuO6	.201	222	.000	.890	222	.000
CuO7	.323	222	.000	.730	222	.000
CuO8	.240	222	.000	.835	222	.000
CuO9	.248	222	.000	.798	222	.000
CuO10	.213	222	.000	.869	222	.000
CuO11	.183	222	.000	.905	222	.000
CoO1	.185	222	.000	.907	222	.000
CoO2	.222	222	.000	.890	222	.000
CoO3	.186	222	.000	.901	222	.000
CoO4	.169	222	.000	.910	222	.000
CoO5	.237	222	.000	.888	222	.000
CoO6	.248	222	.000	.864	222	.000
CoO7	.191	222	.000	.898	222	.000
IFC1	.191	222	.000	.901	222	.000
IFC2	.251	222	.000	.823	222	.000
IFC3	.222	222	.000	.865	222	.000
IFC4	.183	222	.000	.889	222	.000
IFC5	.244	222	.000	.862	222	.000
IFC6	.239	222	.000	.845	222	.000
IFC7	.228	222	.000	.840	222	.000
IFC8	.254	222	.000	.873	222	.000
IFC9	.179	222	.000	.891	222	.000
Exploi_1	.234	222	.000	.857	222	.000
Exploi_2	.214	222	.000	.898	222	.000
Exploi_3	.163	222	.000	.893	222	.000
Exploi_4	.264	222	.000	.810	222	.000
Explor_1	.225	222	.000	.892	222	.000
Explor_2	.174	222	.000	.913	222	.000
Explor_3	.150	222	.000	.911	222	.000

Explor_4	.165	222	.000	.905	222	.000
Explor_5	.212	222	.000	.884	222	.000
Explor_6	.150	222	.000	.897	222	.000
Explor_7	.213	222	.000	.854	222	.000
Explor_8	.162	222	.000	.914	222	.000
SD_Breadth	.308	222	.000	.775	222	.000
SD_Depth	.322	222	.000	.738	222	.000
SD_CuP_Products	.207	222	.000	.849	222	.000
SD_CuP_Services	.188	222	.000	.875	222	.000
SD_Level	.187	222	.000	.912	222	.000
SD_CoP	.240	222	.000	.876	222	.000
SD_Number_BT	.299	222	.000	.777	222	.000
Age Company	.201	222	.000	.903	222	.000
Size Company	.188	222	.000	.798	222	.000
Inhabitants	.264	222	.000	.889	222	.000
Age Respondent	.307	222	.000	.835	222	.000
Position	.359	222	.000	.600	222	.000
Sex	.501	222	.000	.465	222	.000
SR_2018	.195	222	.000	.915	222	.000
Pro_2018	.190	222	.000	.899	222	.000
SR_5	.256	222	.000	.850	222	.000
PR_5	.215	222	.000	.895	222	.000
SBP1	.221	222	.000	.851	222	.000
SBP2	.217	222	.000	.881	222	.000
SBP3	.221	222	.000	.904	222	.000
SBP4	.225	222	.000	.907	222	.000
SBP5	.272	222	.000	.817	222	.000
SBP6	.239	222	.000	.835	222	.000
SBP7	.154	222	.000	.903	222	.000
SBP8	.189	222	.000	.901	222	.000
SBP9	.188	222	.000	.882	222	.000

a. Lilliefors Significance Correction

APPENDIX 6

TEST FOR LINEARITY

Customer orientation							
ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CuO1	Between Groups	(Combined)	19,463	4	4,866	2,678	0,033
		Linearity	6,119	1	6,119	3,368	0,068
		Deviation from Linearity	13,345	3	4,448	2,448	0,065
	Within Groups		394,253	217	1,817		
	Total		413,716	221			
PR_2018 * CuO1	Between Groups	(Combined)	33,986	4	8,497	1,628	0,168
		Linearity	5,670	1	5,670	1,086	0,298
		Deviation from Linearity	28,316	3	9,439	1,809	0,147
	Within Groups		1132,469	217	5,219		
	Total		1166,455	221			
SR_5 * CuO1	Between Groups	(Combined)	1,621	4	0,405	0,610	0,656
		Linearity	1,195	1	1,195	1,799	0,181
		Deviation from Linearity	0,426	3	0,142	0,214	0,887
	Within Groups		144,091	217	0,664		
	Total		145,712	221			
PR_5 * CuO1	Between Groups	(Combined)	1,524	4	0,381	0,444	0,776
		Linearity	0,001	1	0,001	0,001	0,974
		Deviation from Linearity	1,523	3	0,508	0,592	0,621
	Within Groups		185,976	217	0,857		
	Total		187,500	221			
SBP1 * CuO	Between Groups	(Combined)	5,704	4	1,426	1,671	0,158
		Linearity	5,577	1	5,577	6,535	0,011

		Deviation from Linearity	0,127	3	0,042	0,050	0,985
	Within Groups		185,184	217	0,853		
	Total		190,887	221			
SBP2 * CuO1	Between Groups	(Combined)	19,305	4	4,826	3,920	0,004
		Linearity	17,749	1	17,749	14,418	0,000
		Deviation from Linearity	1,556	3	0,519	0,421	0,738
	Within Groups		267,150	217	1,231		
	Total		286,455	221			
SBP3 * CuO1	Between Groups	(Combined)	6,280	4	1,570	1,597	0,176
		Linearity	5,103	1	5,103	5,191	0,024
		Deviation from Linearity	1,177	3	0,392	0,399	0,754
	Within Groups		213,341	217	0,983		
	Total		219,622	221			
SBP4 * CuO1	Between Groups	(Combined)	8,364	4	2,091	1,988	0,097
		Linearity	6,108	1	6,108	5,807	0,017
		Deviation from Linearity	2,256	3	0,752	0,715	0,544
	Within Groups		228,254	217	1,052		
	Total		236,617	221			
SBP5 * CuO1	Between Groups	(Combined)	5,882	4	1,470	2,138	0,077
		Linearity	4,445	1	4,445	6,463	0,012
		Deviation from Linearity	1,437	3	0,479	0,697	0,555
	Within Groups		149,235	217	0,688		
	Total		155,117	221			
SBP6 * CuO1	Between Groups	(Combined)	9,681	4	2,420	3,398	0,010
		Linearity	8,101	1	8,101	11,375	0,001
		Deviation from Linearity	1,580	3	0,527	0,739	0,530
	Within Groups		154,558	217	0,712		

	Total		164,239	221			
SBP7 * CuO1	Between Groups	(Combined)	15,456	4	3,864	2,299	0,060
		Linearity	3,599	1	3,599	2,141	0,145
		Deviation from Linearity	11,856	3	3,952	2,351	0,073
	Within Groups		364,742	217	1,681		
	Total		380,198	221			
SBP8 * CuO1	Between Groups	(Combined)	13,938	4	3,485	3,416	0,010
		Linearity	11,456	1	11,456	11,231	0,001
		Deviation from Linearity	2,482	3	0,827	0,811	0,489
	Within Groups		221,341	217	1,020		
	Total		235,279	221			
SBP9 * CuO1	Between Groups	(Combined)	18,672	4	4,668	4,436	0,002
		Linearity	14,611	1	14,611	13,883	0,000
		Deviation from Linearity	4,062	3	1,354	1,286	0,280
	Within Groups		228,377	217	1,052		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CuO2	Between Groups	(Combined)	9,137	4	2,284	1,225	0,301
		Linearity	0,419	1	0,419	0,225	0,636
		Deviation from Linearity	8,718	3	2,906	1,559	0,200
	Within Groups		404,579	217	1,864		
	Total		413,716	221			
PR_2018 * CuO2	Between Groups	(Combined)	22,034	4	5,508	1,044	0,385
		Linearity	2,877	1	2,877	0,546	0,461
		Deviation from Linearity	19,156	3	6,385	1,211	0,307
	Within Groups		1144,421	217	5,274		
	Total		1166,455	221			

SR_5 * CuO2	Between Groups	(Combined)	0,969	4	0,242	0,363	0,835
		Linearity	0,001	1	0,001	0,001	0,974
		Deviation from Linearity	0,968	3	0,323	0,484	0,694
	Within Groups		144,743	217	0,667		
	Total		145,712	221			
PR_5 * CuO2	Between Groups	(Combined)	1,376	4	0,344	0,401	0,808
		Linearity	0,602	1	0,602	0,702	0,403
		Deviation from Linearity	0,775	3	0,258	0,301	0,825
	Within Groups		186,124	217	0,858		
	Total		187,500	221			
SBP1 * CuO2	Between Groups	(Combined)	2,059	4	0,515	0,591	0,669
		Linearity	1,659	1	1,659	1,907	0,169
		Deviation from Linearity	0,399	3	0,133	0,153	0,928
	Within Groups		188,829	217	0,870		
	Total		190,887	221			
SBP2 * CuO2	Between Groups	(Combined)	5,125	4	1,281	0,988	0,415
		Linearity	5,053	1	5,053	3,898	0,050
		Deviation from Linearity	0,072	3	0,024	0,018	0,997
	Within Groups		281,330	217	1,296		
	Total		286,455	221			
SBP3 * CuO2	Between Groups	(Combined)	0,242	4	0,060	0,060	0,993
		Linearity	0,126	1	0,126	0,125	0,724
		Deviation from Linearity	0,116	3	0,039	0,038	0,990
	Within Groups		219,380	217	1,011		
	Total		219,622	221			
SBP4 * CuO2	Between Groups	(Combined)	0,994	4	0,249	0,229	0,922
		Linearity	0,348	1	0,348	0,321	0,572

		Deviation from Linearity	0,646	3	0,215	0,198	0,897
	Within Groups		235,623	217	1,086		
	Total		236,617	221			
SBP5 * CuO2	Between Groups	(Combined)	5,411	4	1,353	1,961	0,102
		Linearity	4,774	1	4,774	6,920	0,009
		Deviation from Linearity	0,637	3	0,212	0,308	0,820
	Within Groups		149,706	217	0,690		
	Total		155,117	221			
SBP6 * CuO2	Between Groups	(Combined)	11,111	4	2,778	3,936	0,004
		Linearity	8,159	1	8,159	11,562	0,001
		Deviation from Linearity	2,952	3	0,984	1,395	0,245
	Within Groups		153,128	217	0,706		
	Total		164,239	221			
SBP7 * CuO2	Between Groups	(Combined)	19,212	4	4,803	2,887	0,023
		Linearity	16,962	1	16,962	10,196	0,002
		Deviation from Linearity	2,251	3	0,750	0,451	0,717
	Within Groups		360,986	217	1,664		
	Total		380,198	221			
SBP8 * CuO2	Between Groups	(Combined)	10,879	4	2,720	2,630	0,035
		Linearity	6,129	1	6,129	5,927	0,016
		Deviation from Linearity	4,750	3	1,583	1,531	0,207
	Within Groups		224,400	217	1,034		
	Total		235,279	221			
SBP9 * CuO2	Between Groups	(Combined)	4,359	4	1,090	0,974	0,422
		Linearity	2,944	1	2,944	2,633	0,106
		Deviation from Linearity	1,415	3	0,472	0,422	0,738
	Within Groups		242,691	217	1,118		

	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CuO3	Between Groups	(Combined)	8,812	4	2,203	1,181	0,320
		Linearity	0,224	1	0,224	0,120	0,729
		Deviation from Linearity	8,588	3	2,863	1,534	0,207
	Within Groups		404,904	217	1,866		
	Total		413,716	221			
PR_2018 * CuO3	Between Groups	(Combined)	0,377	4	0,094	0,018	0,999
		Linearity	0,328	1	0,328	0,061	0,805
		Deviation from Linearity	0,049	3	0,016	0,003	1,000
	Within Groups		1166,078	217	5,374		
	Total		1166,455	221			
SR_5 * CuO3	Between Groups	(Combined)	5,230	4	1,308	2,020	0,093
		Linearity	3,539	1	3,539	5,466	0,020
		Deviation from Linearity	1,691	3	0,564	0,871	0,457
	Within Groups		140,482	217	0,647		
	Total		145,712	221			
PR_5 * CuO3	Between Groups	(Combined)	4,164	4	1,041	1,232	0,298
		Linearity	1,622	1	1,622	1,920	0,167
		Deviation from Linearity	2,542	3	0,847	1,003	0,392
	Within Groups		183,336	217	0,845		
	Total		187,500	221			
SBP1 * CuO3	Between Groups	(Combined)	0,433	4	0,108	0,123	0,974
		Linearity	0,177	1	0,177	0,201	0,654
		Deviation from Linearity	0,257	3	0,086	0,098	0,961
	Within Groups		190,454	217	0,878		
	Total		190,887	221			

SBP2 * CuO3	Between Groups	(Combined)	11,936	4	2,984	2,359	0,055
		Linearity	3,045	1	3,045	2,407	0,122
		Deviation from Linearity	8,891	3	2,964	2,343	0,074
	Within Groups		274,519	217	1,265		
	Total		286,455	221			
SBP3 * CuO3	Between Groups	(Combined)	5,302	4	1,326	1,342	0,255
		Linearity	3,979	1	3,979	4,029	0,046
		Deviation from Linearity	1,323	3	0,441	0,447	0,720
	Within Groups		214,319	217	0,988		
	Total		219,622	221			
SBP4 * CuO3	Between Groups	(Combined)	6,341	4	1,585	1,494	0,205
		Linearity	4,386	1	4,386	4,133	0,043
		Deviation from Linearity	1,955	3	0,652	0,614	0,606
	Within Groups		230,276	217	1,061		
	Total		236,617	221			
SBP5 * CuO3	Between Groups	(Combined)	3,139	4	0,785	1,120	0,348
		Linearity	0,085	1	0,085	0,121	0,728
		Deviation from Linearity	3,054	3	1,018	1,453	0,228
	Within Groups		151,979	217	0,700		
	Total		155,117	221			
SBP6 * CuO3	Between Groups	(Combined)	2,039	4	0,510	0,682	0,605
		Linearity	0,397	1	0,397	0,531	0,467
		Deviation from Linearity	1,642	3	0,547	0,732	0,534
	Within Groups		162,200	217	0,747		
	Total		164,239	221			
SBP7 * CuO3	Between Groups	(Combined)	1,212	4	0,303	0,173	0,952
		Linearity	0,279	1	0,279	0,160	0,690

		Deviation from Linearity	0,932	3	0,311	0,178	0,911
	Within Groups		378,987	217	1,746		
	Total		380,198	221			
SBP8 * CuO3	Between Groups	(Combined)	8,973	4	2,243	2,151	0,076
		Linearity	7,481	1	7,481	7,173	0,008
		Deviation from Linearity	1,492	3	0,497	0,477	0,699
	Within Groups		226,307	217	1,043		
	Total		235,279	221			
SBP9 * CuO3	Between Groups	(Combined)	4,265	4	1,066	0,953	0,434
		Linearity	2,710	1	2,710	2,422	0,121
		Deviation from Linearity	1,555	3	0,518	0,463	0,708
	Within Groups		242,785	217	1,119		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CuO4	Between Groups	(Combined)	5,262	3	1,754	0,936	0,424
		Linearity	0,835	1	0,835	0,446	0,505
		Deviation from Linearity	4,427	2	2,214	1,181	0,309
	Within Groups		408,454	218	1,874		
	Total		413,716	221			
PR_2018 * CuO4	Between Groups	(Combined)	5,938	3	1,979	0,372	0,773
		Linearity	4,110	1	4,110	0,772	0,381
		Deviation from Linearity	1,828	2	0,914	0,172	0,842
	Within Groups		1160,517	218	5,323		
	Total		1166,455	221			
SR_5 * CuO4	Between Groups	(Combined)	1,346	3	0,449	0,677	0,567
		Linearity	0,341	1	0,341	0,515	0,474

		Deviation from Linearity	1,005	2	0,502	0,759	0,470
	Within Groups		144,366	218	0,662		
	Total		145,712	221			
PR_5 * CuO4	Between Groups	(Combined)	0,929	3	0,310	0,362	0,781
		Linearity	0,041	1	0,041	0,047	0,828
		Deviation from Linearity	0,888	2	0,444	0,519	0,596
	Within Groups		186,571	218	0,856		
	Total		187,500	221			
SBP1 * CuO4	Between Groups	(Combined)	10,629	3	3,543	4,285	0,006
		Linearity	7,270	1	7,270	8,792	0,003
		Deviation from Linearity	3,358	2	1,679	2,031	0,134
	Within Groups		180,259	218	0,827		
	Total		190,887	221			
SBP2 * CuO4	Between Groups	(Combined)	29,562	3	9,854	8,362	0,000
		Linearity	21,877	1	21,877	18,565	0,000
		Deviation from Linearity	7,685	2	3,842	3,261	0,040
	Within Groups		256,893	218	1,178		
	Total		286,455	221			
SBP3 * CuO4	Between Groups	(Combined)	6,801	3	2,267	2,322	0,076
		Linearity	2,039	1	2,039	2,089	0,150
		Deviation from Linearity	4,762	2	2,381	2,439	0,090
	Within Groups		212,821	218	0,976		
	Total		219,622	221			
SBP4 * CuO4	Between Groups	(Combined)	7,081	3	2,360	2,242	0,084
		Linearity	1,752	1	1,752	1,664	0,198
		Deviation from Linearity	5,329	2	2,665	2,531	0,082
	Within Groups		229,536	218	1,053		

	Total		236,617	221			
SBP5 * CuO4	Between Groups	(Combined)	14,501	3	4,834	7,494	0,000
		Linearity	11,150	1	11,150	17,286	0,000
		Deviation from Linearity	3,351	2	1,676	2,598	0,077
	Within Groups		140,616	218	0,645		
	Total		155,117	221			
SBP6 * CuO4	Between Groups	(Combined)	12,055	3	4,018	5,756	0,001
		Linearity	9,569	1	9,569	13,708	0,000
		Deviation from Linearity	2,486	2	1,243	1,780	0,171
	Within Groups		152,184	218	0,698		
	Total		164,239	221			
SBP7 * CuO4	Between Groups	(Combined)	15,259	3	5,086	3,038	0,030
		Linearity	13,993	1	13,993	8,359	0,004
		Deviation from Linearity	1,265	2	0,633	0,378	0,686
	Within Groups		364,940	218	1,674		
	Total		380,198	221			
SBP8 * CuO4	Between Groups	(Combined)	15,170	3	5,057	5,008	0,002
		Linearity	13,797	1	13,797	13,665	0,000
		Deviation from Linearity	1,373	2	0,686	0,680	0,508
	Within Groups		220,109	218	1,010		
	Total		235,279	221			
SBP9 * CuO4	Between Groups	(Combined)	17,704	3	5,901	5,609	0,001
		Linearity	13,429	1	13,429	12,765	0,000
		Deviation from Linearity	4,274	2	2,137	2,031	0,134
	Within Groups		229,346	218	1,052		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.

SR_2018 * CuO5	Between Groups	(Combined)	2,551	3	0,850	0,451	0,717
		Linearity	0,552	1	0,552	0,293	0,589
		Deviation from Linearity	1,999	2	1,000	0,530	0,589
	Within Groups		411,165	218	1,886		
	Total		413,716	221			
PR_2018 * CuO5	Between Groups	(Combined)	2,367	3	0,789	0,148	0,931
		Linearity	1,202	1	1,202	0,225	0,636
		Deviation from Linearity	1,165	2	0,582	0,109	0,897
	Within Groups		1164,088	218	5,340		
	Total		1166,455	221			
SR_5 * CuO5	Between Groups	(Combined)	3,018	3	1,006	1,537	0,206
		Linearity	1,327	1	1,327	2,027	0,156
		Deviation from Linearity	1,692	2	0,846	1,292	0,277
	Within Groups		142,693	218	0,655		
	Total		145,712	221			
PR_5 * CuO5	Between Groups	(Combined)	2,865	3	0,955	1,127	0,339
		Linearity	2,574	1	2,574	3,040	0,083
		Deviation from Linearity	0,290	2	0,145	0,171	0,843
	Within Groups		184,635	218	0,847		
	Total		187,500	221			
SBP1 * CuO5	Between Groups	(Combined)	3,332	3	1,111	1,291	0,278
		Linearity	2,410	1	2,410	2,801	0,096
		Deviation from Linearity	0,922	2	0,461	0,536	0,586
	Within Groups		187,556	218	0,860		
	Total		190,887	221			
SBP2 * CuO5	Between Groups	(Combined)	9,250	3	3,083	2,425	0,067
		Linearity	6,656	1	6,656	5,235	0,023

		Deviation from Linearity	2,593	2	1,297	1,020	0,362
	Within Groups		277,205	218	1,272		
	Total		286,455	221			
SBP3 * CuO5	Between Groups	(Combined)	1,452	3	0,484	0,484	0,694
		Linearity	0,001	1	0,001	0,001	0,980
		Deviation from Linearity	1,452	2	0,726	0,725	0,485
	Within Groups		218,169	218	1,001		
	Total		219,622	221			
SBP4 * CuO5	Between Groups	(Combined)	2,995	3	0,998	0,932	0,426
		Linearity	0,034	1	0,034	0,032	0,859
		Deviation from Linearity	2,961	2	1,481	1,382	0,253
	Within Groups		233,622	218	1,072		
	Total		236,617	221			
SBP5 * CuO5	Between Groups	(Combined)	4,390	3	1,463	2,116	0,099
		Linearity	3,712	1	3,712	5,369	0,021
		Deviation from Linearity	0,678	2	0,339	0,490	0,613
	Within Groups		150,727	218	0,691		
	Total		155,117	221			
SBP6 * CuO5	Between Groups	(Combined)	9,988	3	3,329	4,705	0,003
		Linearity	5,774	1	5,774	8,160	0,005
		Deviation from Linearity	4,214	2	2,107	2,978	0,053
	Within Groups		154,251	218	0,708		
	Total		164,239	221			
SBP7 * CuO5	Between Groups	(Combined)	20,512	3	6,837	4,144	0,007
		Linearity	15,459	1	15,459	9,369	0,002
		Deviation from Linearity	5,053	2	2,527	1,531	0,219
	Within Groups		359,686	218	1,650		

	Total		380,198	221			
SBP8 * CuO5	Between Groups	(Combined)	7,039	3	2,346	2,241	0,084
		Linearity	5,519	1	5,519	5,271	0,023
		Deviation from Linearity	1,521	2	0,760	0,726	0,485
	Within Groups		228,240	218	1,047		
	Total		235,279	221			
SBP9 * CuO5	Between Groups	(Combined)	7,971	3	2,657	2,423	0,067
		Linearity	1,419	1	1,419	1,294	0,257
		Deviation from Linearity	6,552	2	3,276	2,987	0,053
	Within Groups		239,078	218	1,097		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CuO6	Between Groups	(Combined)	8,457	4	2,114	1,132	0,342
		Linearity	1,683	1	1,683	0,901	0,343
		Deviation from Linearity	6,774	3	2,258	1,209	0,307
	Within Groups		405,259	217	1,868		
	Total		413,716	221			
PR_2018 * CuO6	Between Groups	(Combined)	48,566	4	12,141	2,357	0,055
		Linearity	48,005	1	48,005	9,318	0,003
		Deviation from Linearity	0,561	3	0,187	0,036	0,991
	Within Groups		1117,889	217	5,152		
	Total		1166,455	221			
SR_5 * CuO6	Between Groups	(Combined)	12,581	4	3,145	5,127	0,001
		Linearity	11,395	1	11,395	18,574	0,000
		Deviation from Linearity	1,186	3	0,395	0,644	0,587
	Within Groups		133,131	217	0,614		
	Total		145,712	221			

PR_5 * CuO6	Between Groups	(Combined)	6,548	4	1,637	1,963	0,101
		Linearity	6,434	1	6,434	7,716	0,006
		Deviation from Linearity	0,114	3	0,038	0,046	0,987
	Within Groups		180,952	217	0,834		
	Total		187,500	221			
SBP1 * CuO6	Between Groups	(Combined)	24,885	4	6,221	8,133	0,000
		Linearity	23,881	1	23,881	31,217	0,000
		Deviation from Linearity	1,005	3	0,335	0,438	0,726
	Within Groups		166,002	217	0,765		
	Total		190,887	221			
SBP2 * CuO6	Between Groups	(Combined)	27,654	4	6,914	5,797	0,000
		Linearity	25,782	1	25,782	21,618	0,000
		Deviation from Linearity	1,872	3	0,624	0,523	0,667
	Within Groups		258,801	217	1,193		
	Total		286,455	221			
SBP3 * CuO6	Between Groups	(Combined)	17,144	4	4,286	4,593	0,001
		Linearity	16,263	1	16,263	17,429	0,000
		Deviation from Linearity	0,881	3	0,294	0,315	0,815
	Within Groups		202,478	217	0,933		
	Total		219,622	221			
SBP4 * CuO6	Between Groups	(Combined)	17,341	4	4,335	4,290	0,002
		Linearity	16,942	1	16,942	16,766	0,000
		Deviation from Linearity	0,399	3	0,133	0,132	0,941
	Within Groups		219,276	217	1,010		
	Total		236,617	221			
SBP5 * CuO6	Between Groups	(Combined)	21,183	4	5,296	8,580	0,000
		Linearity	17,742	1	17,742	28,745	0,000

		Deviation from Linearity	3,441	3	1,147	1,859	0,138
	Within Groups		133,934	217	0,617		
	Total		155,117	221			
SBP6 * CuO6	Between Groups	(Combined)	19,379	4	4,845	7,258	0,000
		Linearity	19,165	1	19,165	28,709	0,000
		Deviation from Linearity	0,215	3	0,072	0,107	0,956
	Within Groups		144,859	217	0,668		
	Total		164,239	221			
SBP7 * CuO6	Between Groups	(Combined)	8,529	4	2,132	1,245	0,293
		Linearity	7,874	1	7,874	4,598	0,033
		Deviation from Linearity	0,654	3	0,218	0,127	0,944
	Within Groups		371,670	217	1,713		
	Total		380,198	221			
SBP8 * CuO6	Between Groups	(Combined)	31,193	4	7,798	8,292	0,000
		Linearity	28,568	1	28,568	30,376	0,000
		Deviation from Linearity	2,625	3	0,875	0,930	0,427
	Within Groups		204,086	217	0,940		
	Total		235,279	221			
SBP9 * CuO6	Between Groups	(Combined)	32,698	4	8,174	8,275	0,000
		Linearity	31,761	1	31,761	32,154	0,000
		Deviation from Linearity	0,936	3	0,312	0,316	0,814
	Within Groups		214,352	217	0,988		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CuO7	Between Groups	(Combined)	8,720	4	2,180	1,168	0,326
		Linearity	3,840	1	3,840	2,058	0,153

		Deviation from Linearity	4,880	3	1,627	0,872	0,457
	Within Groups		404,996	217	1,866		
	Total		413,716	221			
PR_2018 * CuO7	Between Groups	(Combined)	43,747	4	10,937	2,114	0,080
		Linearity	34,572	1	34,572	6,682	0,010
		Deviation from Linearity	9,175	3	3,058	0,591	0,621
	Within Groups		1122,708	217	5,174		
	Total		1166,455	221			
SR_5 * CuO7	Between Groups	(Combined)	3,119	4	0,780	1,187	0,318
		Linearity	2,328	1	2,328	3,543	0,061
		Deviation from Linearity	0,791	3	0,264	0,401	0,752
	Within Groups		142,593	217	0,657		
	Total		145,712	221			
PR_5 * CuO7	Between Groups	(Combined)	2,779	4	0,695	0,816	0,516
		Linearity	1,364	1	1,364	1,603	0,207
		Deviation from Linearity	1,415	3	0,472	0,554	0,646
	Within Groups		184,721	217	0,851		
	Total		187,500	221			
SBP1 * CuO7	Between Groups	(Combined)	5,279	4	1,320	1,543	0,191
		Linearity	5,075	1	5,075	5,933	0,016
		Deviation from Linearity	0,204	3	0,068	0,079	0,971
	Within Groups		185,609	217	0,855		
	Total		190,887	221			
SBP2 * CuO7	Between Groups	(Combined)	11,547	4	2,887	2,279	0,062
		Linearity	3,988	1	3,988	3,148	0,077
		Deviation from Linearity	7,559	3	2,520	1,989	0,117
	Within Groups		274,908	217	1,267		

	Total		286,455	221			
SBP3 * CuO7	Between Groups	(Combined)	6,353	4	1,588	1,616	0,171
		Linearity	1,184	1	1,184	1,204	0,274
		Deviation from Linearity	5,169	3	1,723	1,753	0,157
	Within Groups		213,269	217	0,983		
	Total		219,622	221			
SBP4 * CuO7	Between Groups	(Combined)	7,938	4	1,985	1,883	0,114
		Linearity	1,464	1	1,464	1,390	0,240
		Deviation from Linearity	6,474	3	2,158	2,048	0,108
	Within Groups		228,679	217	1,054		
	Total		236,617	221			
SBP5 * CuO7	Between Groups	(Combined)	11,985	4	2,996	4,542	0,002
		Linearity	7,857	1	7,857	11,912	0,001
		Deviation from Linearity	4,127	3	1,376	2,086	0,103
	Within Groups		143,132	217	0,660		
	Total		155,117	221			
SBP6 * CuO7	Between Groups	(Combined)	9,402	4	2,351	3,294	0,012
		Linearity	7,565	1	7,565	10,602	0,001
		Deviation from Linearity	1,837	3	0,612	0,858	0,464
	Within Groups		154,837	217	0,714		
	Total		164,239	221			
SBP7 * CuO7	Between Groups	(Combined)	29,301	4	7,325	4,530	0,002
		Linearity	28,376	1	28,376	17,548	0,000
		Deviation from Linearity	0,925	3	0,308	0,191	0,903
	Within Groups		350,897	217	1,617		
	Total		380,198	221			
SBP8 * CuO7	Between Groups	(Combined)	13,651	4	3,413	3,341	0,011
		Linearity	8,215	1	8,215	8,044	0,005

		Deviation from Linearity	5,435	3	1,812	1,774	0,153
	Within Groups		221,629	217	1,021		
	Total		235,279	221			
SBP9 * CuO7	Between Groups	(Combined)	12,037	4	3,009	2,779	0,028
		Linearity	6,264	1	6,264	5,784	0,017
		Deviation from Linearity	5,773	3	1,924	1,777	0,153
	Within Groups		235,012	217	1,083		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CuO8	Between Groups	(Combined)	18,480	4	4,620	2,537	0,041
		Linearity	14,399	1	14,399	7,906	0,005
		Deviation from Linearity	4,081	3	1,360	0,747	0,525
	Within Groups		395,237	217	1,821		
	Total		413,716	221			
PR_2018 * CuO8	Between Groups	(Combined)	21,407	4	5,352	1,014	0,401
		Linearity	14,157	1	14,157	2,683	0,103
		Deviation from Linearity	7,250	3	2,417	0,458	0,712
	Within Groups		1145,048	217	5,277		
	Total		1166,455	221			
SR_5 * CuO8	Between Groups	(Combined)	4,583	4	1,146	1,762	0,138
		Linearity	3,718	1	3,718	5,717	0,018
		Deviation from Linearity	0,864	3	0,288	0,443	0,723
	Within Groups		141,129	217	0,650		
	Total		145,712	221			
PR_5 * CuO8	Between Groups	(Combined)	8,585	4	2,146	2,603	0,037
		Linearity	4,784	1	4,784	5,803	0,017

		Deviation from Linearity	3,801	3	1,267	1,537	0,206
	Within Groups		178,915	217	0,824		
	Total		187,500	221			
SBP1 * CuO8	Between Groups	(Combined)	9,321	4	2,330	2,785	0,028
		Linearity	8,447	1	8,447	10,096	0,002
		Deviation from Linearity	0,873	3	0,291	0,348	0,791
	Within Groups		181,567	217	0,837		
	Total		190,887	221			
SBP2 * CuO8	Between Groups	(Combined)	32,135	4	8,034	6,855	0,000
		Linearity	29,261	1	29,261	24,967	0,000
		Deviation from Linearity	2,874	3	0,958	0,817	0,485
	Within Groups		254,320	217	1,172		
	Total		286,455	221			
SBP3 * CuO8	Between Groups	(Combined)	19,035	4	4,759	5,148	0,001
		Linearity	16,730	1	16,730	18,099	0,000
		Deviation from Linearity	2,305	3	0,768	0,831	0,478
	Within Groups		200,587	217	0,924		
	Total		219,622	221			
SBP4 * CuO8	Between Groups	(Combined)	21,156	4	5,289	5,327	0,000
		Linearity	17,896	1	17,896	18,024	0,000
		Deviation from Linearity	3,260	3	1,087	1,094	0,352
	Within Groups		215,461	217	0,993		
	Total		236,617	221			
SBP5 * CuO8	Between Groups	(Combined)	18,008	4	4,502	7,125	0,000
		Linearity	15,174	1	15,174	24,016	0,000
		Deviation from Linearity	2,834	3	0,945	1,495	0,217
	Within Groups		137,109	217	0,632		

	Total		155,117	221			
SBP6 * CuO8	Between Groups	(Combined)	11,889	4	2,972	4,233	0,003
		Linearity	11,466	1	11,466	16,332	0,000
		Deviation from Linearity	0,422	3	0,141	0,200	0,896
	Within Groups		152,350	217	0,702		
	Total		164,239	221			
SBP7 * CuO8	Between Groups	(Combined)	7,530	4	1,882	1,096	0,359
		Linearity	3,467	1	3,467	2,019	0,157
		Deviation from Linearity	4,063	3	1,354	0,789	0,501
	Within Groups		372,669	217	1,717		
	Total		380,198	221			
SBP8 * CuO8	Between Groups	(Combined)	18,177	4	4,544	4,542	0,002
		Linearity	15,591	1	15,591	15,584	0,000
		Deviation from Linearity	2,586	3	0,862	0,862	0,462
	Within Groups		217,102	217	1,000		
	Total		235,279	221			
SBP9 * CuO8	Between Groups	(Combined)	19,034	4	4,759	4,529	0,002
		Linearity	18,486	1	18,486	17,593	0,000
		Deviation from Linearity	0,548	3	0,183	0,174	0,914
	Within Groups		228,015	217	1,051		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CuO9	Between Groups	(Combined)	5,457	4	1,364	0,725	0,576
		Linearity	0,720	1	0,720	0,382	0,537
		Deviation from Linearity	4,738	3	1,579	0,839	0,474
	Within Groups		408,259	217	1,881		
	Total		413,716	221			

PR_2018 * CuO9	Between Groups	(Combined)	24,568	4	6,142	1,167	0,326
		Linearity	13,853	1	13,853	2,633	0,106
		Deviation from Linearity	10,715	3	3,572	0,679	0,566
	Within Groups		1141,887	217	5,262		
	Total		1166,455	221			
SR_5 * CuO9	Between Groups	(Combined)	6,680	4	1,670	2,607	0,037
		Linearity	2,772	1	2,772	4,326	0,039
		Deviation from Linearity	3,908	3	1,303	2,033	0,110
	Within Groups		139,032	217	0,641		
	Total		145,712	221			
PR_5 * CuO9	Between Groups	(Combined)	1,567	4	0,392	0,457	0,767
		Linearity	0,358	1	0,358	0,418	0,519
		Deviation from Linearity	1,209	3	0,403	0,470	0,703
	Within Groups		185,933	217	0,857		
	Total		187,500	221			
SBP1 * CuO9	Between Groups	(Combined)	8,104	4	2,026	2,405	0,051
		Linearity	6,204	1	6,204	7,365	0,007
		Deviation from Linearity	1,900	3	0,633	0,752	0,522
	Within Groups		182,783	217	0,842		
	Total		190,887	221			
SBP2 * CuO9	Between Groups	(Combined)	14,750	4	3,688	2,945	0,021
		Linearity	11,786	1	11,786	9,413	0,002
		Deviation from Linearity	2,964	3	0,988	0,789	0,501
	Within Groups		271,705	217	1,252		
	Total		286,455	221			
SBP3 * CuO9	Between Groups	(Combined)	5,828	4	1,457	1,479	0,210
		Linearity	0,197	1	0,197	0,200	0,655

		Deviation from Linearity	5,631	3	1,877	1,905	0,130
	Within Groups		213,794	217	0,985		
	Total		219,622	221			
SBP4 * CuO9	Between Groups	(Combined)	6,102	4	1,526	1,436	0,223
		Linearity	0,340	1	0,340	0,320	0,572
		Deviation from Linearity	5,762	3	1,921	1,808	0,147
	Within Groups		230,515	217	1,062		
	Total		236,617	221			
SBP5 * CuO9	Between Groups	(Combined)	12,818	4	3,204	4,887	0,001
		Linearity	7,417	1	7,417	11,311	0,001
		Deviation from Linearity	5,400	3	1,800	2,745	0,044
	Within Groups		142,299	217	0,656		
	Total		155,117	221			
SBP6 * CuO9	Between Groups	(Combined)	11,433	4	2,858	4,059	0,003
		Linearity	8,996	1	8,996	12,775	0,000
		Deviation from Linearity	2,438	3	0,813	1,154	0,328
	Within Groups		152,805	217	0,704		
	Total		164,239	221			
SBP7 * CuO9	Between Groups	(Combined)	13,361	4	3,340	1,976	0,099
		Linearity	4,391	1	4,391	2,598	0,108
		Deviation from Linearity	8,970	3	2,990	1,769	0,154
	Within Groups		366,837	217	1,690		
	Total		380,198	221			
SBP8 * CuO9	Between Groups	(Combined)	18,506	4	4,626	4,631	0,001
		Linearity	14,532	1	14,532	14,547	0,000
		Deviation from Linearity	3,974	3	1,325	1,326	0,267
	Within Groups		216,774	217	0,999		

	Total		235,279	221			
SBP9 * CuO9	Between Groups	(Combined)	11,168	4	2,792	2,568	0,039
		Linearity	4,479	1	4,479	4,120	0,044
		Deviation from Linearity	6,689	3	2,230	2,051	0,108
	Within Groups		235,882	217	1,087		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CuO10	Between Groups	(Combined)	5,122	4	1,281	0,680	0,606
		Linearity	0,332	1	0,332	0,176	0,675
		Deviation from Linearity	4,790	3	1,597	0,848	0,469
	Within Groups		408,594	217	1,883		
	Total		413,716	221			
PR_2018 * CuO1o	Between Groups	(Combined)	6,856	4	1,714	0,321	0,864
		Linearity	1,823	1	1,823	0,341	0,560
		Deviation from Linearity	5,032	3	1,677	0,314	0,815
	Within Groups		1159,599	217	5,344		
	Total		1166,455	221			
SR_5 * CuO10	Between Groups	(Combined)	6,015	4	1,504	2,336	0,057
		Linearity	3,424	1	3,424	5,318	0,022
		Deviation from Linearity	2,591	3	0,864	1,342	0,262
	Within Groups		139,697	217	0,644		
	Total		145,712	221			
PR_5 * CuO10	Between Groups	(Combined)	5,643	4	1,411	1,683	0,155
		Linearity	1,289	1	1,289	1,538	0,216
		Deviation from Linearity	4,354	3	1,451	1,732	0,161
	Within Groups		181,857	217	0,838		
	Total		187,500	221			

SBP1 * CuO10	Between Groups	(Combined)	9,397	4	2,349	2,809	0,027
		Linearity	3,801	1	3,801	4,545	0,034
		Deviation from Linearity	5,596	3	1,865	2,230	0,086
	Within Groups		181,490	217	0,836		
	Total		190,887	221			
SBP2 * CuO10	Between Groups	(Combined)	23,723	4	5,931	4,898	0,001
		Linearity	21,994	1	21,994	18,166	0,000
		Deviation from Linearity	1,728	3	0,576	0,476	0,699
	Within Groups		262,732	217	1,211		
	Total		286,455	221			
SBP3 * CuO10	Between Groups	(Combined)	8,933	4	2,233	2,300	0,060
		Linearity	8,166	1	8,166	8,410	0,004
		Deviation from Linearity	0,767	3	0,256	0,263	0,852
	Within Groups		210,689	217	0,971		
	Total		219,622	221			
SBP4 * CuO10	Between Groups	(Combined)	8,174	4	2,044	1,941	0,105
		Linearity	6,692	1	6,692	6,356	0,012
		Deviation from Linearity	1,483	3	0,494	0,470	0,704
	Within Groups		228,443	217	1,053		
	Total		236,617	221			
SBP5 * CuO10	Between Groups	(Combined)	9,519	4	2,380	3,547	0,008
		Linearity	6,534	1	6,534	9,738	0,002
		Deviation from Linearity	2,986	3	0,995	1,483	0,220
	Within Groups		145,598	217	0,671		
	Total		155,117	221			
SBP6 * CuO10	Between Groups	(Combined)	8,645	4	2,161	3,014	0,019
		Linearity	6,478	1	6,478	9,035	0,003

		Deviation from Linearity	2,167	3	0,722	1,007	0,390
	Within Groups		155,593	217	0,717		
	Total		164,239	221			
SBP7 * CuO10	Between Groups	(Combined)	13,701	4	3,425	2,028	0,092
		Linearity	9,753	1	9,753	5,775	0,017
		Deviation from Linearity	3,948	3	1,316	0,779	0,507
	Within Groups		366,497	217	1,689		
	Total		380,198	221			
SBP8 * CuO10	Between Groups	(Combined)	11,453	4	2,863	2,776	0,028
		Linearity	8,979	1	8,979	8,706	0,004
		Deviation from Linearity	2,474	3	0,825	0,800	0,495
	Within Groups		223,826	217	1,031		
	Total		235,279	221			
SBP9 * CuO10	Between Groups	(Combined)	15,462	4	3,866	3,622	0,007
		Linearity	12,353	1	12,353	11,575	0,001
		Deviation from Linearity	3,110	3	1,037	0,971	0,407
	Within Groups		231,587	217	1,067		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CuO11	Between Groups	(Combined)	4,178	4	1,044	0,553	0,697
		Linearity	2,118	1	2,118	1,122	0,291
		Deviation from Linearity	2,060	3	0,687	0,364	0,779
	Within Groups		409,538	217	1,887		
	Total		413,716	221			
PR_2018 * CuO11	Between Groups	(Combined)	50,901	4	12,725	2,475	0,045
		Linearity	8,892	1	8,892	1,730	0,190

		Deviation from Linearity	42,009	3	14,003	2,724	0,045
	Within Groups		1115,554	217	5,141		
	Total		1166,455	221			
SR_5 * CuO11	Between Groups	(Combined)	5,619	4	1,405	2,176	0,073
		Linearity	1,456	1	1,456	2,255	0,135
		Deviation from Linearity	4,164	3	1,388	2,150	0,095
	Within Groups		140,092	217	0,646		
	Total		145,712	221			
PR_5 * CuO11	Between Groups	(Combined)	5,468	4	1,367	1,630	0,168
		Linearity	0,522	1	0,522	0,622	0,431
		Deviation from Linearity	4,946	3	1,649	1,965	0,120
	Within Groups		182,032	217	0,839		
	Total		187,500	221			
SBP1 * CuO11	Between Groups	(Combined)	1,940	4	0,485	0,557	0,694
		Linearity	1,474	1	1,474	1,693	0,195
		Deviation from Linearity	0,466	3	0,155	0,179	0,911
	Within Groups		188,947	217	0,871		
	Total		190,887	221			
SBP2 * CuO11	Between Groups	(Combined)	11,771	4	2,943	2,325	0,058
		Linearity	8,378	1	8,378	6,619	0,011
		Deviation from Linearity	3,393	3	1,131	0,893	0,445
	Within Groups		274,684	217	1,266		
	Total		286,455	221			
SBP3 * CuO11	Between Groups	(Combined)	14,270	4	3,567	3,770	0,005
		Linearity	10,017	1	10,017	10,585	0,001
		Deviation from Linearity	4,253	3	1,418	1,498	0,216
	Within Groups		205,352	217	0,946		

	Total		219,622	221			
SBP4 * CuO11	Between Groups	(Combined)	14,305	4	3,576	3,491	0,009
		Linearity	8,615	1	8,615	8,409	0,004
		Deviation from Linearity	5,690	3	1,897	1,851	0,139
	Within Groups		222,312	217	1,024		
	Total		236,617	221			
SBP5 * CuO11	Between Groups	(Combined)	5,234	4	1,309	1,895	0,112
		Linearity	3,724	1	3,724	5,392	0,021
		Deviation from Linearity	1,510	3	0,503	0,729	0,536
	Within Groups		149,883	217	0,691		
	Total		155,117	221			
SBP6 * CuO11	Between Groups	(Combined)	4,474	4	1,119	1,519	0,198
		Linearity	3,814	1	3,814	5,181	0,024
		Deviation from Linearity	0,660	3	0,220	0,299	0,826
	Within Groups		159,764	217	0,736		
	Total		164,239	221			
SBP7 * CuO11	Between Groups	(Combined)	13,781	4	3,445	2,040	0,090
		Linearity	5,350	1	5,350	3,169	0,076
		Deviation from Linearity	8,431	3	2,810	1,664	0,176
	Within Groups		366,417	217	1,689		
	Total		380,198	221			
SBP8 * CuO11	Between Groups	(Combined)	25,154	4	6,288	6,494	0,000
		Linearity	24,312	1	24,312	25,108	0,000
		Deviation from Linearity	0,841	3	0,280	0,290	0,833
	Within Groups		210,126	217	0,968		
	Total		235,279	221			
SBP9 * CuO11	Between Groups	(Combined)	17,760	4	4,440	4,202	0,003
		Linearity	16,601	1	16,601	15,711	0,000

		Deviation from Linearity	1,160	3	0,387	0,366	0,778
	Within Groups		229,289	217	1,057		
	Total		247,050	221			
Competitor orientation							
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CoO1	Between Groups	(Combined)	6,405	4	1,601	0,853	0,493
		Linearity	0,530	1	0,530	0,282	0,596
		Deviation from Linearity	5,875	3	1,958	1,043	0,374
	Within Groups		407,311	217	1,877		
	Total		413,716	221			
PR_2018 * CoO1	Between Groups	(Combined)	49,752	4	12,438	2,417	0,050
		Linearity	28,573	1	28,573	5,552	0,019
		Deviation from Linearity	21,178	3	7,059	1,372	0,252
	Within Groups		1116,703	217	5,146		
	Total		1166,455	221			
SR_5 * CoO1	Between Groups	(Combined)	3,293	4	0,823	1,255	0,289
		Linearity	1,646	1	1,646	2,508	0,115
		Deviation from Linearity	1,647	3	0,549	0,837	0,475
	Within Groups		142,418	217	0,656		
	Total		145,712	221			
PR_5_years * CoO1	Between Groups	(Combined)	2,330	4	0,582	0,683	0,605
		Linearity	0,337	1	0,337	0,395	0,530
		Deviation from Linearity	1,993	3	0,664	0,778	0,507
	Within Groups		185,170	217	0,853		
	Total		187,500	221			
SBP1 * CoO1	Between Groups	(Combined)	1,166	4	0,291	0,333	0,855
		Linearity	0,009	1	0,009	0,010	0,921

		Deviation from Linearity	1,157	3	0,386	0,441	0,724
	Within Groups		189,722	217	0,874		
	Total		190,887	221			
SBP2 * CoO1	Between Groups	(Combined)	4,572	4	1,143	0,880	0,477
		Linearity	1,984	1	1,984	1,527	0,218
		Deviation from Linearity	2,588	3	0,863	0,664	0,575
	Within Groups		281,883	217	1,299		
	Total		286,455	221			
SBP3 * CoO1	Between Groups	(Combined)	6,557	4	1,639	1,670	0,158
		Linearity	3,990	1	3,990	4,064	0,045
		Deviation from Linearity	2,567	3	0,856	0,872	0,457
	Within Groups		213,065	217	0,982		
	Total		219,622	221			
SBP4 * CoO1	Between Groups	(Combined)	4,998	4	1,250	1,171	0,325
		Linearity	1,849	1	1,849	1,733	0,189
		Deviation from Linearity	3,149	3	1,050	0,983	0,401
	Within Groups		231,619	217	1,067		
	Total		236,617	221			
SBP5 * CoO1	Between Groups	(Combined)	4,952	4	1,238	1,789	0,132
		Linearity	0,052	1	0,052	0,074	0,785
		Deviation from Linearity	4,900	3	1,633	2,360	0,072
	Within Groups		150,166	217	0,692		
	Total		155,117	221			
SBP6 * CoO1	Between Groups	(Combined)	3,287	4	0,822	1,108	0,354
		Linearity	0,626	1	0,626	0,844	0,359
		Deviation from Linearity	2,660	3	0,887	1,196	0,312
	Within Groups		160,952	217	0,742		

	Total		164,239	221			
SBP7 * CoO1	Between Groups	(Combined)	7,289	4	1,822	1,060	0,377
		Linearity	0,452	1	0,452	0,263	0,608
		Deviation from Linearity	6,836	3	2,279	1,326	0,267
	Within Groups		372,909	217	1,718		
	Total		380,198	221			
SBP8 * CoO1	Between Groups	(Combined)	10,543	4	2,636	2,545	0,041
		Linearity	4,626	1	4,626	4,466	0,036
		Deviation from Linearity	5,917	3	1,972	1,904	0,130
	Within Groups		224,737	217	1,036		
	Total		235,279	221			
SBP9 * CoO1	Between Groups	(Combined)	14,235	4	3,559	3,317	0,012
		Linearity	12,870	1	12,870	11,996	0,001
		Deviation from Linearity	1,365	3	0,455	0,424	0,736
	Within Groups		232,814	217	1,073		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CoO2	Between Groups	(Combined)	7,235	4	1,809	0,966	0,427
		Linearity	2,171	1	2,171	1,159	0,283
		Deviation from Linearity	5,064	3	1,688	0,901	0,441
	Within Groups		406,482	217	1,873		
	Total		413,716	221			
PR_2018 * CoO2	Between Groups	(Combined)	25,652	4	6,413	1,220	0,303
		Linearity	23,251	1	23,251	4,423	0,037
		Deviation from Linearity	2,401	3	0,800	0,152	0,928
	Within Groups		1140,803	217	5,257		
	Total		1166,455	221			

SR_5 * CoO2	Between Groups	(Combined)	5,906	4	1,476	2,292	0,061
		Linearity	4,503	1	4,503	6,990	0,009
		Deviation from Linearity	1,402	3	0,467	0,726	0,538
	Within Groups		139,806	217	0,644		
	Total		145,712	221			
PR_5_years * CoO2	Between Groups	(Combined)	3,852	4	0,963	1,138	0,340
		Linearity	0,032	1	0,032	0,038	0,846
		Deviation from Linearity	3,819	3	1,273	1,504	0,214
	Within Groups		183,648	217	0,846		
	Total		187,500	221			
SBP1 * CoO2	Between Groups	(Combined)	4,415	4	1,104	1,285	0,277
		Linearity	1,548	1	1,548	1,802	0,181
		Deviation from Linearity	2,867	3	0,956	1,112	0,345
	Within Groups		186,472	217	0,859		
	Total		190,887	221			
SBP2 * CoO2	Between Groups	(Combined)	2,535	4	0,634	0,484	0,747
		Linearity	1,461	1	1,461	1,117	0,292
		Deviation from Linearity	1,074	3	0,358	0,274	0,844
	Within Groups		283,920	217	1,308		
	Total		286,455	221			
SBP3 * CoO2	Between Groups	(Combined)	2,146	4	0,537	0,535	0,710
		Linearity	1,688	1	1,688	1,684	0,196
		Deviation from Linearity	0,459	3	0,153	0,153	0,928
	Within Groups		217,475	217	1,002		
	Total		219,622	221			
SBP4 * CoO2	Between Groups	(Combined)	3,306	4	0,827	0,769	0,547
		Linearity	2,219	1	2,219	2,064	0,152

		Deviation from Linearity	1,088	3	0,363	0,337	0,798
	Within Groups		233,311	217	1,075		
	Total		236,617	221			
SBP5 * CoO2	Between Groups	(Combined)	2,649	4	0,662	0,943	0,440
		Linearity	2,238	1	2,238	3,185	0,076
		Deviation from Linearity	0,411	3	0,137	0,195	0,900
	Within Groups		152,468	217	0,703		
	Total		155,117	221			
SBP6 * CoO2	Between Groups	(Combined)	3,246	4	0,812	1,094	0,360
		Linearity	2,720	1	2,720	3,666	0,057
		Deviation from Linearity	0,526	3	0,175	0,236	0,871
	Within Groups		160,992	217	0,742		
	Total		164,239	221			
SBP7 * CoO2	Between Groups	(Combined)	8,380	4	2,095	1,223	0,302
		Linearity	2,667	1	2,667	1,557	0,214
		Deviation from Linearity	5,713	3	1,904	1,111	0,345
	Within Groups		371,818	217	1,713		
	Total		380,198	221			
SBP8 * CoO2	Between Groups	(Combined)	9,417	4	2,354	2,262	0,064
		Linearity	6,894	1	6,894	6,623	0,011
		Deviation from Linearity	2,523	3	0,841	0,808	0,491
	Within Groups		225,862	217	1,041		
	Total		235,279	221			
SBP9 * CoO2	Between Groups	(Combined)	8,501	4	2,125	1,933	0,106
		Linearity	7,004	1	7,004	6,372	0,012
		Deviation from Linearity	1,496	3	0,499	0,454	0,715
	Within Groups		238,549	217	1,099		

	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CoO3	Between Groups	(Combined)	5,969	4	1,492	0,794	0,530
		Linearity	0,000	1	0,000	0,000	0,990
		Deviation from Linearity	5,969	3	1,990	1,059	0,367
	Within Groups		407,747	217	1,879		
	Total		413,716	221			
PR_2018 * CoO3	Between Groups	(Combined)	43,592	4	10,898	2,106	0,081
		Linearity	15,937	1	15,937	3,080	0,081
		Deviation from Linearity	27,655	3	9,218	1,782	0,152
	Within Groups		1122,863	217	5,174		
	Total		1166,455	221			
SR_5 * CoO3	Between Groups	(Combined)	0,591	4	0,148	0,221	0,927
		Linearity	0,174	1	0,174	0,261	0,610
		Deviation from Linearity	0,417	3	0,139	0,208	0,891
	Within Groups		145,121	217	0,669		
	Total		145,712	221			
PR_5_years * CoO3	Between Groups	(Combined)	3,547	4	0,887	1,046	0,384
		Linearity	2,335	1	2,335	2,755	0,098
		Deviation from Linearity	1,211	3	0,404	0,476	0,699
	Within Groups		183,953	217	0,848		
	Total		187,500	221			
SBP1 * CoO3	Between Groups	(Combined)	1,175	4	0,294	0,336	0,853
		Linearity	0,054	1	0,054	0,062	0,804
		Deviation from Linearity	1,121	3	0,374	0,427	0,734
	Within Groups		189,712	217	0,874		
	Total		190,887	221			

SBP2 * CoO3	Between Groups	(Combined)	5,837	4	1,459	1,128	0,344
		Linearity	2,697	1	2,697	2,085	0,150
		Deviation from Linearity	3,141	3	1,047	0,810	0,490
	Within Groups		280,618	217	1,293		
	Total		286,455	221			
SBP3 * CoO3	Between Groups	(Combined)	9,450	4	2,363	2,439	0,048
		Linearity	4,997	1	4,997	5,159	0,024
		Deviation from Linearity	4,454	3	1,485	1,533	0,207
	Within Groups		210,172	217	0,969		
	Total		219,622	221			
SBP4 * CoO3	Between Groups	(Combined)	2,360	4	0,590	0,547	0,702
		Linearity	2,142	1	2,142	1,984	0,160
		Deviation from Linearity	0,218	3	0,073	0,067	0,977
	Within Groups		234,257	217	1,080		
	Total		236,617	221			
SBP5 * CoO3	Between Groups	(Combined)	2,389	4	0,597	0,849	0,496
		Linearity	0,010	1	0,010	0,015	0,904
		Deviation from Linearity	2,379	3	0,793	1,127	0,339
	Within Groups		152,728	217	0,704		
	Total		155,117	221			
SBP6 * CoO3	Between Groups	(Combined)	2,444	4	0,611	0,820	0,514
		Linearity	0,136	1	0,136	0,183	0,670
		Deviation from Linearity	2,308	3	0,769	1,032	0,379
	Within Groups		161,794	217	0,746		
	Total		164,239	221			
SBP7 * CoO3	Between Groups	(Combined)	13,037	4	3,259	1,926	0,107
		Linearity	1,699	1	1,699	1,004	0,317

		Deviation from Linearity	11,337	3	3,779	2,234	0,085
	Within Groups		367,161	217	1,692		
	Total		380,198	221			
SBP8 * CoO3	Between Groups	(Combined)	3,745	4	0,936	0,878	0,478
		Linearity	1,036	1	1,036	0,971	0,326
		Deviation from Linearity	2,710	3	0,903	0,847	0,470
	Within Groups		231,534	217	1,067		
	Total		235,279	221			
SBP9 * CoO3	Between Groups	(Combined)	3,731	4	0,933	0,832	0,506
		Linearity	2,640	1	2,640	2,354	0,126
		Deviation from Linearity	1,091	3	0,364	0,324	0,808
	Within Groups		243,318	217	1,121		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CoO4	Between Groups	(Combined)	7,083	4	1,771	0,945	0,439
		Linearity	0,002	1	0,002	0,001	0,975
		Deviation from Linearity	7,081	3	2,360	1,260	0,289
	Within Groups		406,633	217	1,874		
	Total		413,716	221			
PR_2018 * CoO4	Between Groups	(Combined)	50,038	4	12,510	2,432	0,049
		Linearity	45,655	1	45,655	8,874	0,003
		Deviation from Linearity	4,383	3	1,461	0,284	0,837
	Within Groups		1116,417	217	5,145		
	Total		1166,455	221			
SR_5 * CoO4	Between Groups	(Combined)	4,815	4	1,204	1,854	0,120
		Linearity	0,188	1	0,188	0,289	0,591

		Deviation from Linearity	4,627	3	1,542	2,376	0,071
	Within Groups		140,896	217	0,649		
	Total		145,712	221			
PR_5_years * CoO4	Between Groups	(Combined)	3,370	4	0,842	0,993	0,412
		Linearity	0,473	1	0,473	0,557	0,456
		Deviation from Linearity	2,897	3	0,966	1,138	0,335
	Within Groups		184,130	217	0,849		
	Total		187,500	221			
SBP1 * CoO4	Between Groups	(Combined)	5,783	4	1,446	1,695	0,152
		Linearity	2,900	1	2,900	3,400	0,067
		Deviation from Linearity	2,883	3	0,961	1,127	0,339
	Within Groups		185,104	217	0,853		
	Total		190,887	221			
SBP2 * CoO4	Between Groups	(Combined)	3,477	4	0,869	0,667	0,616
		Linearity	0,723	1	0,723	0,555	0,457
		Deviation from Linearity	2,754	3	0,918	0,704	0,551
	Within Groups		282,978	217	1,304		
	Total		286,455	221			
SBP3 * CoO4	Between Groups	(Combined)	4,028	4	1,007	1,014	0,401
		Linearity	1,424	1	1,424	1,434	0,232
		Deviation from Linearity	2,604	3	0,868	0,874	0,456
	Within Groups		215,593	217	0,994		
	Total		219,622	221			
SBP4 * CoO4	Between Groups	(Combined)	4,364	4	1,091	1,019	0,398
		Linearity	1,973	1	1,973	1,844	0,176
		Deviation from Linearity	2,391	3	0,797	0,745	0,527
	Within Groups		232,253	217	1,070		

	Total		236,617	221			
SBP5 * CoO4	Between Groups	(Combined)	0,841	4	0,210	0,296	0,881
		Linearity	0,033	1	0,033	0,046	0,830
		Deviation from Linearity	0,808	3	0,269	0,379	0,768
	Within Groups		154,276	217	0,711		
	Total		155,117	221			
SBP6 * CoO4	Between Groups	(Combined)	1,910	4	0,478	0,638	0,636
		Linearity	0,061	1	0,061	0,081	0,776
		Deviation from Linearity	1,850	3	0,617	0,824	0,482
	Within Groups		162,328	217	0,748		
	Total		164,239	221			
SBP7 * CoO4	Between Groups	(Combined)	11,426	4	2,856	1,681	0,155
		Linearity	6,364	1	6,364	3,745	0,054
		Deviation from Linearity	5,062	3	1,687	0,993	0,397
	Within Groups		368,772	217	1,699		
	Total		380,198	221			
SBP8 * CoO4	Between Groups	(Combined)	3,808	4	0,952	0,892	0,469
		Linearity	1,580	1	1,580	1,481	0,225
		Deviation from Linearity	2,228	3	0,743	0,696	0,555
	Within Groups		231,472	217	1,067		
	Total		235,279	221			
SBP9 * CoO4	Between Groups	(Combined)	8,468	4	2,117	1,926	0,107
		Linearity	6,278	1	6,278	5,710	0,018
		Deviation from Linearity	2,190	3	0,730	0,664	0,575
	Within Groups		238,581	217	1,099		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.

SR_2018 * CoO5	Between Groups	(Combined)	4,703	4	1,176	0,624	0,646
		Linearity	0,033	1	0,033	0,017	0,896
		Deviation from Linearity	4,671	3	1,557	0,826	0,481
	Within Groups		409,013	217	1,885		
	Total		413,716	221			
PR_2018 * CoO5	Between Groups	(Combined)	26,651	4	6,663	1,268	0,283
		Linearity	15,194	1	15,194	2,893	0,090
		Deviation from Linearity	11,457	3	3,819	0,727	0,537
	Within Groups		1139,804	217	5,253		
	Total		1166,455	221			
SR_5 * CoO5	Between Groups	(Combined)	1,652	4	0,413	0,622	0,647
		Linearity	1,356	1	1,356	2,043	0,154
		Deviation from Linearity	0,295	3	0,098	0,148	0,931
	Within Groups		144,060	217	0,664		
	Total		145,712	221			
PR_5_years * CoO5	Between Groups	(Combined)	3,424	4	0,856	1,009	0,404
		Linearity	0,340	1	0,340	0,401	0,527
		Deviation from Linearity	3,084	3	1,028	1,212	0,306
	Within Groups		184,076	217	0,848		
	Total		187,500	221			
SBP1 * CoO5	Between Groups	(Combined)	5,137	4	1,284	1,500	0,203
		Linearity	2,861	1	2,861	3,343	0,069
		Deviation from Linearity	2,276	3	0,759	0,886	0,449
	Within Groups		185,750	217	0,856		
	Total		190,887	221			
SBP2 * CoO5	Between Groups	(Combined)	9,320	4	2,330	1,824	0,125
		Linearity	5,095	1	5,095	3,989	0,047

		Deviation from Linearity	4,225	3	1,408	1,103	0,349
	Within Groups		277,135	217	1,277		
	Total		286,455	221			
SBP3 * CoO5	Between Groups	(Combined)	8,582	4	2,145	2,206	0,069
		Linearity	0,073	1	0,073	0,075	0,785
		Deviation from Linearity	8,509	3	2,836	2,916	0,035
	Within Groups		211,040	217	0,973		
	Total		219,622	221			
SBP4 * CoO5	Between Groups	(Combined)	12,602	4	3,150	3,052	0,018
		Linearity	0,093	1	0,093	0,090	0,765
		Deviation from Linearity	12,509	3	4,170	4,039	0,008
	Within Groups		224,015	217	1,032		
	Total		236,617	221			
SBP5 * CoO5	Between Groups	(Combined)	3,001	4	0,750	1,070	0,372
		Linearity	0,289	1	0,289	0,412	0,521
		Deviation from Linearity	2,712	3	0,904	1,289	0,279
	Within Groups		152,116	217	0,701		
	Total		155,117	221			
SBP6 * CoO5	Between Groups	(Combined)	2,936	4	0,734	0,987	0,415
		Linearity	0,596	1	0,596	0,802	0,371
		Deviation from Linearity	2,339	3	0,780	1,049	0,372
	Within Groups		161,303	217	0,743		
	Total		164,239	221			
SBP7 * CoO5	Between Groups	(Combined)	3,493	4	0,873	0,503	0,734
		Linearity	0,053	1	0,053	0,031	0,861
		Deviation from Linearity	3,440	3	1,147	0,660	0,577
	Within Groups		376,705	217	1,736		

	Total		380,198	221			
SBP8 * CoO5	Between Groups	(Combined)	9,036	4	2,259	2,167	0,074
		Linearity	4,669	1	4,669	4,479	0,035
		Deviation from Linearity	4,367	3	1,456	1,396	0,245
	Within Groups		226,243	217	1,043		
	Total		235,279	221			
SBP9 * CoO5	Between Groups	(Combined)	9,835	4	2,459	2,249	0,065
		Linearity	8,419	1	8,419	7,702	0,006
		Deviation from Linearity	1,416	3	0,472	0,432	0,730
	Within Groups		237,214	217	1,093		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CoO6	Between Groups	(Combined)	1,267	4	0,317	0,167	0,955
		Linearity	0,192	1	0,192	0,101	0,751
		Deviation from Linearity	1,075	3	0,358	0,189	0,904
	Within Groups		412,449	217	1,901		
	Total		413,716	221			
PR_2018 * CoO6	Between Groups	(Combined)	38,069	4	9,517	1,830	0,124
		Linearity	23,713	1	23,713	4,560	0,034
		Deviation from Linearity	14,356	3	4,785	0,920	0,432
	Within Groups		1128,386	217	5,200		
	Total		1166,455	221			
SR_5 * CoO6	Between Groups	(Combined)	3,942	4	0,986	1,509	0,201
		Linearity	3,476	1	3,476	5,321	0,022
		Deviation from Linearity	0,466	3	0,155	0,238	0,870
	Within Groups		141,769	217	0,653		
	Total		145,712	221			

PR_5_years * CoO6	Between Groups	(Combined)	1,343	4	0,336	0,391	0,815
		Linearity	0,972	1	0,972	1,133	0,288
		Deviation from Linearity	0,371	3	0,124	0,144	0,933
	Within Groups		186,157	217	0,858		
	Total		187,500	221			
SBP1 * CoO6	Between Groups	(Combined)	7,812	4	1,953	2,315	0,058
		Linearity	2,404	1	2,404	2,850	0,093
		Deviation from Linearity	5,408	3	1,803	2,137	0,097
	Within Groups		183,075	217	0,844		
	Total		190,887	221			
SBP2 * CoO6	Between Groups	(Combined)	7,784	4	1,946	1,515	0,199
		Linearity	5,893	1	5,893	4,589	0,033
		Deviation from Linearity	1,891	3	0,630	0,491	0,689
	Within Groups		278,671	217	1,284		
	Total		286,455	221			
SBP3 * CoO6	Between Groups	(Combined)	5,581	4	1,395	1,415	0,230
		Linearity	1,575	1	1,575	1,597	0,208
		Deviation from Linearity	4,006	3	1,335	1,354	0,258
	Within Groups		214,041	217	0,986		
	Total		219,622	221			
SBP4 * CoO6	Between Groups	(Combined)	5,886	4	1,472	1,384	0,240
		Linearity	1,580	1	1,580	1,486	0,224
		Deviation from Linearity	4,306	3	1,435	1,350	0,259
	Within Groups		230,731	217	1,063		
	Total		236,617	221			
SBP5 * CoO6	Between Groups	(Combined)	4,093	4	1,023	1,470	0,212
		Linearity	1,913	1	1,913	2,748	0,099

		Deviation from Linearity	2,180	3	0,727	1,044	0,374
	Within Groups		151,024	217	0,696		
	Total		155,117	221			
SBP6 * CoO6	Between Groups	(Combined)	6,604	4	1,651	2,273	0,062
		Linearity	5,065	1	5,065	6,973	0,009
		Deviation from Linearity	1,538	3	0,513	0,706	0,549
	Within Groups		157,635	217	0,726		
	Total		164,239	221			
SBP7 * CoO6	Between Groups	(Combined)	5,643	4	1,411	0,817	0,515
		Linearity	0,537	1	0,537	0,311	0,578
		Deviation from Linearity	5,107	3	1,702	0,986	0,400
	Within Groups		374,555	217	1,726		
	Total		380,198	221			
SBP8 * CoO6	Between Groups	(Combined)	8,674	4	2,169	2,077	0,085
		Linearity	4,982	1	4,982	4,770	0,030
		Deviation from Linearity	3,693	3	1,231	1,179	0,319
	Within Groups		226,605	217	1,044		
	Total		235,279	221			
SBP9 * CoO6	Between Groups	(Combined)	12,133	4	3,033	2,802	0,027
		Linearity	9,733	1	9,733	8,990	0,003
		Deviation from Linearity	2,400	3	0,800	0,739	0,530
	Within Groups		234,916	217	1,083		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * CoO7	Between Groups	(Combined)	3,333	4	0,833	0,441	0,779
		Linearity	1,158	1	1,158	0,612	0,435

		Deviation from Linearity	2,175	3	0,725	0,383	0,765
	Within Groups		410,383	217	1,891		
	Total		413,716	221			
PR_2018 * CoO7	Between Groups	(Combined)	30,121	4	7,530	1,438	0,222
		Linearity	16,978	1	16,978	3,242	0,073
		Deviation from Linearity	13,142	3	4,381	0,837	0,475
	Within Groups		1136,334	217	5,237		
	Total		1166,455	221			
SR_5 * CoO7	Between Groups	(Combined)	5,238	4	1,310	2,023	0,092
		Linearity	3,613	1	3,613	5,581	0,019
		Deviation from Linearity	1,625	3	0,542	0,837	0,475
	Within Groups		140,473	217	0,647		
	Total		145,712	221			
PR_5_years * CoO7	Between Groups	(Combined)	1,683	4	0,421	0,491	0,742
		Linearity	0,416	1	0,416	0,485	0,487
		Deviation from Linearity	1,267	3	0,422	0,493	0,687
	Within Groups		185,817	217	0,856		
	Total		187,500	221			
SBP1 * CoO7	Between Groups	(Combined)	6,034	4	1,508	1,771	0,136
		Linearity	3,101	1	3,101	3,641	0,058
		Deviation from Linearity	2,932	3	0,977	1,147	0,331
	Within Groups		184,854	217	0,852		
	Total		190,887	221			
SBP2 * CoO7	Between Groups	(Combined)	22,422	4	5,605	4,607	0,001
		Linearity	16,706	1	16,706	13,730	0,000
		Deviation from Linearity	5,716	3	1,905	1,566	0,199
	Within Groups		264,033	217	1,217		

	Total		286,455	221			
SBP3 * CoO7	Between Groups	(Combined)	10,591	4	2,648	2,749	0,029
		Linearity	5,815	1	5,815	6,036	0,015
		Deviation from Linearity	4,776	3	1,592	1,653	0,178
	Within Groups		209,031	217	0,963		
	Total		219,622	221			
SBP4 * CoO7	Between Groups	(Combined)	9,847	4	2,462	2,356	0,055
		Linearity	7,524	1	7,524	7,200	0,008
		Deviation from Linearity	2,323	3	0,774	0,741	0,529
	Within Groups		226,770	217	1,045		
	Total		236,617	221			
SBP5 * CoO7	Between Groups	(Combined)	3,602	4	0,900	1,290	0,275
		Linearity	3,280	1	3,280	4,698	0,031
		Deviation from Linearity	0,321	3	0,107	0,153	0,927
	Within Groups		151,515	217	0,698		
	Total		155,117	221			
SBP6 * CoO7	Between Groups	(Combined)	4,267	4	1,067	1,447	0,220
		Linearity	2,755	1	2,755	3,737	0,055
		Deviation from Linearity	1,511	3	0,504	0,683	0,563
	Within Groups		159,972	217	0,737		
	Total		164,239	221			
SBP7 * CoO7	Between Groups	(Combined)	5,934	4	1,484	0,860	0,489
		Linearity	1,779	1	1,779	1,031	0,311
		Deviation from Linearity	4,155	3	1,385	0,803	0,493
	Within Groups		374,264	217	1,725		
	Total		380,198	221			
SBP8 * CoO7	Between Groups	(Combined)	11,741	4	2,935	2,849	0,025
		Linearity	8,419	1	8,419	8,173	0,005

		Deviation from Linearity	3,322	3	1,107	1,075	0,361
	Within Groups		223,538	217	1,030		
	Total		235,279	221			
SBP9 * CoO7	Between Groups	(Combined)	23,083	4	5,771	5,591	0,000
		Linearity	20,170	1	20,170	19,543	0,000
		Deviation from Linearity	2,912	3	0,971	0,941	0,422
	Within Groups		223,967	217	1,032		
	Total		247,050	221			

Interfunctional coordination							
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * IFC1	Between Groups	(Combined)	4,495	4	1,124	0,596	0,666
		Linearity	0,051	1	0,051	0,027	0,870
		Deviation from Linearity	4,444	3	1,481	0,786	0,503
	Within Groups		409,221	217	1,886		
	Total		413,716	221			
PR_2018 * IFC1	Between Groups	(Combined)	49,109	4	12,277	2,384	0,052
		Linearity	37,264	1	37,264	7,237	0,008
		Deviation from Linearity	11,845	3	3,948	0,767	0,514
	Within Groups		1117,346	217	5,149		
	Total		1166,455	221			
SR_5 * IFC1	Between Groups	(Combined)	6,834	4	1,708	2,670	0,033
		Linearity	6,318	1	6,318	9,871	0,002
		Deviation from Linearity	0,516	3	0,172	0,269	0,848
	Within Groups		138,878	217	0,640		
	Total		145,712	221			
PR_5 * IFC1	Between Groups	(Combined)	7,160	4	1,790	2,154	0,075
		Linearity	6,274	1	6,274	7,549	0,007

		Deviation from Linearity	0,886	3	0,295	0,355	0,785
	Within Groups		180,340	217	0,831		
	Total		187,500	221			
SBP1 * IFC1	Between Groups	(Combined)	12,189	4	3,047	3,700	0,006
		Linearity	9,460	1	9,460	11,487	0,001
		Deviation from Linearity	2,730	3	0,910	1,105	0,348
	Within Groups		178,698	217	0,823		
	Total		190,887	221			
SBP2 * IFC1	Between Groups	(Combined)	17,051	4	4,263	3,434	0,010
		Linearity	15,614	1	15,614	12,577	0,000
		Deviation from Linearity	1,437	3	0,479	0,386	0,763
	Within Groups		269,404	217	1,241		
	Total		286,455	221			
SBP3 * IFC1	Between Groups	(Combined)	13,773	4	3,443	3,630	0,007
		Linearity	11,297	1	11,297	11,909	0,001
		Deviation from Linearity	2,476	3	0,825	0,870	0,457
	Within Groups		205,849	217	0,949		
	Total		219,622	221			
SBP4 * IFC1	Between Groups	(Combined)	15,961	4	3,990	3,924	0,004
		Linearity	12,569	1	12,569	12,361	0,001
		Deviation from Linearity	3,392	3	1,131	1,112	0,345
	Within Groups		220,656	217	1,017		
	Total		236,617	221			
SBP5 * IFC1	Between Groups	(Combined)	7,963	4	1,991	2,935	0,022
		Linearity	5,805	1	5,805	8,560	0,004
		Deviation from Linearity	2,158	3	0,719	1,061	0,367
	Within Groups		147,155	217	0,678		

	Total		155,117	221			
SBP6 * IFC1	Between Groups	(Combined)	9,367	4	2,342	3,281	0,012
		Linearity	7,619	1	7,619	10,675	0,001
		Deviation from Linearity	1,749	3	0,583	0,817	0,486
	Within Groups		154,871	217	0,714		
	Total		164,239	221			
SBP7 * IFC1	Between Groups	(Combined)	7,733	4	1,933	1,126	0,345
		Linearity	0,218	1	0,218	0,127	0,722
		Deviation from Linearity	7,516	3	2,505	1,460	0,227
	Within Groups		372,465	217	1,716		
	Total		380,198	221			
SBP8 * IFC1	Between Groups	(Combined)	14,950	4	3,737	3,681	0,006
		Linearity	12,073	1	12,073	11,891	0,001
		Deviation from Linearity	2,877	3	0,959	0,944	0,420
	Within Groups		220,329	217	1,015		
	Total		235,279	221			
SBP9 * IFC1	Between Groups	(Combined)	18,123	4	4,531	4,295	0,002
		Linearity	16,489	1	16,489	15,630	0,000
		Deviation from Linearity	1,634	3	0,545	0,516	0,672
	Within Groups		228,927	217	1,055		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * IFC2	Between Groups	(Combined)	8,095	4	2,024	1,083	0,366
		Linearity	6,665	1	6,665	3,565	0,060
		Deviation from Linearity	1,431	3	0,477	0,255	0,858
	Within Groups		405,621	217	1,869		
	Total		413,716	221			

PR_2018 * IFC2	Between Groups	(Combined)	27,480	4	6,870	1,309	0,268
		Linearity	24,232	1	24,232	4,617	0,033
		Deviation from Linearity	3,247	3	1,082	0,206	0,892
	Within Groups		1138,975	217	5,249		
	Total		1166,455	221			
SR_5 * IFC2	Between Groups	(Combined)	7,949	4	1,987	3,130	0,016
		Linearity	7,003	1	7,003	11,031	0,001
		Deviation from Linearity	0,946	3	0,315	0,497	0,685
	Within Groups		137,763	217	0,635		
	Total		145,712	221			
PR_5 * IFC2	Between Groups	(Combined)	4,367	4	1,092	1,294	0,273
		Linearity	3,286	1	3,286	3,894	0,050
		Deviation from Linearity	1,081	3	0,360	0,427	0,734
	Within Groups		183,133	217	0,844		
	Total		187,500	221			
SBP1 * IFC2	Between Groups	(Combined)	19,972	4	4,993	6,339	0,000
		Linearity	13,748	1	13,748	17,455	0,000
		Deviation from Linearity	6,224	3	2,075	2,634	0,051
	Within Groups		170,916	217	0,788		
	Total		190,887	221			
SBP2 * IFC2	Between Groups	(Combined)	35,829	4	8,957	7,755	0,000
		Linearity	33,540	1	33,540	29,040	0,000
		Deviation from Linearity	2,290	3	0,763	0,661	0,577
	Within Groups		250,626	217	1,155		
	Total		286,455	221			
SBP3 * IFC2	Between Groups	(Combined)	13,805	4	3,451	3,639	0,007
		Linearity	12,285	1	12,285	12,952	0,000

		Deviation from Linearity	1,520	3	0,507	0,534	0,659
	Within Groups		205,817	217	0,948		
	Total		219,622	221			
SBP4 * IFC2	Between Groups	(Combined)	16,716	4	4,179	4,124	0,003
		Linearity	12,729	1	12,729	12,561	0,000
		Deviation from Linearity	3,987	3	1,329	1,312	0,272
	Within Groups		219,901	217	1,013		
	Total		236,617	221			
SBP5 * IFC2	Between Groups	(Combined)	9,907	4	2,477	3,701	0,006
		Linearity	9,197	1	9,197	13,743	0,000
		Deviation from Linearity	0,710	3	0,237	0,354	0,786
	Within Groups		145,210	217	0,669		
	Total		155,117	221			
SBP6 * IFC2	Between Groups	(Combined)	20,102	4	5,025	7,566	0,000
		Linearity	19,621	1	19,621	29,540	0,000
		Deviation from Linearity	0,481	3	0,160	0,241	0,867
	Within Groups		144,137	217	0,664		
	Total		164,239	221			
SBP7 * IFC2	Between Groups	(Combined)	12,984	4	3,246	1,918	0,108
		Linearity	6,203	1	6,203	3,665	0,057
		Deviation from Linearity	6,781	3	2,260	1,336	0,264
	Within Groups		367,215	217	1,692		
	Total		380,198	221			
SBP8 * IFC2	Between Groups	(Combined)	29,795	4	7,449	7,866	0,000
		Linearity	29,011	1	29,011	30,637	0,000
		Deviation from Linearity	0,784	3	0,261	0,276	0,843
	Within Groups		205,484	217	0,947		

	Total		235,279	221			
SBP9 * IFC2	Between Groups	(Combined)	44,580	4	11,145	11,945	0,000
		Linearity	43,540	1	43,540	46,665	0,000
		Deviation from Linearity	1,040	3	0,347	0,372	0,774
	Within Groups		202,469	217	0,933		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * IFC3	Between Groups	(Combined)	6,908	4	1,727	0,921	0,452
		Linearity	0,004	1	0,004	0,002	0,963
		Deviation from Linearity	6,904	3	2,301	1,227	0,301
	Within Groups		406,809	217	1,875		
	Total		413,716	221			
PR_2018 * IFC3	Between Groups	(Combined)	39,543	4	9,886	1,904	0,111
		Linearity	36,499	1	36,499	7,028	0,009
		Deviation from Linearity	3,044	3	1,015	0,195	0,899
	Within Groups		1126,911	217	5,193		
	Total		1166,455	221			
SR_5 * IFC3	Between Groups	(Combined)	6,664	4	1,666	2,600	0,037
		Linearity	6,102	1	6,102	9,523	0,002
		Deviation from Linearity	0,562	3	0,187	0,293	0,831
	Within Groups		139,048	217	0,641		
	Total		145,712	221			
PR_5 * IFC3	Between Groups	(Combined)	7,658	4	1,914	2,310	0,059
		Linearity	6,629	1	6,629	7,999	0,005
		Deviation from Linearity	1,029	3	0,343	0,414	0,743
	Within Groups		179,842	217	0,829		
	Total		187,500	221			

SBP1 * IFC3	Between Groups	(Combined)	14,211	4	3,553	4,364	0,002
		Linearity	13,166	1	13,166	16,171	0,000
		Deviation from Linearity	1,045	3	0,348	0,428	0,733
	Within Groups		176,676	217	0,814		
	Total		190,887	221			
SBP2 * IFC3	Between Groups	(Combined)	29,084	4	7,271	6,131	0,000
		Linearity	24,780	1	24,780	20,893	0,000
		Deviation from Linearity	4,305	3	1,435	1,210	0,307
	Within Groups		257,371	217	1,186		
	Total		286,455	221			
SBP3 * IFC3	Between Groups	(Combined)	18,469	4	4,617	4,981	0,001
		Linearity	16,484	1	16,484	17,783	0,000
		Deviation from Linearity	1,985	3	0,662	0,714	0,545
	Within Groups		201,153	217	0,927		
	Total		219,622	221			
SBP4 * IFC3	Between Groups	(Combined)	20,889	4	5,222	5,253	0,000
		Linearity	17,206	1	17,206	17,308	0,000
		Deviation from Linearity	3,683	3	1,228	1,235	0,298
	Within Groups		215,728	217	0,994		
	Total		236,617	221			
SBP5 * IFC3	Between Groups	(Combined)	16,957	4	4,239	6,658	0,000
		Linearity	15,329	1	15,329	24,076	0,000
		Deviation from Linearity	1,628	3	0,543	0,852	0,467
	Within Groups		138,160	217	0,637		
	Total		155,117	221			
SBP6 * IFC3	Between Groups	(Combined)	26,184	4	6,546	10,289	0,000
		Linearity	24,213	1	24,213	38,058	0,000

		Deviation from Linearity	1,971	3	0,657	1,033	0,379
	Within Groups		138,055	217	0,636		
	Total		164,239	221			
SBP7 * IFC3	Between Groups	(Combined)	2,670	4	0,667	0,384	0,820
		Linearity	0,021	1	0,021	0,012	0,912
		Deviation from Linearity	2,648	3	0,883	0,507	0,678
	Within Groups		377,528	217	1,740		
	Total		380,198	221			
SBP8 * IFC3	Between Groups	(Combined)	24,099	4	6,025	6,191	0,000
		Linearity	21,660	1	21,660	22,257	0,000
		Deviation from Linearity	2,439	3	0,813	0,835	0,476
	Within Groups		211,180	217	0,973		
	Total		235,279	221			
SBP9 * IFC3	Between Groups	(Combined)	25,720	4	6,430	6,304	0,000
		Linearity	24,179	1	24,179	23,706	0,000
		Deviation from Linearity	1,541	3	0,514	0,504	0,680
	Within Groups		221,329	217	1,020		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * IFC4	Between Groups	(Combined)	2,907	4	0,727	0,384	0,820
		Linearity	1,160	1	1,160	0,613	0,435
		Deviation from Linearity	1,747	3	0,582	0,308	0,820
	Within Groups		410,809	217	1,893		
	Total		413,716	221			
PR_2018 * IFC4	Between Groups	(Combined)	67,789	4	16,947	3,347	0,011
		Linearity	63,153	1	63,153	12,473	0,001

		Deviation from Linearity	4,637	3	1,546	0,305	0,822
	Within Groups		1098,666	217	5,063		
	Total		1166,455	221			
SR_5 * IFC4	Between Groups	(Combined)	4,716	4	1,179	1,815	0,127
		Linearity	1,741	1	1,741	2,679	0,103
		Deviation from Linearity	2,975	3	0,992	1,526	0,209
	Within Groups		140,996	217	0,650		
	Total		145,712	221			
PR_5 * IFC4	Between Groups	(Combined)	1,609	4	0,402	0,469	0,758
		Linearity	0,035	1	0,035	0,041	0,839
		Deviation from Linearity	1,573	3	0,524	0,612	0,608
	Within Groups		185,891	217	0,857		
	Total		187,500	221			
SBP1 * IFC4	Between Groups	(Combined)	4,902	4	1,226	1,430	0,225
		Linearity	4,496	1	4,496	5,246	0,023
		Deviation from Linearity	0,406	3	0,135	0,158	0,925
	Within Groups		185,985	217	0,857		
	Total		190,887	221			
SBP2 * IFC4	Between Groups	(Combined)	15,304	4	3,826	3,062	0,018
		Linearity	9,395	1	9,395	7,519	0,007
		Deviation from Linearity	5,909	3	1,970	1,576	0,196
	Within Groups		271,151	217	1,250		
	Total		286,455	221			
SBP3 * IFC4	Between Groups	(Combined)	7,827	4	1,957	2,005	0,095
		Linearity	4,834	1	4,834	4,953	0,027
		Deviation from Linearity	2,992	3	0,997	1,022	0,384
	Within Groups		211,795	217	0,976		

	Total		219,622	221			
SBP4 * IFC4	Between Groups	(Combined)	5,478	4	1,370	1,286	0,277
		Linearity	4,162	1	4,162	3,907	0,049
		Deviation from Linearity	1,317	3	0,439	0,412	0,745
	Within Groups		231,139	217	1,065		
	Total		236,617	221			
SBP5 * IFC4	Between Groups	(Combined)	7,268	4	1,817	2,667	0,033
		Linearity	6,740	1	6,740	9,893	0,002
		Deviation from Linearity	0,528	3	0,176	0,258	0,855
	Within Groups		147,849	217	0,681		
	Total		155,117	221			
SBP6 * IFC4	Between Groups	(Combined)	9,220	4	2,305	3,227	0,013
		Linearity	7,748	1	7,748	10,846	0,001
		Deviation from Linearity	1,472	3	0,491	0,687	0,561
	Within Groups		155,019	217	0,714		
	Total		164,239	221			
SBP7 * IFC4	Between Groups	(Combined)	2,438	4	0,610	0,350	0,844
		Linearity	0,269	1	0,269	0,155	0,695
		Deviation from Linearity	2,169	3	0,723	0,415	0,742
	Within Groups		377,760	217	1,741		
	Total		380,198	221			
SBP8 * IFC4	Between Groups	(Combined)	14,422	4	3,606	3,543	0,008
		Linearity	10,034	1	10,034	9,859	0,002
		Deviation from Linearity	4,388	3	1,463	1,437	0,233
	Within Groups		220,857	217	1,018		
	Total		235,279	221			
SBP9 * IFC4	Between Groups	(Combined)	20,892	4	5,223	5,012	0,001
		Linearity	17,921	1	17,921	17,196	0,000

		Deviation from Linearity	2,971	3	0,990	0,950	0,417
	Within Groups		226,157	217	1,042		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * IFC5	Between Groups	(Combined)	4,469	4	1,117	0,592	0,669
		Linearity	0,001	1	0,001	0,001	0,978
		Deviation from Linearity	4,467	3	1,489	0,790	0,501
	Within Groups		409,248	217	1,886		
	Total		413,716	221			
PR_2018 * IFC5	Between Groups	(Combined)	25,884	4	6,471	1,231	0,299
		Linearity	19,374	1	19,374	3,686	0,056
		Deviation from Linearity	6,509	3	2,170	0,413	0,744
	Within Groups		1140,571	217	5,256		
	Total		1166,455	221			
SR_5 * IFC5	Between Groups	(Combined)	5,861	4	1,465	2,274	0,062
		Linearity	5,181	1	5,181	8,040	0,005
		Deviation from Linearity	0,680	3	0,227	0,352	0,788
	Within Groups		139,850	217	0,644		
	Total		145,712	221			
PR_5 * IFC5	Between Groups	(Combined)	4,445	4	1,111	1,317	0,265
		Linearity	2,983	1	2,983	3,536	0,061
		Deviation from Linearity	1,462	3	0,487	0,578	0,630
	Within Groups		183,055	217	0,844		
	Total		187,500	221			
SBP1 * IFC5	Between Groups	(Combined)	14,740	4	3,685	4,540	0,002
		Linearity	13,618	1	13,618	16,777	0,000

		Deviation from Linearity	1,121	3	0,374	0,461	0,710
	Within Groups		176,147	217	0,812		
	Total		190,887	221			
SBP2 * IFC5	Between Groups	(Combined)	26,013	4	6,503	5,418	0,000
		Linearity	20,291	1	20,291	16,906	0,000
		Deviation from Linearity	5,722	3	1,907	1,589	0,193
	Within Groups		260,442	217	1,200		
	Total		286,455	221			
SBP3 * IFC5	Between Groups	(Combined)	6,718	4	1,679	1,712	0,148
		Linearity	5,837	1	5,837	5,949	0,016
		Deviation from Linearity	0,881	3	0,294	0,299	0,826
	Within Groups		212,904	217	0,981		
	Total		219,622	221			
SBP4 * IFC5	Between Groups	(Combined)	10,799	4	2,700	2,594	0,037
		Linearity	8,356	1	8,356	8,030	0,005
		Deviation from Linearity	2,442	3	0,814	0,782	0,505
	Within Groups		225,818	217	1,041		
	Total		236,617	221			
SBP5 * IFC5	Between Groups	(Combined)	15,800	4	3,950	6,153	0,000
		Linearity	14,940	1	14,940	23,271	0,000
		Deviation from Linearity	0,860	3	0,287	0,446	0,720
	Within Groups		139,317	217	0,642		
	Total		155,117	221			
SBP6 * IFC5	Between Groups	(Combined)	19,577	4	4,894	7,341	0,000
		Linearity	18,919	1	18,919	28,379	0,000
		Deviation from Linearity	0,658	3	0,219	0,329	0,804
	Within Groups		144,662	217	0,667		

	Total		164,239	221			
SBP7 * IFC5	Between Groups	(Combined)	8,032	4	2,008	1,171	0,325
		Linearity	0,065	1	0,065	0,038	0,846
		Deviation from Linearity	7,968	3	2,656	1,549	0,203
	Within Groups		372,166	217	1,715		
	Total		380,198	221			
SBP8 * IFC5	Between Groups	(Combined)	35,563	4	8,891	9,660	0,000
		Linearity	30,693	1	30,693	33,349	0,000
		Deviation from Linearity	4,870	3	1,623	1,764	0,155
	Within Groups		199,717	217	0,920		
	Total		235,279	221			
SBP9 * IFC5	Between Groups	(Combined)	38,185	4	9,546	9,918	0,000
		Linearity	34,906	1	34,906	36,266	0,000
		Deviation from Linearity	3,279	3	1,093	1,135	0,336
	Within Groups		208,865	217	0,963		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * IFC6	Between Groups	(Combined)	17,812	4	4,453	2,441	0,048
		Linearity	0,502	1	0,502	0,275	0,600
		Deviation from Linearity	17,310	3	5,770	3,163	0,025
	Within Groups		395,904	217	1,824		
	Total		413,716	221			
PR_2018 * IFC6	Between Groups	(Combined)	65,012	4	16,253	3,202	0,014
		Linearity	39,308	1	39,308	7,744	0,006
		Deviation from Linearity	25,704	3	8,568	1,688	0,171
	Within Groups		1101,443	217	5,076		
	Total		1166,455	221			

SR_5 * IFC6	Between Groups	(Combined)	4,946	4	1,237	1,906	0,110
		Linearity	4,322	1	4,322	6,663	0,011
		Deviation from Linearity	0,624	3	0,208	0,321	0,810
	Within Groups		140,766	217	0,649		
	Total		145,712	221			
PR_5 * IFC6	Between Groups	(Combined)	10,765	4	2,691	3,304	0,012
		Linearity	6,416	1	6,416	7,877	0,005
		Deviation from Linearity	4,349	3	1,450	1,780	0,152
	Within Groups		176,735	217	0,814		
	Total		187,500	221			
SBP1 * IFC6	Between Groups	(Combined)	14,160	4	3,540	4,347	0,002
		Linearity	11,125	1	11,125	13,661	0,000
		Deviation from Linearity	3,035	3	1,012	1,242	0,295
	Within Groups		176,727	217	0,814		
	Total		190,887	221			
SBP2 * IFC6	Between Groups	(Combined)	19,595	4	4,899	3,983	0,004
		Linearity	14,320	1	14,320	11,644	0,001
		Deviation from Linearity	5,275	3	1,758	1,430	0,235
	Within Groups		266,860	217	1,230		
	Total		286,455	221			
SBP3 * IFC6	Between Groups	(Combined)	17,922	4	4,480	4,820	0,001
		Linearity	15,152	1	15,152	16,302	0,000
		Deviation from Linearity	2,769	3	0,923	0,993	0,397
	Within Groups		201,700	217	0,929		
	Total		219,622	221			
SBP4 * IFC6	Between Groups	(Combined)	22,651	4	5,663	5,743	0,000
		Linearity	19,688	1	19,688	19,967	0,000

		Deviation from Linearity	2,964	3	0,988	1,002	0,393
	Within Groups		213,966	217	0,986		
	Total		236,617	221			
SBP5 * IFC6	Between Groups	(Combined)	15,678	4	3,919	6,099	0,000
		Linearity	12,612	1	12,612	19,627	0,000
		Deviation from Linearity	3,065	3	1,022	1,590	0,193
	Within Groups		139,440	217	0,643		
	Total		155,117	221			
SBP6 * IFC6	Between Groups	(Combined)	13,306	4	3,326	4,782	0,001
		Linearity	12,590	1	12,590	18,101	0,000
		Deviation from Linearity	0,716	3	0,239	0,343	0,794
	Within Groups		150,933	217	0,696		
	Total		164,239	221			
SBP7 * IFC6	Between Groups	(Combined)	15,191	4	3,798	2,258	0,064
		Linearity	1,592	1	1,592	0,946	0,332
		Deviation from Linearity	13,599	3	4,533	2,695	0,047
	Within Groups		365,007	217	1,682		
	Total		380,198	221			
SBP8 * IFC6	Between Groups	(Combined)	20,246	4	5,062	5,108	0,001
		Linearity	19,196	1	19,196	19,371	0,000
		Deviation from Linearity	1,051	3	0,350	0,353	0,787
	Within Groups		215,033	217	0,991		
	Total		235,279	221			
SBP9 * IFC6	Between Groups	(Combined)	28,267	4	7,067	7,009	0,000
		Linearity	25,588	1	25,588	25,380	0,000
		Deviation from Linearity	2,679	3	0,893	0,886	0,449
	Within Groups		218,782	217	1,008		

	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * IFC7	Between Groups	(Combined)	7,576	4	1,894	1,012	0,402
		Linearity	0,177	1	0,177	0,095	0,759
		Deviation from Linearity	7,399	3	2,466	1,318	0,270
	Within Groups		406,140	217	1,872		
	Total		413,716	221			
PR_2018 * IFC7	Between Groups	(Combined)	25,506	4	6,376	1,213	0,306
		Linearity	21,175	1	21,175	4,027	0,046
		Deviation from Linearity	4,331	3	1,444	0,275	0,844
	Within Groups		1140,949	217	5,258		
	Total		1166,455	221			
SR_5 * IFC7	Between Groups	(Combined)	9,030	4	2,258	3,584	0,007
		Linearity	4,788	1	4,788	7,601	0,006
		Deviation from Linearity	4,243	3	1,414	2,245	0,084
	Within Groups		136,681	217	0,630		
	Total		145,712	221			
PR_5 * IFC7	Between Groups	(Combined)	3,558	4	0,889	1,049	0,383
		Linearity	1,534	1	1,534	1,810	0,180
		Deviation from Linearity	2,024	3	0,675	0,796	0,497
	Within Groups		183,942	217	0,848		
	Total		187,500	221			
SBP1 * IFC7	Between Groups	(Combined)	11,243	4	2,811	3,395	0,010
		Linearity	5,424	1	5,424	6,552	0,011
		Deviation from Linearity	5,819	3	1,940	2,343	0,074
	Within Groups		179,644	217	0,828		
	Total		190,887	221			

SBP2 * IFC7	Between Groups	(Combined)	19,973	4	4,993	4,066	0,003
		Linearity	10,371	1	10,371	8,445	0,004
		Deviation from Linearity	9,602	3	3,201	2,606	0,053
	Within Groups		266,482	217	1,228		
	Total		286,455	221			
SBP3 * IFC7	Between Groups	(Combined)	2,165	4	0,541	0,540	0,706
		Linearity	1,802	1	1,802	1,798	0,181
		Deviation from Linearity	0,363	3	0,121	0,121	0,948
	Within Groups		217,457	217	1,002		
	Total		219,622	221			
SBP4 * IFC7	Between Groups	(Combined)	3,477	4	0,869	0,809	0,521
		Linearity	1,917	1	1,917	1,785	0,183
		Deviation from Linearity	1,559	3	0,520	0,484	0,694
	Within Groups		233,140	217	1,074		
	Total		236,617	221			
SBP5 * IFC7	Between Groups	(Combined)	11,205	4	2,801	4,224	0,003
		Linearity	7,409	1	7,409	11,171	0,001
		Deviation from Linearity	3,796	3	1,265	1,908	0,129
	Within Groups		143,912	217	0,663		
	Total		155,117	221			
SBP6 * IFC7	Between Groups	(Combined)	9,873	4	2,468	3,470	0,009
		Linearity	7,748	1	7,748	10,892	0,001
		Deviation from Linearity	2,125	3	0,708	0,996	0,396
	Within Groups		154,366	217	0,711		
	Total		164,239	221			
SBP7 * IFC7	Between Groups	(Combined)	2,909	4	0,727	0,418	0,795
		Linearity	0,005	1	0,005	0,003	0,957

		Deviation from Linearity	2,904	3	0,968	0,557	0,644
	Within Groups		377,289	217	1,739		
	Total		380,198	221			
SBP8 * IFC7	Between Groups	(Combined)	28,733	4	7,183	7,547	0,000
		Linearity	18,859	1	18,859	19,813	0,000
		Deviation from Linearity	9,874	3	3,291	3,458	0,017
	Within Groups		206,547	217	0,952		
	Total		235,279	221			
SBP9 * IFC7	Between Groups	(Combined)	36,500	4	9,125	9,405	0,000
		Linearity	26,882	1	26,882	27,706	0,000
		Deviation from Linearity	9,618	3	3,206	3,304	0,021
	Within Groups		210,549	217	0,970		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * IFC8	Between Groups	(Combined)	4,560	4	1,140	0,605	0,660
		Linearity	0,094	1	0,094	0,050	0,824
		Deviation from Linearity	4,466	3	1,489	0,790	0,501
	Within Groups		409,156	217	1,886		
	Total		413,716	221			
PR_2018 * IFC8	Between Groups	(Combined)	56,985	4	14,246	2,786	0,027
		Linearity	44,387	1	44,387	8,682	0,004
		Deviation from Linearity	12,599	3	4,200	0,821	0,483
	Within Groups		1109,469	217	5,113		
	Total		1166,455	221			
SR_5 * IFC8	Between Groups	(Combined)	4,033	4	1,008	1,544	0,191
		Linearity	2,836	1	2,836	4,343	0,038

		Deviation from Linearity	1,197	3	0,399	0,611	0,609
	Within Groups		141,679	217	0,653		
	Total		145,712	221			
PR_5 * IFC8	Between Groups	(Combined)	4,387	4	1,097	1,300	0,271
		Linearity	2,625	1	2,625	3,111	0,079
		Deviation from Linearity	1,762	3	0,587	0,696	0,555
	Within Groups		183,113	217	0,844		
	Total		187,500	221			
SBP1 * IFC8	Between Groups	(Combined)	13,359	4	3,340	4,082	0,003
		Linearity	12,272	1	12,272	15,000	0,000
		Deviation from Linearity	1,087	3	0,362	0,443	0,722
	Within Groups		177,528	217	0,818		
	Total		190,887	221			
SBP2 * IFC8	Between Groups	(Combined)	32,717	4	8,179	6,995	0,000
		Linearity	27,973	1	27,973	23,923	0,000
		Deviation from Linearity	4,745	3	1,582	1,353	0,258
	Within Groups		253,738	217	1,169		
	Total		286,455	221			
SBP3 * IFC8	Between Groups	(Combined)	12,459	4	3,115	3,263	0,013
		Linearity	9,397	1	9,397	9,843	0,002
		Deviation from Linearity	3,062	3	1,021	1,069	0,363
	Within Groups		207,162	217	0,955		
	Total		219,622	221			
SBP4 * IFC8	Between Groups	(Combined)	11,143	4	2,786	2,681	0,033
		Linearity	9,838	1	9,838	9,468	0,002
		Deviation from Linearity	1,305	3	0,435	0,419	0,740
	Within Groups		225,474	217	1,039		

	Total		236,617	221			
SBP5 * IFC8	Between Groups	(Combined)	18,542	4	4,636	7,365	0,000
		Linearity	17,889	1	17,889	28,423	0,000
		Deviation from Linearity	0,653	3	0,218	0,346	0,792
	Within Groups		136,575	217	0,629		
	Total		155,117	221			
SBP6 * IFC8	Between Groups	(Combined)	17,947	4	4,487	6,655	0,000
		Linearity	17,174	1	17,174	25,474	0,000
		Deviation from Linearity	0,773	3	0,258	0,382	0,766
	Within Groups		146,292	217	0,674		
	Total		164,239	221			
SBP7 * IFC8	Between Groups	(Combined)	16,256	4	4,064	2,423	0,049
		Linearity	3,270	1	3,270	1,950	0,164
		Deviation from Linearity	12,987	3	4,329	2,581	0,054
	Within Groups		363,942	217	1,677		
	Total		380,198	221			
SBP8 * IFC8	Between Groups	(Combined)	36,297	4	9,074	9,896	0,000
		Linearity	31,833	1	31,833	34,715	0,000
		Deviation from Linearity	4,464	3	1,488	1,623	0,185
	Within Groups		198,982	217	0,917		
	Total		235,279	221			
SBP9 * IFC8	Between Groups	(Combined)	44,337	4	11,084	11,866	0,000
		Linearity	40,140	1	40,140	42,969	0,000
		Deviation from Linearity	4,198	3	1,399	1,498	0,216
	Within Groups		202,712	217	0,934		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.

SR_2018 * IFC9	Between Groups	(Combined)	0,776	4	0,194	0,102	0,982
		Linearity	0,264	1	0,264	0,139	0,710
		Deviation from Linearity	0,511	3	0,170	0,090	0,966
	Within Groups		412,941	217	1,903		
	Total		413,716	221			
PR_2018 * IFC9	Between Groups	(Combined)	20,455	4	5,114	0,968	0,426
		Linearity	0,080	1	0,080	0,015	0,902
		Deviation from Linearity	20,375	3	6,792	1,286	0,280
	Within Groups		1146,000	217	5,281		
	Total		1166,455	221			
SR_5 * IFC9	Between Groups	(Combined)	9,235	4	2,309	3,671	0,006
		Linearity	6,079	1	6,079	9,666	0,002
		Deviation from Linearity	3,156	3	1,052	1,673	0,174
	Within Groups		136,476	217	0,629		
	Total		145,712	221			
PR_5 * IFC9	Between Groups	(Combined)	2,472	4	0,618	0,725	0,576
		Linearity	1,780	1	1,780	2,088	0,150
		Deviation from Linearity	0,692	3	0,231	0,270	0,847
	Within Groups		185,028	217	0,853		
	Total		187,500	221			
SBP1 * IFC9	Between Groups	(Combined)	14,259	4	3,565	4,380	0,002
		Linearity	6,842	1	6,842	8,406	0,004
		Deviation from Linearity	7,417	3	2,472	3,038	0,030
	Within Groups		176,628	217	0,814		
	Total		190,887	221			
SBP2 * IFC9	Between Groups	(Combined)	28,639	4	7,160	6,026	0,000
		Linearity	22,135	1	22,135	18,630	0,000

		Deviation from Linearity	6,505	3	2,168	1,825	0,144
	Within Groups		257,815	217	1,188		
	Total		286,455	221			
SBP3 * IFC9	Between Groups	(Combined)	24,680	4	6,170	6,868	0,000
		Linearity	13,894	1	13,894	15,466	0,000
		Deviation from Linearity	10,787	3	3,596	4,002	0,008
	Within Groups		194,941	217	0,898		
	Total		219,622	221			
SBP4 * IFC9	Between Groups	(Combined)	20,159	4	5,040	5,052	0,001
		Linearity	9,600	1	9,600	9,624	0,002
		Deviation from Linearity	10,559	3	3,520	3,528	0,016
	Within Groups		216,458	217	0,998		
	Total		236,617	221			
SBP5 * IFC9	Between Groups	(Combined)	14,971	4	3,743	5,795	0,000
		Linearity	10,391	1	10,391	16,090	0,000
		Deviation from Linearity	4,580	3	1,527	2,364	0,072
	Within Groups		140,146	217	0,646		
	Total		155,117	221			
SBP6 * IFC9	Between Groups	(Combined)	19,170	4	4,792	7,169	0,000
		Linearity	18,054	1	18,054	27,005	0,000
		Deviation from Linearity	1,116	3	0,372	0,557	0,644
	Within Groups		145,069	217	0,669		
	Total		164,239	221			
SBP7 * IFC9	Between Groups	(Combined)	12,249	4	3,062	1,806	0,129
		Linearity	9,203	1	9,203	5,427	0,021
		Deviation from Linearity	3,046	3	1,015	0,599	0,616
	Within Groups		367,949	217	1,696		

	Total		380,198	221			
SBP8 * IFC9	Between Groups	(Combined)	15,956	4	3,989	3,947	0,004
		Linearity	9,430	1	9,430	9,330	0,003
		Deviation from Linearity	6,526	3	2,175	2,152	0,095
	Within Groups		219,323	217	1,011		
	Total		235,279	221			
SBP9 * IFC9	Between Groups	(Combined)	22,592	4	5,648	5,460	0,000
		Linearity	13,225	1	13,225	12,786	0,000
		Deviation from Linearity	9,367	3	3,122	3,019	0,031
	Within Groups		224,457	217	1,034		
	Total		247,050	221			
Exploitative innovation			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * Exploi1	Between Groups	(Combined)	3,480	4	0,870	0,460	0,765
		Linearity	0,022	1	0,022	0,012	0,915
		Deviation from Linearity	3,458	3	1,153	0,610	0,609
	Within Groups		410,236	217	1,890		
	Total		413,716	221			
PR_2018 * Exploi1	Between Groups	(Combined)	11,886	4	2,972	0,558	0,693
		Linearity	6,441	1	6,441	1,211	0,272
		Deviation from Linearity	5,445	3	1,815	0,341	0,796
	Within Groups		1154,569	217	5,321		
	Total		1166,455	221			
SR_5 * Exploi1	Between Groups	(Combined)	7,703	4	1,926	3,028	0,019
		Linearity	3,013	1	3,013	4,738	0,031
		Deviation from Linearity	4,690	3	1,563	2,458	0,064
	Within Groups		138,009	217	0,636		
	Total		145,712	221			
PR_5 * Exploi1	Between Groups	(Combined)	4,973	4	1,243	1,478	0,210
		Linearity	0,987	1	0,987	1,173	0,280

		Deviation from Linearity	3,986	3	1,329	1,580	0,195
	Within Groups		182,527	217	0,841		
	Total		187,500	221			
SBP1 * Exploi1	Between Groups	(Combined)	17,470	4	4,368	5,465	0,000
		Linearity	14,407	1	14,407	18,028	0,000
		Deviation from Linearity	3,063	3	1,021	1,278	0,283
	Within Groups		173,417	217	0,799		
	Total		190,887	221			
SBP2 * Exploi1	Between Groups	(Combined)	58,990	4	14,747	14,069	0,000
		Linearity	54,985	1	54,985	52,455	0,000
		Deviation from Linearity	4,005	3	1,335	1,273	0,284
	Within Groups		227,465	217	1,048		
	Total		286,455	221			
SBP3 * Exploi1	Between Groups	(Combined)	28,302	4	7,076	8,025	0,000
		Linearity	23,576	1	23,576	26,740	0,000
		Deviation from Linearity	4,727	3	1,576	1,787	0,151
	Within Groups		191,319	217	0,882		
	Total		219,622	221			
SBP4 * Exploi1	Between Groups	(Combined)	16,342	4	4,086	4,025	0,004
		Linearity	15,264	1	15,264	15,038	0,000
		Deviation from Linearity	1,078	3	0,359	0,354	0,786
	Within Groups		220,275	217	1,015		
	Total		236,617	221			
SBP * Exploi1	Between Groups	(Combined)	29,615	4	7,404	12,802	0,000
		Linearity	27,448	1	27,448	47,460	0,000
		Deviation from Linearity	2,167	3	0,722	1,249	0,293
	Within Groups		125,502	217	0,578		
	Total		155,117	221			

SBP5 * Exploi1	Between Groups	(Combined)	36,784	4	9,196	15,657	0,000
		Linearity	30,679	1	30,679	52,234	0,000
		Deviation from Linearity	6,105	3	2,035	3,465	0,017
	Within Groups		127,454	217	0,587		
	Total		164,239	221			
SBP6 * Exploi1	Between Groups	(Combined)	17,099	4	4,275	2,555	0,040
		Linearity	9,472	1	9,472	5,661	0,018
		Deviation from Linearity	7,627	3	2,542	1,519	0,210
	Within Groups		363,100	217	1,673		
	Total		380,198	221			
SBP7 * Exploi1	Between Groups	(Combined)	36,217	4	9,054	9,870	0,000
		Linearity	33,907	1	33,907	36,963	0,000
		Deviation from Linearity	2,310	3	0,770	0,839	0,474
	Within Groups		199,062	217	0,917		
	Total		235,279	221			
SBP8 * Exploi1	Between Groups	(Combined)	33,118	4	8,280	8,398	0,000
		Linearity	28,311	1	28,311	28,717	0,000
		Deviation from Linearity	4,808	3	1,603	1,626	0,184
	Within Groups		213,931	217	0,986		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * Exploi2	Between Groups	(Combined)	4,384	4	1,096	0,581	0,677
		Linearity	0,149	1	0,149	0,079	0,779
		Deviation from Linearity	4,235	3	1,412	0,748	0,524
	Within Groups		409,333	217	1,886		
	Total		413,716	221			
PR_2018 * Exploi2	Between Groups	(Combined)	18,092	4	4,523	0,855	0,492
		Linearity	7,823	1	7,823	1,478	0,225

		Deviation from Linearity	10,269	3	3,423	0,647	0,586
	Within Groups		1148,363	217	5,292		
	Total		1166,455	221			
SR_5 * Exploi2	Between Groups	(Combined)	7,763	4	1,941	3,053	0,018
		Linearity	5,123	1	5,123	8,058	0,005
		Deviation from Linearity	2,641	3	0,880	1,385	0,248
	Within Groups		137,948	217	0,636		
	Total		145,712	221			
PR_5 * Exploi2	Between Groups	(Combined)	3,231	4	0,808	0,951	0,435
		Linearity	1,921	1	1,921	2,263	0,134
		Deviation from Linearity	1,310	3	0,437	0,514	0,673
	Within Groups		184,269	217	0,849		
	Total		187,500	221			
SBP1 * Exploi2	Between Groups	(Combined)	19,658	4	4,914	6,228	0,000
		Linearity	17,832	1	17,832	22,599	0,000
		Deviation from Linearity	1,826	3	0,609	0,771	0,511
	Within Groups		171,230	217	0,789		
	Total		190,887	221			
SBP2 * Exploi2	Between Groups	(Combined)	27,166	4	6,791	5,684	0,000
		Linearity	25,065	1	25,065	20,977	0,000
		Deviation from Linearity	2,101	3	0,700	0,586	0,625
	Within Groups		259,289	217	1,195		
	Total		286,455	221			
SBP3 * Exploi2	Between Groups	(Combined)	15,970	4	3,993	4,254	0,002
		Linearity	15,336	1	15,336	16,342	0,000
		Deviation from Linearity	0,634	3	0,211	0,225	0,879
	Within Groups		203,651	217	0,938		
	Total		219,622	221			

SBP4 * Exploi2	Between Groups	(Combined)	14,309	4	3,577	3,492	0,009
		Linearity	12,897	1	12,897	12,589	0,000
		Deviation from Linearity	1,413	3	0,471	0,460	0,711
	Within Groups		222,308	217	1,024		
	Total		236,617	221			
SBP5 * Exploi2	Between Groups	(Combined)	20,318	4	5,079	8,177	0,000
		Linearity	20,155	1	20,155	32,446	0,000
		Deviation from Linearity	0,162	3	0,054	0,087	0,967
	Within Groups		134,799	217	0,621		
	Total		155,117	221			
SBP6 * Exploi2	Between Groups	(Combined)	26,026	4	6,506	10,215	0,000
		Linearity	25,137	1	25,137	39,466	0,000
		Deviation from Linearity	0,888	3	0,296	0,465	0,707
	Within Groups		138,213	217	0,637		
	Total		164,239	221			
SBP7 * Exploi2	Between Groups	(Combined)	8,255	4	2,064	1,204	0,310
		Linearity	6,436	1	6,436	3,755	0,054
		Deviation from Linearity	1,819	3	0,606	0,354	0,787
	Within Groups		371,943	217	1,714		
	Total		380,198	221			
SBP8 * Exploi2	Between Groups	(Combined)	26,953	4	6,738	7,019	0,000
		Linearity	24,940	1	24,940	25,978	0,000
		Deviation from Linearity	2,014	3	0,671	0,699	0,554
	Within Groups		208,326	217	0,960		
	Total		235,279	221			
SBP9 * Exploi2	Between Groups	(Combined)	35,058	4	8,765	8,972	0,000
		Linearity	33,116	1	33,116	33,898	0,000
		Deviation from Linearity	1,943	3	0,648	0,663	0,576

	Within Groups		211,991	217	0,977		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * Exploi3	Between Groups	(Combined)	5,971	4	1,493	0,795	0,530
		Linearity	4,545	1	4,545	2,419	0,121
		Deviation from Linearity	1,427	3	0,476	0,253	0,859
	Within Groups		407,745	217	1,879		
	Total		413,716	221			
PR_2018 * Exploi3	Between Groups	(Combined)	31,316	4	7,829	1,497	0,204
		Linearity	3,526	1	3,526	0,674	0,413
		Deviation from Linearity	27,790	3	9,263	1,771	0,154
	Within Groups		1135,139	217	5,231		
	Total		1166,455	221			
SR_5 * Exploi3	Between Groups	(Combined)	4,673	4	1,168	1,797	0,130
		Linearity	2,686	1	2,686	4,132	0,043
		Deviation from Linearity	1,987	3	0,662	1,019	0,385
	Within Groups		141,039	217	0,650		
	Total		145,712	221			
PR_5 * Exploi3	Between Groups	(Combined)	3,362	4	0,841	0,991	0,414
		Linearity	1,027	1	1,027	1,210	0,272
		Deviation from Linearity	2,335	3	0,778	0,917	0,433
	Within Groups		184,138	217	0,849		
	Total		187,500	221			
SBP1 * Exploi3	Between Groups	(Combined)	1,631	4	0,408	0,467	0,760
		Linearity	0,870	1	0,870	0,998	0,319
		Deviation from Linearity	0,761	3	0,254	0,291	0,832
	Within Groups		189,257	217	0,872		
	Total		190,887	221			

SBP2 * Exploi3	Between Groups	(Combined)	14,415	4	3,604	2,875	0,024
		Linearity	9,817	1	9,817	7,831	0,006
		Deviation from Linearity	4,599	3	1,533	1,223	0,302
	Within Groups		272,040	217	1,254		
	Total		286,455	221			
SBP3 * Exploi3	Between Groups	(Combined)	15,883	4	3,971	4,229	0,003
		Linearity	14,810	1	14,810	15,774	0,000
		Deviation from Linearity	1,073	3	0,358	0,381	0,767
	Within Groups		203,738	217	0,939		
	Total		219,622	221			
SBP * Exploi3	Between Groups	(Combined)	12,113	4	3,028	2,927	0,022
		Linearity	11,484	1	11,484	11,100	0,001
		Deviation from Linearity	0,629	3	0,210	0,203	0,895
	Within Groups		224,504	217	1,035		
	Total		236,617	221			
SBP4 * Exploi3	Between Groups	(Combined)	9,526	4	2,382	3,550	0,008
		Linearity	5,542	1	5,542	8,260	0,004
		Deviation from Linearity	3,985	3	1,328	1,980	0,118
	Within Groups		145,591	217	0,671		
	Total		155,117	221			
SBP5 * Exploi3	Between Groups	(Combined)	14,385	4	3,596	5,208	0,001
		Linearity	7,403	1	7,403	10,720	0,001
		Deviation from Linearity	6,982	3	2,327	3,370	0,019
	Within Groups		149,854	217	0,691		
	Total		164,239	221			
SBP6 * Exploi3	Between Groups	(Combined)	9,103	4	2,276	1,331	0,259
		Linearity	5,141	1	5,141	3,006	0,084
		Deviation from Linearity	3,962	3	1,321	0,772	0,511

	Within Groups		371,095	217	1,710		
	Total		380,198	221			
SBP7 * Exploi3	Between Groups	(Combined)	11,504	4	2,876	2,789	0,027
		Linearity	6,882	1	6,882	6,674	0,010
		Deviation from Linearity	4,622	3	1,541	1,494	0,217
	Within Groups		223,775	217	1,031		
	Total		235,279	221			
SBP8 * Exploi3	Between Groups	(Combined)	4,248	4	1,062	0,949	0,436
		Linearity	3,020	1	3,020	2,699	0,102
		Deviation from Linearity	1,229	3	0,410	0,366	0,778
	Within Groups		242,801	217	1,119		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * Exploi4	Between Groups	(Combined)	4,247	4	1,062	0,563	0,690
		Linearity	0,125	1	0,125	0,066	0,797
		Deviation from Linearity	4,121	3	1,374	0,728	0,536
	Within Groups		409,470	217	1,887		
	Total		413,716	221			
PR_2018 * Exploi4	Between Groups	(Combined)	21,197	4	5,299	1,004	0,406
		Linearity	4,909	1	4,909	0,930	0,336
		Deviation from Linearity	16,288	3	5,429	1,029	0,381
	Within Groups		1145,258	217	5,278		
	Total		1166,455	221			
SR_5 * Exploi4	Between Groups	(Combined)	5,865	4	1,466	2,275	0,062
		Linearity	3,854	1	3,854	5,981	0,015
		Deviation from Linearity	2,010	3	0,670	1,040	0,376
	Within Groups		139,847	217	0,644		
	Total		145,712	221			

PR_5 * Exploi4	Between Groups	(Combined)	5,183	4	1,296	1,542	0,191
		Linearity	2,665	1	2,665	3,172	0,076
		Deviation from Linearity	2,518	3	0,839	0,999	0,394
	Within Groups		182,317	217	0,840		
	Total		187,500	221			
SBP1 * Exploi4	Between Groups	(Combined)	16,160	4	4,040	5,017	0,001
		Linearity	15,947	1	15,947	19,805	0,000
		Deviation from Linearity	0,213	3	0,071	0,088	0,966
	Within Groups		174,727	217	0,805		
	Total		190,887	221			
SBP2 * Exploi4	Between Groups	(Combined)	38,369	4	9,592	8,390	0,000
		Linearity	33,244	1	33,244	29,079	0,000
		Deviation from Linearity	5,125	3	1,708	1,494	0,217
	Within Groups		248,086	217	1,143		
	Total		286,455	221			
SBP3 * Exploi4	Between Groups	(Combined)	26,446	4	6,611	7,427	0,000
		Linearity	23,821	1	23,821	26,759	0,000
		Deviation from Linearity	2,625	3	0,875	0,983	0,402
	Within Groups		193,176	217	0,890		
	Total		219,622	221			
SBP4 * Exploi4	Between Groups	(Combined)	25,394	4	6,349	6,522	0,000
		Linearity	23,407	1	23,407	24,047	0,000
		Deviation from Linearity	1,987	3	0,662	0,681	0,565
	Within Groups		211,223	217	0,973		
	Total		236,617	221			
SBP5 * Exploi4	Between Groups	(Combined)	24,981	4	6,245	10,414	0,000
		Linearity	24,436	1	24,436	40,747	0,000
		Deviation from Linearity	0,545	3	0,182	0,303	0,823

	Within Groups		130,136	217	0,600		
	Total		155,117	221			
SBP6 * Exploi4	Between Groups	(Combined)	35,122	4	8,780	14,757	0,000
		Linearity	34,526	1	34,526	58,026	0,000
		Deviation from Linearity	0,596	3	0,199	0,334	0,801
	Within Groups		129,117	217	0,595		
	Total		164,239	221			
SBP7 * Exploi4	Between Groups	(Combined)	5,481	4	1,370	0,794	0,530
		Linearity	5,032	1	5,032	2,914	0,089
		Deviation from Linearity	0,450	3	0,150	0,087	0,967
	Within Groups		374,717	217	1,727		
	Total		380,198	221			
SBP8 * Exploi4	Between Groups	(Combined)	37,203	4	9,301	10,189	0,000
		Linearity	34,815	1	34,815	38,141	0,000
		Deviation from Linearity	2,388	3	0,796	0,872	0,456
	Within Groups		198,076	217	0,913		
	Total		235,279	221			
SBP9 * Exploi4	Between Groups	(Combined)	31,069	4	7,767	7,804	0,000
		Linearity	29,708	1	29,708	29,848	0,000
		Deviation from Linearity	1,361	3	0,454	0,456	0,714
	Within Groups		215,981	217	0,995		
	Total		247,050	221			
Exploratory innovation							
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * Explor1	Between Groups	(Combined)	7,701	4	1,925	1,029	0,393
		Linearity	5,083	1	5,083	2,717	0,101
		Deviation from Linearity	2,619	3	0,873	0,467	0,706
	Within Groups		406,015	217	1,871		
	Total		413,716	221			

PR_2018 * Explor1	Between Groups	(Combined)	33,664	4	8,416	1,612	0,172
		Linearity	0,012	1	0,012	0,002	0,961
		Deviation from Linearity	33,652	3	11,217	2,149	0,095
	Within Groups		1132,791	217	5,220		
	Total		1166,455	221			
SR_5 * Explor1	Between Groups	(Combined)	1,440	4	0,360	0,541	0,705
		Linearity	0,412	1	0,412	0,620	0,432
		Deviation from Linearity	1,028	3	0,343	0,515	0,672
	Within Groups		144,272	217	0,665		
	Total		145,712	221			
PR_5 * Explor1	Between Groups	(Combined)	1,169	4	0,292	0,340	0,851
		Linearity	0,008	1	0,008	0,009	0,925
		Deviation from Linearity	1,161	3	0,387	0,451	0,717
	Within Groups		186,331	217	0,859		
	Total		187,500	221			
SBP1 * Explor1	Between Groups	(Combined)	5,491	4	1,373	1,607	0,174
		Linearity	2,444	1	2,444	2,861	0,092
		Deviation from Linearity	3,047	3	1,016	1,189	0,315
	Within Groups		185,396	217	0,854		
	Total		190,887	221			
SBP2 * Explor1	Between Groups	(Combined)	28,533	4	7,133	6,001	0,000
		Linearity	21,738	1	21,738	18,289	0,000
		Deviation from Linearity	6,795	3	2,265	1,906	0,130
	Within Groups		257,922	217	1,189		
	Total		286,455	221			
SBP3 * Explor1	Between Groups	(Combined)	16,986	4	4,246	4,547	0,002
		Linearity	13,315	1	13,315	14,259	0,000
		Deviation from Linearity	3,670	3	1,223	1,310	0,272

	Within Groups		202,636	217	0,934		
	Total		219,622	221			
SBP4 * Explor1	Between Groups	(Combined)	10,713	4	2,678	2,573	0,039
		Linearity	7,163	1	7,163	6,880	0,009
		Deviation from Linearity	3,550	3	1,183	1,137	0,335
	Within Groups		225,904	217	1,041		
	Total		236,617	221			
SBP5 * Explor1	Between Groups	(Combined)	8,317	4	2,079	3,073	0,017
		Linearity	7,424	1	7,424	10,974	0,001
		Deviation from Linearity	0,893	3	0,298	0,440	0,725
	Within Groups		146,800	217	0,676		
	Total		155,117	221			
SBP6 * Explor1	Between Groups	(Combined)	14,332	4	3,583	5,187	0,001
		Linearity	10,400	1	10,400	15,054	0,000
		Deviation from Linearity	3,933	3	1,311	1,898	0,131
	Within Groups		149,907	217	0,691		
	Total		164,239	221			
SBP7 * Explor1	Between Groups	(Combined)	6,545	4	1,636	0,950	0,436
		Linearity	0,006	1	0,006	0,003	0,954
		Deviation from Linearity	6,540	3	2,180	1,266	0,287
	Within Groups		373,653	217	1,722		
	Total		380,198	221			
SBP8 * Explor1	Between Groups	(Combined)	26,996	4	6,749	7,031	0,000
		Linearity	21,568	1	21,568	22,471	0,000
		Deviation from Linearity	5,427	3	1,809	1,885	0,133
	Within Groups		208,284	217	0,960		
	Total		235,279	221			
SBP9 * Explor1	Between Groups	(Combined)	18,950	4	4,737	4,507	0,002
		Linearity	15,944	1	15,944	15,168	0,000

		Deviation from Linearity	3,006	3	1,002	0,953	0,416
	Within Groups		228,100	217	1,051		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * Explor2	Between Groups	(Combined)	7,586	4	1,897	1,013	0,401
		Linearity	2,227	1	2,227	1,190	0,277
		Deviation from Linearity	5,359	3	1,786	0,954	0,415
	Within Groups		406,130	217	1,872		
	Total		413,716	221			
PR_2018 * Explor2	Between Groups	(Combined)	8,538	4	2,135	0,400	0,809
		Linearity	1,742	1	1,742	0,327	0,568
		Deviation from Linearity	6,796	3	2,265	0,425	0,736
	Within Groups		1157,917	217	5,336		
	Total		1166,455	221			
SR_5 * Explor2	Between Groups	(Combined)	4,027	4	1,007	1,542	0,191
		Linearity	2,560	1	2,560	3,921	0,049
		Deviation from Linearity	1,466	3	0,489	0,748	0,524
	Within Groups		141,685	217	0,653		
	Total		145,712	221			
PR_5 * Explor2	Between Groups	(Combined)	4,932	4	1,233	1,466	0,214
		Linearity	0,602	1	0,602	0,716	0,398
		Deviation from Linearity	4,330	3	1,443	1,715	0,165
	Within Groups		182,568	217	0,841		
	Total		187,500	221			
SBP1 * Explor2	Between Groups	(Combined)	7,265	4	1,816	2,146	0,076
		Linearity	3,057	1	3,057	3,613	0,059
		Deviation from Linearity	4,208	3	1,403	1,657	0,177

	Within Groups		183,623	217	0,846		
	Total		190,887	221			
SBP2 * Explor2	Between Groups	(Combined)	27,189	4	6,797	5,689	0,000
		Linearity	20,257	1	20,257	16,955	0,000
		Deviation from Linearity	6,932	3	2,311	1,934	0,125
	Within Groups		259,266	217	1,195		
	Total		286,455	221			
SBP3 * Explor2	Between Groups	(Combined)	12,712	4	3,178	3,333	0,011
		Linearity	9,232	1	9,232	9,682	0,002
		Deviation from Linearity	3,479	3	1,160	1,216	0,305
	Within Groups		206,910	217	0,954		
	Total		219,622	221			
SBP4 * Explor2	Between Groups	(Combined)	7,338	4	1,835	1,736	0,143
		Linearity	5,296	1	5,296	5,012	0,026
		Deviation from Linearity	2,042	3	0,681	0,644	0,587
	Within Groups		229,279	217	1,057		
	Total		236,617	221			
SBP5 * Explor2	Between Groups	(Combined)	8,731	4	2,183	3,236	0,013
		Linearity	7,526	1	7,526	11,156	0,001
		Deviation from Linearity	1,205	3	0,402	0,596	0,618
	Within Groups		146,386	217	0,675		
	Total		155,117	221			
SBP6 * Explor2	Between Groups	(Combined)	14,660	4	3,665	5,317	0,000
		Linearity	12,041	1	12,041	17,468	0,000
		Deviation from Linearity	2,619	3	0,873	1,267	0,287
	Within Groups		149,579	217	0,689		
	Total		164,239	221			
SBP7 * Explor2	Between Groups	(Combined)	4,275	4	1,069	0,617	0,651
		Linearity	0,117	1	0,117	0,067	0,795

		Deviation from Linearity	4,159	3	1,386	0,800	0,495
	Within Groups		375,923	217	1,732		
	Total		380,198	221			
SBP8 * Explor2	Between Groups	(Combined)	21,236	4	5,309	5,382	0,000
		Linearity	15,823	1	15,823	16,042	0,000
		Deviation from Linearity	5,413	3	1,804	1,829	0,143
	Within Groups		214,043	217	0,986		
	Total		235,279	221			
SBP9 * Explor2	Between Groups	(Combined)	21,450	4	5,363	5,158	0,001
		Linearity	19,140	1	19,140	18,410	0,000
		Deviation from Linearity	2,310	3	0,770	0,741	0,529
	Within Groups		225,599	217	1,040		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * Explor3	Between Groups	(Combined)	3,576	4	0,894	0,473	0,756
		Linearity	2,987	1	2,987	1,580	0,210
		Deviation from Linearity	0,589	3	0,196	0,104	0,958
	Within Groups		410,141	217	1,890		
	Total		413,716	221			
PR_2018 * Explor3	Between Groups	(Combined)	10,900	4	2,725	0,512	0,727
		Linearity	4,368	1	4,368	0,820	0,366
		Deviation from Linearity	6,532	3	2,177	0,409	0,747
	Within Groups		1155,555	217	5,325		
	Total		1166,455	221			
SR_5 * Explor3	Between Groups	(Combined)	3,965	4	0,991	1,517	0,198
		Linearity	1,769	1	1,769	2,708	0,101
		Deviation from Linearity	2,196	3	0,732	1,121	0,342

	Within Groups		141,747	217	0,653		
	Total		145,712	221			
PR_5 * Explor3	Between Groups	(Combined)	0,949	4	0,237	0,276	0,893
		Linearity	0,232	1	0,232	0,269	0,604
		Deviation from Linearity	0,718	3	0,239	0,278	0,841
	Within Groups		186,551	217	0,860		
	Total		187,500	221			
SBP1 * Explor3	Between Groups	(Combined)	5,182	4	1,295	1,514	0,199
		Linearity	4,461	1	4,461	5,213	0,023
		Deviation from Linearity	0,720	3	0,240	0,281	0,839
	Within Groups		185,706	217	0,856		
	Total		190,887	221			
SBP2 * Explor3	Between Groups	(Combined)	23,137	4	5,784	4,767	0,001
		Linearity	19,493	1	19,493	16,064	0,000
		Deviation from Linearity	3,644	3	1,215	1,001	0,393
	Within Groups		263,318	217	1,213		
	Total		286,455	221			
SBP3 * Explor3	Between Groups	(Combined)	12,461	4	3,115	3,263	0,013
		Linearity	11,620	1	11,620	12,172	0,001
		Deviation from Linearity	0,841	3	0,280	0,294	0,830
	Within Groups		207,160	217	0,955		
	Total		219,622	221			
SBP4 * Explor3	Between Groups	(Combined)	16,493	4	4,123	4,065	0,003
		Linearity	13,720	1	13,720	13,526	0,000
		Deviation from Linearity	2,772	3	0,924	0,911	0,436
	Within Groups		220,124	217	1,014		
	Total		236,617	221			
SBP5 * Explor3	Between Groups	(Combined)	7,832	4	1,958	2,885	0,023
		Linearity	6,419	1	6,419	9,458	0,002

		Deviation from Linearity	1,412	3	0,471	0,694	0,557
	Within Groups		147,286	217	0,679		
	Total		155,117	221			
SBP6 * Explor3	Between Groups	(Combined)	12,583	4	3,146	4,501	0,002
		Linearity	11,091	1	11,091	15,870	0,000
		Deviation from Linearity	1,492	3	0,497	0,712	0,546
	Within Groups		151,656	217	0,699		
	Total		164,239	221			
SBP7 * Explor3	Between Groups	(Combined)	9,166	4	2,291	1,340	0,256
		Linearity	0,231	1	0,231	0,135	0,714
		Deviation from Linearity	8,935	3	2,978	1,742	0,159
	Within Groups		371,032	217	1,710		
	Total		380,198	221			
SBP8 * Explor3	Between Groups	(Combined)	23,993	4	5,998	6,160	0,000
		Linearity	22,799	1	22,799	23,416	0,000
		Deviation from Linearity	1,193	3	0,398	0,409	0,747
	Within Groups		211,287	217	0,974		
	Total		235,279	221			
SBP9 * Explor3	Between Groups	(Combined)	31,655	4	7,914	7,973	0,000
		Linearity	30,913	1	30,913	31,144	0,000
		Deviation from Linearity	0,742	3	0,247	0,249	0,862
	Within Groups		215,394	217	0,993		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * Explor4	Between Groups	(Combined)	11,539	4	2,885	1,557	0,187
		Linearity	4,895	1	4,895	2,641	0,106
		Deviation from Linearity	6,645	3	2,215	1,195	0,313

	Within Groups		402,177	217	1,853		
	Total		413,716	221			
PR_2018 * Explor4	Between Groups	(Combined)	50,218	4	12,555	2,441	0,048
		Linearity	0,068	1	0,068	0,013	0,909
		Deviation from Linearity	50,151	3	16,717	3,250	0,023
	Within Groups		1116,237	217	5,144		
	Total		1166,455	221			
SR_5 * Explor4	Between Groups	(Combined)	5,453	4	1,363	2,109	0,081
		Linearity	0,658	1	0,658	1,019	0,314
		Deviation from Linearity	4,794	3	1,598	2,472	0,063
	Within Groups		140,259	217	0,646		
	Total		145,712	221			
PR_5 * Explor4	Between Groups	(Combined)	2,874	4	0,718	0,844	0,498
		Linearity	0,011	1	0,011	0,013	0,910
		Deviation from Linearity	2,863	3	0,954	1,122	0,341
	Within Groups		184,626	217	0,851		
	Total		187,500	221			
SBP1 * Explor4	Between Groups	(Combined)	4,832	4	1,208	1,409	0,232
		Linearity	2,689	1	2,689	3,136	0,078
		Deviation from Linearity	2,143	3	0,714	0,833	0,477
	Within Groups		186,056	217	0,857		
	Total		190,887	221			
SBP2 * Explor4	Between Groups	(Combined)	20,987	4	5,247	4,289	0,002
		Linearity	19,216	1	19,216	15,707	0,000
		Deviation from Linearity	1,772	3	0,591	0,483	0,695
	Within Groups		265,467	217	1,223		
	Total		286,455	221			
SBP3 * Explor4	Between Groups	(Combined)	13,257	4	3,314	3,485	0,009
		Linearity	12,244	1	12,244	12,875	0,000

		Deviation from Linearity	1,014	3	0,338	0,355	0,785
	Within Groups		206,364	217	0,951		
	Total		219,622	221			
SBP4 * Explor4	Between Groups	(Combined)	6,974	4	1,744	1,648	0,163
		Linearity	6,242	1	6,242	5,899	0,016
		Deviation from Linearity	0,732	3	0,244	0,231	0,875
	Within Groups		229,643	217	1,058		
	Total		236,617	221			
SBP5 * Explor4	Between Groups	(Combined)	8,095	4	2,024	2,987	0,020
		Linearity	6,555	1	6,555	9,675	0,002
		Deviation from Linearity	1,540	3	0,513	0,758	0,519
	Within Groups		147,022	217	0,678		
	Total		155,117	221			
SBP6 * Explor4	Between Groups	(Combined)	8,640	4	2,160	3,012	0,019
		Linearity	6,531	1	6,531	9,108	0,003
		Deviation from Linearity	2,109	3	0,703	0,980	0,403
	Within Groups		155,599	217	0,717		
	Total		164,239	221			
SBP7 * Explor4	Between Groups	(Combined)	16,733	4	4,183	2,498	0,044
		Linearity	0,624	1	0,624	0,373	0,542
		Deviation from Linearity	16,109	3	5,370	3,206	0,024
	Within Groups		363,465	217	1,675		
	Total		380,198	221			
SBP8 * Explor4	Between Groups	(Combined)	22,915	4	5,729	5,854	0,000
		Linearity	18,327	1	18,327	18,727	0,000
		Deviation from Linearity	4,588	3	1,529	1,563	0,199
	Within Groups		212,364	217	0,979		
	Total		235,279	221			

SBP9 * Explor4	Between Groups	(Combined)	33,205	4	8,301	8,424	0,000
		Linearity	29,725	1	29,725	30,164	0,000
		Deviation from Linearity	3,480	3	1,160	1,177	0,319
	Within Groups		213,844	217	0,985		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * Explor5	Between Groups	(Combined)	8,615	4	2,154	1,154	0,332
		Linearity	2,978	1	2,978	1,595	0,208
		Deviation from Linearity	5,637	3	1,879	1,007	0,391
	Within Groups		405,101	217	1,867		
	Total		413,716	221			
PR_2018 * Explor5	Between Groups	(Combined)	49,968	4	12,492	2,428	0,049
		Linearity	33,921	1	33,921	6,593	0,011
		Deviation from Linearity	16,047	3	5,349	1,040	0,376
	Within Groups		1116,487	217	5,145		
	Total		1166,455	221			
SR_5 * Explor5	Between Groups	(Combined)	13,370	4	3,342	5,481	0,000
		Linearity	12,326	1	12,326	20,211	0,000
		Deviation from Linearity	1,044	3	0,348	0,571	0,635
	Within Groups		132,342	217	0,610		
	Total		145,712	221			
PR_5 * Explor5	Between Groups	(Combined)	8,966	4	2,242	2,724	0,030
		Linearity	7,306	1	7,306	8,880	0,003
		Deviation from Linearity	1,660	3	0,553	0,673	0,570
	Within Groups		178,534	217	0,823		
	Total		187,500	221			
SBP1 * Explor5	Between Groups	(Combined)	16,980	4	4,245	5,297	0,000
		Linearity	13,512	1	13,512	16,861	0,000

		Deviation from Linearity	3,468	3	1,156	1,442	0,231
	Within Groups		173,907	217	0,801		
	Total		190,887	221			
SBP2 * Explor5	Between Groups	(Combined)	33,541	4	8,385	7,195	0,000
		Linearity	28,174	1	28,174	24,174	0,000
		Deviation from Linearity	5,367	3	1,789	1,535	0,206
	Within Groups		252,914	217	1,166		
	Total		286,455	221			
SBP3 * Explor5	Between Groups	(Combined)	24,412	4	6,103	6,784	0,000
		Linearity	22,687	1	22,687	25,219	0,000
		Deviation from Linearity	1,725	3	0,575	0,639	0,590
	Within Groups		195,210	217	0,900		
	Total		219,622	221			
SBP4 * Explor5	Between Groups	(Combined)	26,001	4	6,500	6,697	0,000
		Linearity	25,028	1	25,028	25,786	0,000
		Deviation from Linearity	0,973	3	0,324	0,334	0,801
	Within Groups		210,616	217	0,971		
	Total		236,617	221			
SBP5 * Explor5	Between Groups	(Combined)	15,160	4	3,790	5,876	0,000
		Linearity	13,889	1	13,889	21,534	0,000
		Deviation from Linearity	1,271	3	0,424	0,657	0,579
	Within Groups		139,957	217	0,645		
	Total		155,117	221			
SBP6 * Explor5	Between Groups	(Combined)	19,197	4	4,799	7,180	0,000
		Linearity	18,540	1	18,540	27,738	0,000
		Deviation from Linearity	0,658	3	0,219	0,328	0,805
	Within Groups		145,041	217	0,668		
	Total		164,239	221			

SBP7 * Explor5	Between Groups	(Combined)	19,331	4	4,833	2,906	0,023
		Linearity	17,574	1	17,574	10,568	0,001
		Deviation from Linearity	1,757	3	0,586	0,352	0,788
	Within Groups		360,867	217	1,663		
	Total		380,198	221			
SBP8 * Explor5	Between Groups	(Combined)	41,919	4	10,480	11,761	0,000
		Linearity	36,424	1	36,424	40,877	0,000
		Deviation from Linearity	5,495	3	1,832	2,056	0,107
	Within Groups		193,360	217	0,891		
	Total		235,279	221			
SBP9 * Explor5	Between Groups	(Combined)	50,629	4	12,657	13,984	0,000
		Linearity	45,746	1	45,746	50,539	0,000
		Deviation from Linearity	4,883	3	1,628	1,798	0,148
	Within Groups		196,420	217	0,905		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * Explor6	Between Groups	(Combined)	2,299	4	0,575	0,303	0,876
		Linearity	0,586	1	0,586	0,309	0,579
		Deviation from Linearity	1,713	3	0,571	0,301	0,825
	Within Groups		411,417	217	1,896		
	Total		413,716	221			
PR_2018 * Explor6	Between Groups	(Combined)	41,412	4	10,353	1,997	0,096
		Linearity	28,316	1	28,316	5,462	0,020
		Deviation from Linearity	13,095	3	4,365	0,842	0,472
	Within Groups		1125,043	217	5,185		
	Total		1166,455	221			
SR_5 * Explor6	Between Groups	(Combined)	6,343	4	1,586	2,469	0,046
		Linearity	5,036	1	5,036	7,841	0,006

		Deviation from Linearity	1,307	3	0,436	0,678	0,566
	Within Groups		139,369	217	0,642		
	Total		145,712	221			
PR_5 * Explor6	Between Groups	(Combined)	5,069	4	1,267	1,507	0,201
		Linearity	2,569	1	2,569	3,056	0,082
		Deviation from Linearity	2,499	3	0,833	0,991	0,398
	Within Groups		182,431	217	0,841		
	Total		187,500	221			
SBP1 * Explor6	Between Groups	(Combined)	9,171	4	2,293	2,738	0,030
		Linearity	8,151	1	8,151	9,733	0,002
		Deviation from Linearity	1,020	3	0,340	0,406	0,749
	Within Groups		181,716	217	0,837		
	Total		190,887	221			
SBP2 * Explor6	Between Groups	(Combined)	21,355	4	5,339	4,370	0,002
		Linearity	14,473	1	14,473	11,847	0,001
		Deviation from Linearity	6,882	3	2,294	1,878	0,134
	Within Groups		265,099	217	1,222		
	Total		286,455	221			
SBP3 * Explor6	Between Groups	(Combined)	21,422	4	5,355	5,863	0,000
		Linearity	18,013	1	18,013	19,722	0,000
		Deviation from Linearity	3,409	3	1,136	1,244	0,295
	Within Groups		198,200	217	0,913		
	Total		219,622	221			
SBP4 * Explor6	Between Groups	(Combined)	22,183	4	5,546	5,612	0,000
		Linearity	17,806	1	17,806	18,019	0,000
		Deviation from Linearity	4,377	3	1,459	1,477	0,222
	Within Groups		214,434	217	0,988		
	Total		236,617	221			

SBP5 * Explor6	Between Groups	(Combined)	9,728	4	2,432	3,630	0,007
		Linearity	9,607	1	9,607	14,339	0,000
		Deviation from Linearity	0,121	3	0,040	0,060	0,981
	Within Groups		145,389	217	0,670		
	Total		155,117	221			
SBP6 * Explor6	Between Groups	(Combined)	12,005	4	3,001	4,278	0,002
		Linearity	10,320	1	10,320	14,711	0,000
		Deviation from Linearity	1,685	3	0,562	0,800	0,495
	Within Groups		152,234	217	0,702		
	Total		164,239	221			
SBP7 * Explor6	Between Groups	(Combined)	26,048	4	6,512	3,990	0,004
		Linearity	2,721	1	2,721	1,667	0,198
		Deviation from Linearity	23,328	3	7,776	4,765	0,003
	Within Groups		354,150	217	1,632		
	Total		380,198	221			
SBP8 * Explor6	Between Groups	(Combined)	30,106	4	7,527	7,960	0,000
		Linearity	27,495	1	27,495	29,080	0,000
		Deviation from Linearity	2,611	3	0,870	0,920	0,432
	Within Groups		205,173	217	0,945		
	Total		235,279	221			
SBP9 * Explor6	Between Groups	(Combined)	31,539	4	7,885	7,939	0,000
		Linearity	24,511	1	24,511	24,681	0,000
		Deviation from Linearity	7,027	3	2,342	2,359	0,073
	Within Groups		215,511	217	0,993		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * Explor7	Between Groups	(Combined)	3,867	4	0,967	0,512	0,727
		Linearity	1,974	1	1,974	1,045	0,308

		Deviation from Linearity	1,893	3	0,631	0,334	0,801
	Within Groups		409,849	217	1,889		
	Total		413,716	221			
PR_2018 * Explor7	Between Groups	(Combined)	14,956	4	3,739	0,705	0,590
		Linearity	14,512	1	14,512	2,735	0,100
		Deviation from Linearity	0,444	3	0,148	0,028	0,994
	Within Groups		1151,499	217	5,306		
	Total		1166,455	221			
SR_5 * Explor7	Between Groups	(Combined)	17,809	4	4,452	7,554	0,000
		Linearity	16,745	1	16,745	28,409	0,000
		Deviation from Linearity	1,065	3	0,355	0,602	0,614
	Within Groups		127,902	217	0,589		
	Total		145,712	221			
PR_5 * Explor7	Between Groups	(Combined)	13,235	4	3,309	4,120	0,003
		Linearity	11,743	1	11,743	14,623	0,000
		Deviation from Linearity	1,492	3	0,497	0,619	0,603
	Within Groups		174,265	217	0,803		
	Total		187,500	221			
SBP1 * Explor7	Between Groups	(Combined)	17,394	4	4,349	5,439	0,000
		Linearity	14,532	1	14,532	18,176	0,000
		Deviation from Linearity	2,863	3	0,954	1,194	0,313
	Within Groups		173,493	217	0,800		
	Total		190,887	221			
SBP2 * Explor7	Between Groups	(Combined)	49,692	4	12,423	11,386	0,000
		Linearity	44,831	1	44,831	41,089	0,000
		Deviation from Linearity	4,861	3	1,620	1,485	0,219
	Within Groups		236,763	217	1,091		
	Total		286,455	221			

SBP3 * Explor7	Between Groups	(Combined)	29,344	4	7,336	8,366	0,000
		Linearity	27,711	1	27,711	31,602	0,000
		Deviation from Linearity	1,633	3	0,544	0,621	0,602
	Within Groups		190,278	217	0,877		
	Total		219,622	221			
SBP4 * Explor7	Between Groups	(Combined)	23,962	4	5,990	6,113	0,000
		Linearity	21,550	1	21,550	21,990	0,000
		Deviation from Linearity	2,412	3	0,804	0,820	0,484
	Within Groups		212,655	217	0,980		
	Total		236,617	221			
SBP5 * Explor7	Between Groups	(Combined)	26,747	4	6,687	11,303	0,000
		Linearity	22,840	1	22,840	38,609	0,000
		Deviation from Linearity	3,907	3	1,302	2,201	0,089
	Within Groups		128,370	217	0,592		
	Total		155,117	221			
SBP6 * Explor7	Between Groups	(Combined)	32,736	4	8,184	13,505	0,000
		Linearity	27,425	1	27,425	45,256	0,000
		Deviation from Linearity	5,310	3	1,770	2,921	0,035
	Within Groups		131,503	217	0,606		
	Total		164,239	221			
SBP7 * Explor7	Between Groups	(Combined)	8,905	4	2,226	1,301	0,271
		Linearity	8,007	1	8,007	4,680	0,032
		Deviation from Linearity	0,898	3	0,299	0,175	0,913
	Within Groups		371,293	217	1,711		
	Total		380,198	221			
SBP8 * Explor7	Between Groups	(Combined)	42,675	4	10,669	12,020	0,000
		Linearity	40,177	1	40,177	45,266	0,000
		Deviation from Linearity	2,498	3	0,833	0,938	0,423

	Within Groups		192,604	217	0,888		
	Total		235,279	221			
SBP9 * Explor7	Between Groups	(Combined)	53,462	4	13,366	14,982	0,000
		Linearity	45,654	1	45,654	51,176	0,000
		Deviation from Linearity	7,808	3	2,603	2,917	0,035
	Within Groups		193,587	217	0,892		
	Total		247,050	221			
			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * Explor8	Between Groups	(Combined)	7,332	4	1,833	0,979	0,420
		Linearity	0,145	1	0,145	0,077	0,781
		Deviation from Linearity	7,188	3	2,396	1,279	0,282
	Within Groups		406,384	217	1,873		
	Total		413,716	221			
PR_2018 * Explor8	Between Groups	(Combined)	25,508	4	6,377	1,213	0,306
		Linearity	21,956	1	21,956	4,176	0,042
		Deviation from Linearity	3,552	3	1,184	0,225	0,879
	Within Groups		1140,947	217	5,258		
	Total		1166,455	221			
SR_5 * Explor8	Between Groups	(Combined)	8,914	4	2,229	3,535	0,008
		Linearity	8,550	1	8,550	13,563	0,000
		Deviation from Linearity	0,364	3	0,121	0,193	0,901
	Within Groups		136,797	217	0,630		
	Total		145,712	221			
PR_5 * Explor8	Between Groups	(Combined)	4,128	4	1,032	1,221	0,303
		Linearity	3,822	1	3,822	4,523	0,035
		Deviation from Linearity	0,307	3	0,102	0,121	0,948
	Within Groups		183,372	217	0,845		
	Total		187,500	221			

SBP1 * Explor8	Between Groups	(Combined)	10,360	4	2,590	3,113	0,016
		Linearity	5,141	1	5,141	6,180	0,014
		Deviation from Linearity	5,219	3	1,740	2,091	0,102
	Within Groups		180,528	217	0,832		
	Total		190,887	221			
SBP2 * Explor8	Between Groups	(Combined)	23,537	4	5,884	4,857	0,001
		Linearity	23,132	1	23,132	19,092	0,000
		Deviation from Linearity	0,405	3	0,135	0,112	0,953
	Within Groups		262,918	217	1,212		
	Total		286,455	221			
SBP3 * Explor8	Between Groups	(Combined)	29,478	4	7,370	8,410	0,000
		Linearity	27,503	1	27,503	31,387	0,000
		Deviation from Linearity	1,976	3	0,659	0,752	0,522
	Within Groups		190,143	217	0,876		
	Total		219,622	221			
SBP4 * Explor8	Between Groups	(Combined)	24,993	4	6,248	6,407	0,000
		Linearity	24,636	1	24,636	25,262	0,000
		Deviation from Linearity	0,357	3	0,119	0,122	0,947
	Within Groups		211,624	217	0,975		
	Total		236,617	221			
SBP5 * Explor8	Between Groups	(Combined)	9,951	4	2,488	3,719	0,006
		Linearity	6,931	1	6,931	10,361	0,001
		Deviation from Linearity	3,019	3	1,006	1,504	0,214
	Within Groups		145,167	217	0,669		
	Total		155,117	221			
SBP6 * Explor8	Between Groups	(Combined)	12,182	4	3,046	4,346	0,002
		Linearity	10,514	1	10,514	15,005	0,000
		Deviation from Linearity	1,668	3	0,556	0,793	0,499

	Within Groups		152,057	217	0,701		
	Total		164,239	221			
SBP7 * Explor8	Between Groups	(Combined)	13,727	4	3,432	2,032	0,091
		Linearity	4,595	1	4,595	2,721	0,100
		Deviation from Linearity	9,132	3	3,044	1,802	0,148
	Within Groups		366,471	217	1,689		
	Total		380,198	221			
SBP8 * Explor8	Between Groups	(Combined)	42,509	4	10,627	11,963	0,000
		Linearity	40,852	1	40,852	45,987	0,000
		Deviation from Linearity	1,657	3	0,552	0,622	0,602
	Within Groups		192,770	217	0,888		
	Total		235,279	221			
SBP9 * Explor8	Between Groups	(Combined)	46,709	4	11,677	12,648	0,000
		Linearity	41,842	1	41,842	45,322	0,000
		Deviation from Linearity	4,867	3	1,622	1,757	0,156
	Within Groups		200,340	217	0,923		
	Total		247,050	221			

Service differentiation			Sum of Squares	df	Mean Square	F	Sig.
SR_2018 * SD_Breadth	Between Groups	(Combined)	13,931	2	6,965	3,816	0,024
		Linearity	12,213	1	12,213	6,690	0,010
		Deviation from Linearity	1,718	1	1,718	0,941	0,333
	Within Groups		399,786	219	1,826		
	Total		413,716	221			
PR_2018 * SD_Breadth	Between Groups	(Combined)	4,109	2	2,054	0,387	0,680
		Linearity	1,990	1	1,990	0,375	0,541
		Deviation from Linearity	2,118	1	2,118	0,399	0,528
	Within Groups		1162,346	219	5,308		
	Total		1166,455	221			

SR_5 * SD_Breadth	Between Groups	(Combined)	7,880	2	3,940	6,261	0,002
		Linearity	2,012	1	2,012	3,197	0,075
		Deviation from Linearity	5,868	1	5,868	9,324	0,003
	Within Groups		137,831	219	0,629		
	Total		145,712	221			
PR_5 * SD_Breadth	Between Groups	(Combined)	3,426	2	1,713	2,038	0,133
		Linearity	0,011	1	0,011	0,014	0,907
		Deviation from Linearity	3,414	1	3,414	4,062	0,045
	Within Groups		184,074	219	0,841		
	Total		187,500	221			
SBP1 * SD_Breadth	Between Groups	(Combined)	3,948	2	1,974	2,313	0,101
		Linearity	1,384	1	1,384	1,621	0,204
		Deviation from Linearity	2,564	1	2,564	3,004	0,084
	Within Groups		186,939	219	0,854		
	Total		190,887	221			
SBP2 * SD_Breadth	Between Groups	(Combined)	2,501	2	1,250	0,964	0,383
		Linearity	2,197	1	2,197	1,694	0,194
		Deviation from Linearity	0,304	1	0,304	0,235	0,629
	Within Groups		283,954	219	1,297		
	Total		286,455	221			
SBP3 * SD_Breadth	Between Groups	(Combined)	2,945	2	1,472	1,488	0,228
		Linearity	2,084	1	2,084	2,106	0,148
		Deviation from Linearity	0,861	1	0,861	0,870	0,352
	Within Groups		216,677	219	0,989		
	Total		219,622	221			
SBP4 * SD_Breadth	Between Groups	(Combined)	1,049	2	0,524	0,488	0,615
		Linearity	0,475	1	0,475	0,442	0,507

		Deviation from Linearity	0,574	1	0,574	0,533	0,466
	Within Groups		235,568	219	1,076		
	Total		236,617	221			
SBP5 * SD_Breadth	Between Groups	(Combined)	7,217	2	3,608	5,343	0,005
		Linearity	5,660	1	5,660	8,380	0,004
		Deviation from Linearity	1,557	1	1,557	2,306	0,130
	Within Groups		147,900	219	0,675		
	Total		155,117	221			
SBP6 * SD_Breadth	Between Groups	(Combined)	9,156	2	4,578	6,465	0,002
		Linearity	7,406	1	7,406	10,458	0,001
		Deviation from Linearity	1,751	1	1,751	2,472	0,117
	Within Groups		155,082	219	0,708		
	Total		164,239	221			
SBP7 * SD_Breadth	Between Groups	(Combined)	14,124	2	7,062	4,225	0,016
		Linearity	14,007	1	14,007	8,379	0,004
		Deviation from Linearity	0,117	1	0,117	0,070	0,791
	Within Groups		366,074	219	1,672		
	Total		380,198	221			
SBP8 * SD_Breadth	Between Groups	(Combined)	13,468	2	6,734	6,649	0,002
		Linearity	8,594	1	8,594	8,485	0,004
		Deviation from Linearity	4,874	1	4,874	4,813	0,029
	Within Groups		221,811	219	1,013		
	Total		235,279	221			
SBP9 * SD_Breadth	Between Groups	(Combined)	16,491	2	8,246	7,832	0,001
		Linearity	10,324	1	10,324	9,807	0,002
		Deviation from Linearity	6,167	1	6,167	5,858	0,016
	Within Groups		230,558	219	1,053		

	Total		247,050	221			
SR_2018 * SD_Depth	Between Groups	(Combined)	6,495	2	3,248	1,747	0,177
		Linearity	5,258	1	5,258	2,828	0,094
		Deviation from Linearity	1,238	1	1,238	0,666	0,416
	Within Groups		407,221	219	1,859		
	Total		413,716	221			
PR_2018 * SD_Depth	Between Groups	(Combined)	13,119	2	6,560	1,246	0,290
		Linearity	7,368	1	7,368	1,399	0,238
		Deviation from Linearity	5,751	1	5,751	1,092	0,297
	Within Groups		1153,336	219	5,266		
	Total		1166,455	221			
SR_5 * SD_Depth	Between Groups	(Combined)	6,645	2	3,322	5,232	0,006
		Linearity	5,325	1	5,325	8,385	0,004
		Deviation from Linearity	1,320	1	1,320	2,079	0,151
	Within Groups		139,067	219	0,635		
	Total		145,712	221			
PR_5 * SD_Depth	Between Groups	(Combined)	5,480	2	2,740	3,296	0,039
		Linearity	2,602	1	2,602	3,130	0,078
		Deviation from Linearity	2,878	1	2,878	3,463	0,064
	Within Groups		182,020	219	0,831		
	Total		187,500	221			
SBP1 * SD_Depth	Between Groups	(Combined)	12,471	2	6,235	7,654	0,001
		Linearity	11,960	1	11,960	14,681	0,000
		Deviation from Linearity	0,511	1	0,511	0,627	0,429
	Within Groups		178,416	219	0,815		
	Total		190,887	221			
SBP2 * SD_Depth	Between Groups	(Combined)	12,955	2	6,477	5,187	0,006
		Linearity	12,407	1	12,407	9,934	0,002

		Deviation from Linearity	0,548	1	0,548	0,439	0,508
	Within Groups		273,500	219	1,249		
	Total		286,455	221			
SBP3 * SD_Depth	Between Groups	(Combined)	21,736	2	10,868	12,027	0,000
		Linearity	21,622	1	21,622	23,929	0,000
		Deviation from Linearity	0,114	1	0,114	0,126	0,723
	Within Groups		197,886	219	0,904		
	Total		219,622	221			
SBP4 * SD_Depth	Between Groups	(Combined)	14,421	2	7,211	7,107	0,001
		Linearity	14,208	1	14,208	14,003	0,000
		Deviation from Linearity	0,213	1	0,213	0,210	0,647
	Within Groups		222,196	219	1,015		
	Total		236,617	221			
SBP5 * SD_Depth	Between Groups	(Combined)	22,113	2	11,056	18,205	0,000
		Linearity	21,325	1	21,325	35,114	0,000
		Deviation from Linearity	0,787	1	0,787	1,297	0,256
	Within Groups		133,004	219	0,607		
	Total		155,117	221			
SBP6 * SD_Depth	Between Groups	(Combined)	26,386	2	13,193	20,959	0,000
		Linearity	24,870	1	24,870	39,510	0,000
		Deviation from Linearity	1,516	1	1,516	2,408	0,122
	Within Groups		137,853	219	0,629		
	Total		164,239	221			
SBP7 * SD_Depth	Between Groups	(Combined)	7,493	2	3,747	2,201	0,113
		Linearity	7,025	1	7,025	4,128	0,043
		Deviation from Linearity	0,468	1	0,468	0,275	0,600
	Within Groups		372,705	219	1,702		

	Total		380,198	221			
SBP8 * SD_Depth	Between Groups	(Combined)	24,551	2	12,276	12,757	0,000
		Linearity	24,495	1	24,495	25,457	0,000
		Deviation from Linearity	0,056	1	0,056	0,058	0,809
	Within Groups		210,728	219	0,962		
	Total		235,279	221			
SBP9 * SD_Depth	Between Groups	(Combined)	29,702	2	14,851	14,964	0,000
		Linearity	29,693	1	29,693	29,919	0,000
		Deviation from Linearity	0,010	1	0,010	0,010	0,921
	Within Groups		217,347	219	0,992		
	Total		247,050	221			
SR_2018 * SD_Focus Products	Between Groups	(Combined)	11,203	4	2,801	1,510	0,200
		Linearity	0,152	1	0,152	0,082	0,775
		Deviation from Linearity	11,052	3	3,684	1,986	0,117
	Within Groups		402,513	217	1,855		
	Total		413,716	221			
SR_2018 * SD_Focus Products	Between Groups	(Combined)	24,714	4	6,179	1,174	0,323
		Linearity	8,922	1	8,922	1,696	0,194
		Deviation from Linearity	15,792	3	5,264	1,000	0,394
	Within Groups		1141,741	217	5,261		
	Total		1166,455	221			
SR_5 * SD_Focus Products	Between Groups	(Combined)	10,820	4	2,705	4,351	0,002
		Linearity	3,795	1	3,795	6,104	0,014
		Deviation from Linearity	7,025	3	2,342	3,767	0,012
	Within Groups		134,892	217	0,622		
	Total		145,712	221			

PR_5 * SD_Focus Products	Between Groups	(Combined)	11,023	4	2,756	3,389	0,010
		Linearity	3,556	1	3,556	4,372	0,038
		Deviation from Linearity	7,467	3	2,489	3,061	0,029
	Within Groups		176,477	217	0,813		
	Total		187,500	221			
SBP1 * SD_Focus Products	Between Groups	(Combined)	19,795	4	4,949	6,277	0,000
		Linearity	14,815	1	14,815	18,790	0,000
		Deviation from Linearity	4,980	3	1,660	2,105	0,101
	Within Groups		171,093	217	0,788		
	Total		190,887	221			
SBP2 * SD_Focus Products	Between Groups	(Combined)	85,919	4	21,480	23,243	0,000
		Linearity	82,167	1	82,167	88,913	0,000
		Deviation from Linearity	3,751	3	1,250	1,353	0,258
	Within Groups		200,536	217	0,924		
	Total		286,455	221			
SBP3 * SD_Focus Products	Between Groups	(Combined)	34,669	4	8,667	10,169	0,000
		Linearity	34,358	1	34,358	40,311	0,000
		Deviation from Linearity	0,311	3	0,104	0,122	0,947
	Within Groups		184,953	217	0,852		
	Total		219,622	221			
SBP4 * SD_Focus Products	Between Groups	(Combined)	28,755	4	7,189	7,505	0,000
		Linearity	26,458	1	26,458	27,622	0,000
		Deviation from Linearity	2,296	3	0,765	0,799	0,496
	Within Groups		207,862	217	0,958		
	Total		236,617	221			

SBP5 * SD_Focus Products	Between Groups	(Combined)	23,504	4	5,876	9,688	0,000
		Linearity	22,282	1	22,282	36,739	0,000
		Deviation from Linearity	1,222	3	0,407	0,671	0,570
	Within Groups		131,613	217	0,607		
	Total		155,117	221			
SBP6 * SD_Focus Products	Between Groups	(Combined)	26,982	4	6,746	10,665	0,000
		Linearity	25,990	1	25,990	41,089	0,000
		Deviation from Linearity	0,992	3	0,331	0,523	0,667
	Within Groups		137,257	217	0,633		
	Total		164,239	221			
SBP7 * SD_Focus Products	Between Groups	(Combined)	21,383	4	5,346	3,233	0,013
		Linearity	9,979	1	9,979	6,035	0,015
		Deviation from Linearity	11,404	3	3,801	2,299	0,078
	Within Groups		358,815	217	1,654		
	Total		380,198	221			
SBP8 * SD_Focus Products	Between Groups	(Combined)	37,546	4	9,386	10,301	0,000
		Linearity	34,061	1	34,061	37,380	0,000
		Deviation from Linearity	3,484	3	1,161	1,275	0,284
	Within Groups		197,734	217	0,911		
	Total		235,279	221			
SBP9 * SD_Focus Products	Between Groups	(Combined)	46,318	4	11,579	12,518	0,000
		Linearity	43,665	1	43,665	47,203	0,000
		Deviation from Linearity	2,653	3	0,884	0,956	0,414
	Within Groups		200,732	217	0,925		
	Total		247,050	221			

SR_2018 * SD_CuP Products	Between Groups	(Combined)	10,051	4	2,513	1,351	0,252
		Linearity	0,675	1	0,675	0,363	0,547
		Deviation from Linearity	9,376	3	3,125	1,680	0,172
	Within Groups		403,665	217	1,860		
	Total		413,716	221			
PR_2018 * SD_CuP Products	Between Groups	(Combined)	15,663	4	3,916	0,738	0,567
		Linearity	10,881	1	10,881	2,052	0,153
		Deviation from Linearity	4,782	3	1,594	0,301	0,825
	Within Groups		1150,792	217	5,303		
	Total		1166,455	221			
SR_5 * SD_CuP Products	Between Groups	(Combined)	2,057	4	0,514	0,777	0,541
		Linearity	1,513	1	1,513	2,285	0,132
		Deviation from Linearity	0,544	3	0,181	0,274	0,844
	Within Groups		143,655	217	0,662		
	Total		145,712	221			
PR_5 * SD_CuP Products	Between Groups	(Combined)	4,372	4	1,093	1,295	0,273
		Linearity	0,783	1	0,783	0,927	0,337
		Deviation from Linearity	3,589	3	1,196	1,418	0,238
	Within Groups		183,128	217	0,844		
	Total		187,500	221			
SBP1 * SD_CuP Products	Between Groups	(Combined)	8,018	4	2,004	2,379	0,053
		Linearity	7,128	1	7,128	8,459	0,004
		Deviation from Linearity	0,890	3	0,297	0,352	0,788
	Within Groups		182,869	217	0,843		
	Total		190,887	221			

SBP2 * SD_CuP Products	Between Groups	(Combined)	59,640	4	14,910	14,265	0,000
		Linearity	54,682	1	54,682	52,316	0,000
		Deviation from Linearity	4,958	3	1,653	1,581	0,195
	Within Groups		226,815	217	1,045		
	Total		286,455	221			
SBP3 * SD_CuP Products	Between Groups	(Combined)	30,375	4	7,594	8,708	0,000
		Linearity	27,444	1	27,444	31,469	0,000
		Deviation from Linearity	2,931	3	0,977	1,120	0,342
	Within Groups		189,246	217	0,872		
	Total		219,622	221			
SBP4 * SD_CuP Products	Between Groups	(Combined)	21,734	4	5,433	5,487	0,000
		Linearity	18,841	1	18,841	19,027	0,000
		Deviation from Linearity	2,893	3	0,964	0,974	0,406
	Within Groups		214,884	217	0,990		
	Total		236,617	221			
SBP5 * SD_CuP Products	Between Groups	(Combined)	13,322	4	3,330	5,097	0,001
		Linearity	9,003	1	9,003	13,777	0,000
		Deviation from Linearity	4,319	3	1,440	2,203	0,089
	Within Groups		141,796	217	0,653		
	Total		155,117	221			
SBP6 * SD_CuP Products	Between Groups	(Combined)	15,149	4	3,787	5,512	0,000
		Linearity	11,524	1	11,524	16,773	0,000
		Deviation from Linearity	3,624	3	1,208	1,758	0,156
	Within Groups		149,090	217	0,687		
	Total		164,239	221			

SBP7 * SD_CuP Products	Between Groups	(Combined)	30,937	4	7,734	4,805	0,001
		Linearity	19,413	1	19,413	12,062	0,001
		Deviation from Linearity	11,524	3	3,841	2,387	0,070
	Within Groups		349,261	217	1,609		
	Total		380,198	221			
SBP8 * SD_CuP Products	Between Groups	(Combined)	22,886	4	5,722	5,846	0,000
		Linearity	20,939	1	20,939	21,393	0,000
		Deviation from Linearity	1,947	3	0,649	0,663	0,576
	Within Groups		212,393	217	0,979		
	Total		235,279	221			
SBP9 * SD_CuP Products	Between Groups	(Combined)	17,703	4	4,426	4,188	0,003
		Linearity	16,151	1	16,151	15,282	0,000
		Deviation from Linearity	1,552	3	0,517	0,489	0,690
	Within Groups		229,346	217	1,057		
	Total		247,050	221			
SR_2018 * SD_CuP Services	Between Groups	(Combined)	7,952	4	1,988	1,063	0,376
		Linearity	0,611	1	0,611	0,327	0,568
		Deviation from Linearity	7,341	3	2,447	1,309	0,272
	Within Groups		405,764	217	1,870		
	Total		413,716	221			
PR_2018 * SD_CuP Services	Between Groups	(Combined)	29,448	4	7,362	1,405	0,233
		Linearity	7,455	1	7,455	1,423	0,234
		Deviation from Linearity	21,993	3	7,331	1,399	0,244
	Within Groups		1137,007	217	5,240		
	Total		1166,455	221			

SR_5 * SD_CuP Services	Between Groups	(Combined)	3,027	4	0,757	1,151	0,334
		Linearity	2,638	1	2,638	4,011	0,046
		Deviation from Linearity	0,389	3	0,130	0,197	0,898
	Within Groups		142,685	217	0,658		
	Total		145,712	221			
PR_5 * SD_CuP Services	Between Groups	(Combined)	4,794	4	1,199	1,424	0,227
		Linearity	3,260	1	3,260	3,872	0,050
		Deviation from Linearity	1,534	3	0,511	0,607	0,611
	Within Groups		182,706	217	0,842		
	Total		187,500	221			
SBP1 * SD_CuP Services	Between Groups	(Combined)	10,684	4	2,671	3,216	0,014
		Linearity	7,185	1	7,185	8,652	0,004
		Deviation from Linearity	3,498	3	1,166	1,404	0,242
	Within Groups		180,204	217	0,830		
	Total		190,887	221			
SBP2 * SD_CuP Services	Between Groups	(Combined)	67,860	4	16,965	16,841	0,000
		Linearity	67,551	1	67,551	67,058	0,000
		Deviation from Linearity	0,310	3	0,103	0,102	0,959
	Within Groups		218,595	217	1,007		
	Total		286,455	221			
SBP3 * SD_CuP Services	Between Groups	(Combined)	35,094	4	8,773	10,317	0,000
		Linearity	28,559	1	28,559	33,585	0,000
		Deviation from Linearity	6,534	3	2,178	2,561	0,056
	Within Groups		184,528	217	0,850		
	Total		219,622	221			

SBP4 * SD_CuP Services	Between Groups	(Combined)	28,291	4	7,073	7,367	0,000
		Linearity	22,531	1	22,531	23,469	0,000
		Deviation from Linearity	5,760	3	1,920	2,000	0,115
	Within Groups		208,326	217	0,960		
	Total		236,617	221			
SBP5 * SD_CuP Services	Between Groups	(Combined)	20,926	4	5,231	8,460	0,000
		Linearity	18,474	1	18,474	29,874	0,000
		Deviation from Linearity	2,452	3	0,817	1,322	0,268
	Within Groups		134,191	217	0,618		
	Total		155,117	221			
SBP6 * SD_CuP Services	Between Groups	(Combined)	22,155	4	5,539	8,459	0,000
		Linearity	18,660	1	18,660	28,499	0,000
		Deviation from Linearity	3,495	3	1,165	1,779	0,152
	Within Groups		142,084	217	0,655		
	Total		164,239	221			
SBP7 * SD_CuP Services	Between Groups	(Combined)	58,795	4	14,699	9,924	0,000
		Linearity	11,740	1	11,740	7,926	0,005
		Deviation from Linearity	47,055	3	15,685	10,590	0,000
	Within Groups		321,403	217	1,481		
	Total		380,198	221			
SBP8 * SD_CuP Services	Between Groups	(Combined)	31,616	4	7,904	8,422	0,000
		Linearity	31,006	1	31,006	33,036	0,000
		Deviation from Linearity	0,610	3	0,203	0,217	0,885
	Within Groups		203,663	217	0,939		
	Total		235,279	221			

SBP9 * SD_CuP Services	Between Groups	(Combined)	36,987	4	9,247	9,552	0,000
		Linearity	36,503	1	36,503	37,709	0,000
		Deviation from Linearity	0,483	3	0,161	0,166	0,919
	Within Groups		210,063	217	0,968		
	Total		247,050	221			
SR_2018 * SD_Level	Between Groups	(Combined)	4,168	4	1,042	0,552	0,698
		Linearity	0,006	1	0,006	0,003	0,956
		Deviation from Linearity	4,162	3	1,387	0,735	0,532
	Within Groups		409,549	217	1,887		
	Total		413,716	221			
PR_2018 * SD_Level	Between Groups	(Combined)	74,573	4	18,643	3,705	0,006
		Linearity	15,930	1	15,930	3,166	0,077
		Deviation from Linearity	58,643	3	19,548	3,885	0,010
	Within Groups		1091,882	217	5,032		
	Total		1166,455	221			
SR_5 * SD_Level	Between Groups	(Combined)	6,039	4	1,510	2,345	0,056
		Linearity	0,335	1	0,335	0,521	0,471
		Deviation from Linearity	5,703	3	1,901	2,954	0,033
	Within Groups		139,673	217	0,644		
	Total		145,712	221			
PR_5 * SD_Level	Between Groups	(Combined)	7,741	4	1,935	2,336	0,056
		Linearity	0,141	1	0,141	0,170	0,680
		Deviation from Linearity	7,600	3	2,533	3,058	0,029
	Within Groups		179,759	217	0,828		
	Total		187,500	221			
SBP1 * SD_Level	Between Groups	(Combined)	9,730	4	2,432	2,914	0,022
		Linearity	1,833	1	1,833	2,196	0,140

		Deviation from Linearity	7,896	3	2,632	3,153	0,026
	Within Groups		181,158	217	0,835		
	Total		190,887	221			
SBP2 * SD_Level	Between Groups	(Combined)	35,045	4	8,761	7,562	0,000
		Linearity	24,290	1	24,290	20,965	0,000
		Deviation from Linearity	10,755	3	3,585	3,094	0,028
	Within Groups		251,410	217	1,159		
	Total		286,455	221			
SBP3 * SD_Level	Between Groups	(Combined)	15,529	4	3,882	4,128	0,003
		Linearity	11,195	1	11,195	11,903	0,001
		Deviation from Linearity	4,334	3	1,445	1,536	0,206
	Within Groups		204,093	217	0,941		
	Total		219,622	221			
SBP4 * SD_Level	Between Groups	(Combined)	17,010	4	4,252	4,202	0,003
		Linearity	11,249	1	11,249	11,115	0,001
		Deviation from Linearity	5,761	3	1,920	1,897	0,131
	Within Groups		219,607	217	1,012		
	Total		236,617	221			
SBP5 * SD_Level	Between Groups	(Combined)	5,391	4	1,348	1,953	0,103
		Linearity	3,378	1	3,378	4,896	0,028
		Deviation from Linearity	2,013	3	0,671	0,972	0,407
	Within Groups		149,726	217	0,690		
	Total		155,117	221			
SBP6 * SD_Level	Between Groups	(Combined)	10,886	4	2,721	3,851	0,005
		Linearity	4,066	1	4,066	5,753	0,017
		Deviation from Linearity	6,820	3	2,273	3,217	0,024
	Within Groups		153,353	217	0,707		

	Total		164,239	221			
SBP7 * SD_Level	Between Groups	(Combined)	6,975	4	1,744	1,014	0,401
		Linearity	0,093	1	0,093	0,054	0,816
		Deviation from Linearity	6,881	3	2,294	1,334	0,264
	Within Groups		373,223	217	1,720		
	Total		380,198	221			
SBP8 * SD_Level	Between Groups	(Combined)	31,306	4	7,827	8,326	0,000
		Linearity	18,341	1	18,341	19,512	0,000
		Deviation from Linearity	12,965	3	4,322	4,598	0,004
	Within Groups		203,973	217	0,940		
	Total		235,279	221			
SBP9 * SD_Level	Between Groups	(Combined)	32,413	4	8,103	8,192	0,000
		Linearity	19,622	1	19,622	19,838	0,000
		Deviation from Linearity	12,791	3	4,264	4,311	0,006
	Within Groups		214,637	217	0,989		
	Total		247,050	221			
SR_2018 * SD_CoP	Between Groups	(Combined)	5,999	4	1,500	0,798	0,528
		Linearity	1,288	1	1,288	0,686	0,409
		Deviation from Linearity	4,710	3	1,570	0,836	0,476
	Within Groups		407,718	217	1,879		
	Total		413,716	221			
PR_2018 * SD_CoP	Between Groups	(Combined)	18,073	4	4,518	0,854	0,493
		Linearity	0,118	1	0,118	0,022	0,881
		Deviation from Linearity	17,954	3	5,985	1,131	0,337
	Within Groups		1148,382	217	5,292		
	Total		1166,455	221			
SR_5 * SD_CoP	Between Groups	(Combined)	2,295	4	0,574	0,868	0,484
		Linearity	1,226	1	1,226	1,855	0,175

		Deviation from Linearity	1,069	3	0,356	0,539	0,656
	Within Groups		143,417	217	0,661		
	Total		145,712	221			
PR_5 * SD_CoP	Between Groups	(Combined)	1,116	4	0,279	0,325	0,861
		Linearity	0,135	1	0,135	0,157	0,692
		Deviation from Linearity	0,980	3	0,327	0,380	0,767
	Within Groups		186,384	217	0,859		
	Total		187,500	221			
SBP1 * SD_CoP	Between Groups	(Combined)	19,411	4	4,853	6,141	0,000
		Linearity	16,235	1	16,235	20,545	0,000
		Deviation from Linearity	3,176	3	1,059	1,340	0,262
	Within Groups		171,476	217	0,790		
	Total		190,887	221			
SBP2 * SD_CoP	Between Groups	(Combined)	21,763	4	5,441	4,460	0,002
		Linearity	14,249	1	14,249	11,682	0,001
		Deviation from Linearity	7,513	3	2,504	2,053	0,107
	Within Groups		264,692	217	1,220		
	Total		286,455	221			
SBP3 * SD_CoP	Between Groups	(Combined)	16,562	4	4,140	4,425	0,002
		Linearity	10,319	1	10,319	11,027	0,001
		Deviation from Linearity	6,243	3	2,081	2,224	0,086
	Within Groups		203,060	217	0,936		
	Total		219,622	221			
SBP4 * SD_CoP	Between Groups	(Combined)	10,541	4	2,635	2,530	0,042
		Linearity	6,474	1	6,474	6,214	0,013
		Deviation from Linearity	4,067	3	1,356	1,301	0,275
	Within Groups		226,076	217	1,042		

	Total		236,617	221			
SBP5 * SD_CoP	Between Groups	(Combined)	17,517	4	4,379	6,906	0,000
		Linearity	12,675	1	12,675	19,988	0,000
		Deviation from Linearity	4,843	3	1,614	2,546	0,057
	Within Groups		137,600	217	0,634		
	Total		155,117	221			
SBP6 * SD_CoP	Between Groups	(Combined)	21,166	4	5,292	8,026	0,000
		Linearity	19,579	1	19,579	29,696	0,000
		Deviation from Linearity	1,587	3	0,529	0,802	0,494
	Within Groups		143,073	217	0,659		
	Total		164,239	221			
SBP7 * SD_CoP	Between Groups	(Combined)	7,400	4	1,850	1,077	0,369
		Linearity	1,981	1	1,981	1,153	0,284
		Deviation from Linearity	5,419	3	1,806	1,051	0,371
	Within Groups		372,798	217	1,718		
	Total		380,198	221			
SBP8 * SD_CoP	Between Groups	(Combined)	27,399	4	6,850	7,150	0,000
		Linearity	23,776	1	23,776	24,819	0,000
		Deviation from Linearity	3,623	3	1,208	1,261	0,289
	Within Groups		207,880	217	0,958		
	Total		235,279	221			
SBP9 * SD_CoP	Between Groups	(Combined)	41,097	4	10,274	10,825	0,000
		Linearity	35,871	1	35,871	37,795	0,000
		Deviation from Linearity	5,226	3	1,742	1,836	0,142
	Within Groups		205,952	217	0,949		
	Total		247,050	221			
SR_2018 * SD_Number_BT	Between Groups	(Combined)	6,834	5	1,367	0,726	0,605
		Linearity	0,804	1	0,804	0,427	0,514

		Deviation from Linearity	6,030	4	1,507	0,800	0,526
	Within Groups		406,882	216	1,884		
	Total		413,716	221			
PR_2018 * SD_Number_BT	Between Groups	(Combined)	11,940	5	2,388	0,447	0,815
		Linearity	5,011	1	5,011	0,938	0,334
		Deviation from Linearity	6,929	4	1,732	0,324	0,862
	Within Groups		1154,515	216	5,345		
	Total		1166,455	221			
SR_5 * SD_Number_BT	Between Groups	(Combined)	2,508	5	0,502	0,757	0,582
		Linearity	0,549	1	0,549	0,829	0,364
		Deviation from Linearity	1,959	4	0,490	0,739	0,566
	Within Groups		143,203	216	0,663		
	Total		145,712	221			
PR_5 * SD_Number_BT	Between Groups	(Combined)	12,277	5	2,455	3,027	0,012
		Linearity	6,516	1	6,516	8,032	0,005
		Deviation from Linearity	5,761	4	1,440	1,776	0,135
	Within Groups		175,223	216	0,811		
	Total		187,500	221			
SBP1 * SD_Number_BT	Between Groups	(Combined)	7,596	5	1,519	1,790	0,116
		Linearity	0,132	1	0,132	0,156	0,694
		Deviation from Linearity	7,464	4	1,866	2,199	0,070
	Within Groups		183,292	216	0,849		
	Total		190,887	221			
SBP2 * SD_Number_BT	Between Groups	(Combined)	9,464	5	1,893	1,476	0,199
		Linearity	1,593	1	1,593	1,242	0,266

		Deviation from Linearity	7,871	4	1,968	1,534	0,193
	Within Groups		276,991	216	1,282		
	Total		286,455	221			
SBP3 * SD_Number_BT	Between Groups	(Combined)	10,376	5	2,075	2,142	0,062
		Linearity	1,542	1	1,542	1,592	0,208
		Deviation from Linearity	8,834	4	2,208	2,280	0,062
	Within Groups		209,246	216	0,969		
	Total		219,622	221			
SBP4 * SD_Number_BT	Between Groups	(Combined)	15,050	5	3,010	2,934	0,014
		Linearity	2,447	1	2,447	2,386	0,124
		Deviation from Linearity	12,603	4	3,151	3,072	0,017
	Within Groups		221,567	216	1,026		
	Total		236,617	221			
SBP5 * SD_Number_BT	Between Groups	(Combined)	4,842	5	0,968	1,392	0,228
		Linearity	0,004	1	0,004	0,006	0,939
		Deviation from Linearity	4,838	4	1,210	1,739	0,143
	Within Groups		150,275	216	0,696		
	Total		155,117	221			
SBP6 * SD_Number_BT	Between Groups	(Combined)	4,672	5	0,934	1,265	0,280
		Linearity	0,042	1	0,042	0,057	0,811
		Deviation from Linearity	4,630	4	1,157	1,567	0,184
	Within Groups		159,567	216	0,739		
	Total		164,239	221			
SBP7 * SD_Number_BT	Between Groups	(Combined)	18,671	5	3,734	2,231	0,052
		Linearity	4,149	1	4,149	2,479	0,117

		Deviation from Linearity	14,522	4	3,631	2,169	0,074
	Within Groups		361,527	216	1,674		
	Total		380,198	221			
SBP8 * SD_Number_BT	Between Groups	(Combined)	8,680	5	1,736	1,655	0,147
		Linearity	0,063	1	0,063	0,060	0,807
		Deviation from Linearity	8,617	4	2,154	2,053	0,088
	Within Groups		226,599	216	1,049		
	Total		235,279	221			
SBP9 * SD_Number_BT	Between Groups	(Combined)	7,444	5	1,489	1,342	0,248
		Linearity	0,047	1	0,047	0,042	0,838
		Deviation from Linearity	7,398	4	1,849	1,667	0,159
	Within Groups		239,605	216	1,109		
	Total		247,050	221			

APPENDIX 7

TEST FOR MULTICOLLINEARITY

Coefficients[a]			
Customer orientation		Collinearity Statistics	
		Tolerance	**VIF**
1	CuO2	.750	1.334
	CuO3	.759	1.317
	CuO4	.597	1.675
	CuO5	.567	1.765
	CuO6	.549	1.820
	CuO7	.759	1.318
	CuO8	.767	1.305
	CuO9	.657	1.522
	CuO10	.699	1.431
	CuO11	.681	1.468
a. Dependent Variable: CuO1			
Competitor orientation		Collinearity Statistics	
		Tolerance	**VIF**
2	CoO2	.680	1.472
	CoO3	.669	1.496
	CoO4	.777	1.286
	CoO5	.597	1.675
	CoO6	.603	1.657
	CoO7	.801	1.248
a. Dependent Variable: CoO1			
Interfunctional coordination		Collinearity Statistics	
		Tolerance	**VIF**
3	IFC2	.457	2.189
	IFC3	.416	2.402
	IFC4	.549	1.821
	IFC5	.411	2.436
	IFC6	.620	1.614
	IFC7	.615	1.627
	IFC8	.467	2.142
	IFC9	.813	1.230
a. Dependent Variable: IFC1			
Exploitative innovation		Collinearity Statistics	
		Tolerance	**VIF**

4	Exploi_2	.622	1.609
	Exploi_3	.908	1.102
	Exploi_4	.609	1.642
a. Dependent Variable: Exploi_1			
Exploratory innovation		Collinearity Statistics	
		Tolerance	**VIF**
5	Explor_2	.412	2.428
	Explor_3	.513	1.950
	Explor_4	.556	1.797
	Explor_5	.439	2.277
	Explor_6	.635	1.575
	Explor_7	.652	1.533
	Explor_8	.492	2.031
a. Dependent Variable: Explor_1			
Service differentiation		Collinearity Statistics	
		Tolerance	**VIF**
6	SD_Depth	.926	1.079
	SD_CuP_Products	.709	1.410
	SD_CuP_Services	.584	1.713
	SD_Level	.871	1.148
	SD_Co	.821	1.218
	SD_Number_BT	.918	1.090
a. Dependent Variable: SD_Breadth			

APPENDIX 8

COVARIANCES BETWEEN THE INDEPENDENT VARIABLES

			Estimate	SE	C.R.	P
CuO	<-->	CuO_x_SD_Depth	-,054	,068	-,799	,424
CuO	<-->	CuO_x_SD_Level	-,093	,070	-1,336	,182
CuO	<-->	CuO_x_SD_Number_BT	,063	,070	,892	,372
CuO	<-->	CuO_x_SD_CuP	,109	,071	1,535	,125
CuO	<-->	CuO_x_SD_CoP	-,031	,069	-,449	,653
CoO	<-->	CuO	,722	,083	8,731	***
CuO	<-->	CoO_x_SD_Breadth	-,059	,070	-,851	,395
CuO	<-->	CoO_x_SD_Depth	-,073	,071	-1,038	,299
CuO	<-->	CoO_x_SD_Level	,048	,072	,675	,500
CuO	<-->	CoO_x_SD_Number_BT	,015	,066	,231	,817
CuO	<-->	CoO_x_SD_CuP	,032	,070	,458	,647
CuO	<-->	CoO_x_SD_CoP	-,036	,073	-,485	,627
ZIFC	<-->	CuO	,687	,081	8,442	***
CuO	<-->	IFC_x_SD_Breadth	-,084	,071	-1,180	,238
IFC_x_SD_Depth	<-->	CuO	-,135	,075	-1,807	,071
CuO	<-->	IFC_x_SD_Level	,022	,073	,301	,764
CuO	<-->	IFC_x_SD_Number_BT	,005	,067	,073	,942
CuO	<-->	IFC_x_SD_CuP	,015	,067	,225	,822
CuO	<-->	IFC_x_SD_CoP	-,013	,069	-,190	,850
Explor	<-->	CuO	,726	,083	8,763	***
CuO	<-->	Explor_x_SD_Breadth	-,121	,073	-1,649	,099
CuO	<-->	Explor_x_SD_Depth	-,096	,069	-1,381	,167
CuO	<-->	Explor_x_SD_Level	-,023	,074	-,311	,756

			Estimate	SE	C.R.	P
CuO	<-->	Explor_x_SD_Number_BT	,039	,065	,600	,548
CuO	<-->	Explor_x_SD_CuP	,051	,071	,722	,471
CuO	<-->	Explor_x_SD_CoP	-,020	,072	-,279	,780
CuO	<-->	SD_Breadth	,044	,067	,656	,512
SD_Depth	<-->	CuO	,287	,070	4,112	***
CuO	<-->	SD_Level	,313	,070	4,456	***
CuO	<-->	SD_Number_BT	-,087	,067	-1,289	,197
CuO	<-->	SD_CuP	-,370	,071	-5,179	***
CuO	<-->	SD_CoP	,420	,073	5,784	***
CuO_x_SD_Depth	<-->	CuO_x_SD_Breadth	,433	,079	5,517	***
CuO_x_SD_Level	<-->	CuO_x_SD_Breadth	-,074	,075	-,990	,322
CuO_x_SD_Number_BT	<-->	CuO_x_SD_Breadth	-,040	,075	-,535	,593
CuO_x_SD_CuP	<-->	CuO_x_SD_Breadth	-,036	,076	-,471	,638
CuO_x_SD_CoP	<-->	CuO_x_SD_Breadth	,222	,076	2,909	,004
CoO	<-->	CuO_x_SD_Breadth	-,059	,072	-,821	,412
CoO_x_SD_Breadth	<-->	CuO_x_SD_Breadth	,902	,097	9,350	***
CoO_x_SD_Depth	<-->	CuO_x_SD_Breadth	,365	,080	4,576	***
CoO_x_SD_Level	<-->	CuO_x_SD_Breadth	-,059	,077	-,758	,448
CoO_x_SD_Number_BT	<-->	CuO_x_SD_Breadth	-,041	,071	-,571	,568
CoO_x_SD_CuP	<-->	CuO_x_SD_Breadth	-,023	,076	-,301	,763
CoO_x_SD_CoP	<-->	CuO_x_SD_Breadth	,197	,080	2,460	,014
ZIFC	<-->	CuO_x_SD_Breadth	-,084	,072	-1,166	,244
IFC_x_SD_Breadth	<-->	CuO_x_SD_Breadth	,800	,094	8,534	***
IFC_x_SD_Depth	<-->	CuO_x_SD_Breadth	,390	,084	4,646	***
IFC_x_SD_Level	<-->	CuO_x_SD_Breadth	-,110	,079	-1,394	,163
IFC_x_SD_Number_BT	<-->	CuO_x_SD_Breadth	-,008	,072	-,116	,908
IFC_x_SD_CuP	<-->	CuO_x_SD_Breadth	-,003	,072	-,040	,968

			Estimate	SE	C.R.	P
IFC_x_SD_CoP	<-->	CuO_x_SD_Breadth	,091	,074	1,225	,221
Explor	<-->	CuO_x_SD_Breadth	-,121	,073	-1,664	,096
Explor_x_SD_Breadth	<-->	CuO_x_SD_Breadth	,904	,099	9,110	***
Explor_x_SD_Depth	<-->	CuO_x_SD_Breadth	,294	,077	3,814	***
Explor_x_SD_Level	<-->	CuO_x_SD_Breadth	-,073	,080	-,908	,364
Explor_x_SD_Number_BT	<-->	CuO_x_SD_Breadth	-,107	,071	-1,509	,131
Explor_x_SD_CuP	<-->	CuO_x_SD_Breadth	,021	,076	,270	,787
Explor_x_SD_CoP	<-->	CuO_x_SD_Breadth	,191	,079	2,418	,016
SD_Breadth	<-->	CuO_x_SD_Breadth	,194	,073	2,640	,008
SD_Depth	<-->	CuO_x_SD_Breadth	-,134	,073	-1,838	,066
SD_Level	<-->	CuO_x_SD_Breadth	-,047	,072	-,656	,512
SD_Number_BT	<-->	CuO_x_SD_Breadth	,071	,072	,979	,327
SD_CuP	<-->	CuO_x_SD_Breadth	,079	,072	1,095	,274
SD_CoP	<-->	CuO_x_SD_Breadth	,029	,072	,408	,683
CuO_x_SD_Depth	<-->	CuO_x_SD_Number_BT	,060	,071	,852	,394
CuO_x_SD_Depth	<-->	CuO_x_SD_CuP	-,074	,071	-1,040	,298
CuO_x_SD_Depth	<-->	CuO_x_SD_CoP	,317	,073	4,330	***
CoO	<-->	CuO_x_SD_Depth	-,073	,068	-1,079	,280
CuO_x_SD_Depth	<-->	CoO_x_SD_Breadth	,362	,074	4,856	***
CuO_x_SD_Depth	<-->	CoO_x_SD_Depth	,806	,089	9,015	***
CuO_x_SD_Depth	<-->	CoO_x_SD_Level	,109	,073	1,499	,134
CuO_x_SD_Depth	<-->	CoO_x_SD_Number_BT	,008	,067	,124	,902
CuO_x_SD_Depth	<-->	CoO_x_SD_CuP	-,079	,071	-1,106	,269
CuO_x_SD_Depth	<-->	CoO_x_SD_CoP	,280	,076	3,669	***
ZIFC	<-->	CuO_x_SD_Depth	-,135	,068	-1,972	,049
CuO_x_SD_Depth	<-->	IFC_x_SD_Breadth	,382	,076	4,995	***
IFC_x_SD_Depth	<-->	CuO_x_SD_Depth	,819	,093	8,820	***

			Estimate	SE	C.R.	P
CuO_x_SD_Depth	<-->	IFC_x_SD_Level	,028	,074	,372	,710
CuO_x_SD_Depth	<-->	IFC_x_SD_Number_BT	,112	,068	1,658	,097
CuO_x_SD_Depth	<-->	IFC_x_SD_CuP	-,035	,068	-,524	,600
CuO_x_SD_Depth	<-->	IFC_x_SD_CoP	,193	,071	2,729	,006
Explor	<-->	CuO_x_SD_Depth	-,096	,068	-1,409	,159
CuO_x_SD_Depth	<-->	Explor_x_SD_Breadth	,295	,076	3,868	***
CuO_x_SD_Depth	<-->	Explor_x_SD_Depth	,760	,086	8,783	***
CuO_x_SD_Depth	<-->	Explor_x_SD_Level	,125	,076	1,655	,098
CuO_x_SD_Depth	<-->	Explor_x_SD_Number_BT	,023	,066	,349	,727
CuO_x_SD_Depth	<-->	Explor_x_SD_CuP	-,050	,072	-,696	,486
CuO_x_SD_Depth	<-->	Explor_x_SD_CoP	,330	,077	4,314	***
CuO_x_SD_Depth	<-->	SD_Breadth	-,134	,068	-1,957	,050
SD_Depth	<-->	CuO_x_SD_Depth	-,184	,069	-2,681	,007
CuO_x_SD_Depth	<-->	SD_Level	-,039	,068	-,579	,563
CuO_x_SD_Depth	<-->	SD_Number_BT	,078	,068	1,143	,253
CuO_x_SD_Depth	<-->	SD_CuP	-,026	,068	-,382	,702
CuO_x_SD_Depth	<-->	SD_CoP	-,141	,068	-2,064	,039
CuO_x_SD_Level	<-->	CuO_x_SD_CuP	-,293	,076	-3,860	***
CuO_x_SD_Level	<-->	CuO_x_SD_CoP	,241	,074	3,254	,001
CoO	<-->	CuO_x_SD_Level	,048	,070	,695	,487
CuO_x_SD_Level	<-->	CoO_x_SD_Breadth	-,057	,073	-,786	,432
CuO_x_SD_Level	<-->	CoO_x_SD_Depth	,140	,074	1,903	,057
CuO_x_SD_Level	<-->	CoO_x_SD_Level	,845	,094	9,014	***
CuO_x_SD_Level	<-->	CoO_x_SD_Number_BT	-,002	,069	-,022	,982
CuO_x_SD_Level	<-->	CoO_x_SD_CuP	-,241	,075	-3,224	,001
CuO_x_SD_Level	<-->	CoO_x_SD_CoP	,346	,080	4,340	***
ZIFC	<-->	CuO_x_SD_Level	,022	,070	,316	,752

			Estimate	SE	C.R.	P
CuO_x_SD_Level	<-->	IFC_x_SD_Breadth	-,119	,075	-1,600	,110
IFC_x_SD_Depth	<-->	CuO_x_SD_Level	,025	,077	,326	,744
CuO_x_SD_Level	<-->	IFC_x_SD_Level	,786	,093	8,478	***
CuO_x_SD_Level	<-->	IFC_x_SD_Number_BT	,015	,069	,219	,827
CuO_x_SD_Level	<-->	IFC_x_SD_CuP	-,208	,071	-2,927	,003
CuO_x_SD_Level	<-->	IFC_x_SD_CoP	,187	,073	2,569	,010
Explor	<-->	CuO_x_SD_Level	-,023	,070	-,332	,740
CuO_x_SD_Level	<-->	Explor_x_SD_Breadth	-,072	,076	-,947	,344
CuO_x_SD_Level	<-->	Explor_x_SD_Depth	,125	,072	1,723	,085
CuO_x_SD_Level	<-->	Explor_x_SD_Level	,894	,098	9,120	***
CuO_x_SD_Level	<-->	Explor_x_SD_Number_BT	,001	,068	,012	,990
CuO_x_SD_Level	<-->	Explor_x_SD_CuP	-,279	,076	-3,664	***
CuO_x_SD_Level	<-->	Explor_x_SD_CoP	,299	,078	3,827	***
CuO_x_SD_Level	<-->	SD_Breadth	-,047	,070	-,679	,497
SD_Depth	<-->	CuO_x_SD_Level	-,039	,070	-,562	,574
CuO_x_SD_Level	<-->	SD_Level	,127	,070	1,808	,071
CuO_x_SD_Level	<-->	SD_Number_BT	,014	,070	,204	,838
CuO_x_SD_Level	<-->	SD_CuP	,044	,070	,627	,531
CuO_x_SD_Level	<-->	SD_CoP	-,075	,070	-1,069	,285
CuO_x_SD_Number_BT	<-->	CuO_x_SD_CoP	-,193	,074	-2,618	,009
CoO	<-->	CuO_x_SD_Number_BT	,015	,070	,219	,827
CuO_x_SD_Number_BT	<-->	CoO_x_SD_Breadth	-,039	,073	-,542	,588
CuO_x_SD_Number_BT	<-->	CoO_x_SD_Depth	,011	,073	,147	,883
CuO_x_SD_Number_BT	<-->	CoO_x_SD_Level	,011	,075	,143	,886
CuO_x_SD_Number_BT	<-->	CoO_x_SD_Number_BT	,757	,086	8,823	***
CuO_x_SD_Number_BT	<-->	CoO_x_SD_CuP	,189	,074	2,536	,011
CuO_x_SD_Number_BT	<-->	CoO_x_SD_CoP	-,188	,077	-2,421	,015

			Estimate	SE	C.R.	P
ZIFC	<-->	CuO_x_SD_Number_BT	,005	,070	,069	,945
CuO_x_SD_Number_BT	<-->	IFC_x_SD_Breadth	-,003	,074	-,038	,969
IFC_x_SD_Depth	<-->	CuO_x_SD_Number_BT	,132	,078	1,702	,089
CuO_x_SD_Number_BT	<-->	IFC_x_SD_Level	,036	,076	,475	,635
CuO_x_SD_Number_BT	<-->	IFC_x_SD_Number_BT	,719	,085	8,485	***
CuO_x_SD_Number_BT	<-->	IFC_x_SD_CuP	,097	,070	1,385	,166
CuO_x_SD_Number_BT	<-->	IFC_x_SD_CoP	-,079	,072	-1,103	,270
Explor	<-->	CuO_x_SD_Number_BT	,039	,070	,562	,574
CuO_x_SD_Number_BT	<-->	Explor_x_SD_Breadth	-,104	,076	-1,364	,173
CuO_x_SD_Number_BT	<-->	Explor_x_SD_Depth	,043	,072	,602	,547
CuO_x_SD_Number_BT	<-->	Explor_x_SD_Level	,023	,078	,294	,769
CuO_x_SD_Number_BT	<-->	Explor_x_SD_Number_BT	,780	,086	9,057	***
CuO_x_SD_Number_BT	<-->	Explor_x_SD_CuP	,229	,076	3,026	,002
CuO_x_SD_Number_BT	<-->	Explor_x_SD_CoP	-,175	,077	-2,280	,023
CuO_x_SD_Number_BT	<-->	SD_Breadth	,071	,070	1,010	,312
SD_Depth	<-->	CuO_x_SD_Number_BT	,078	,070	1,106	,269
CuO_x_SD_Number_BT	<-->	SD_Level	,014	,070	,203	,839
CuO_x_SD_Number_BT	<-->	SD_Number_BT	,031	,070	,444	,657
CuO_x_SD_Number_BT	<-->	SD_CuP	-,038	,070	-,550	,582
CuO_x_SD_Number_BT	<-->	SD_CoP	,078	,070	1,112	,266
CoO	<-->	CuO_x_SD_CuP	,032	,071	,456	,649
CuO_x_SD_CuP	<-->	CoO_x_SD_Breadth	-,009	,073	-,120	,904
CuO_x_SD_CuP	<-->	CoO_x_SD_Depth	-,012	,074	-,164	,870
CuO_x_SD_CuP	<-->	CoO_x_SD_Level	-,128	,076	-1,686	,092
CuO_x_SD_CuP	<-->	CoO_x_SD_Number_BT	,172	,071	2,433	,015
CuO_x_SD_CuP	<-->	CoO_x_SD_CuP	,748	,090	8,360	***
CuO_x_SD_CuP	<-->	CoO_x_SD_CoP	-,173	,078	-2,222	,026

			Estimate	SE	C.R.	P
ZIFC	<-->	CuO_x_SD_CuP	,015	,071	,213	,831
CuO_x_SD_CuP	<-->	IFC_x_SD_Breadth	,013	,075	,169	,866
IFC_x_SD_Depth	<-->	CuO_x_SD_CuP	,000	,078	,000	1,000
CuO_x_SD_CuP	<-->	IFC_x_SD_Level	-,172	,078	-2,207	,027
CuO_x_SD_CuP	<-->	IFC_x_SD_Number_BT	,112	,071	1,591	,112
CuO_x_SD_CuP	<-->	IFC_x_SD_CuP	,666	,084	7,970	***
CuO_x_SD_CuP	<-->	IFC_x_SD_CoP	-,224	,074	-3,022	,003
Explor	<-->	CuO_x_SD_CuP	,051	,071	,725	,469
CuO_x_SD_CuP	<-->	Explor_x_SD_Breadth	,027	,077	,352	,725
CuO_x_SD_CuP	<-->	Explor_x_SD_Depth	,001	,073	,013	,990
CuO_x_SD_CuP	<-->	Explor_x_SD_Level	-,224	,080	-2,805	,005
CuO_x_SD_CuP	<-->	Explor_x_SD_Number_BT	,240	,071	3,384	***
CuO_x_SD_CuP	<-->	Explor_x_SD_CuP	,848	,094	9,022	***
CuO_x_SD_CuP	<-->	Explor_x_SD_CoP	-,188	,077	-2,425	,015
CuO_x_SD_CuP	<-->	SD_Breadth	,079	,071	1,119	,263
SD_Depth	<-->	CuO_x_SD_CuP	-,026	,071	-,366	,714
CuO_x_SD_CuP	<-->	SD_Level	,044	,071	,619	,536
CuO_x_SD_CuP	<-->	SD_Number_BT	-,038	,071	-,545	,586
CuO_x_SD_CuP	<-->	SD_CuP	-,171	,072	-2,390	,017
CuO_x_SD_CuP	<-->	SD_CoP	,028	,071	,393	,694
CuO_x_SD_CoP	<-->	CoO_x_SD_Depth	,272	,075	3,622	***
CuO_x_SD_CoP	<-->	CoO_x_SD_Level	,291	,077	3,789	***
CuO_x_SD_CoP	<-->	CoO_x_SD_Number_BT	-,189	,070	-2,711	,007
CuO_x_SD_CoP	<-->	CoO_x_SD_CuP	-,261	,075	-3,485	***
CuO_x_SD_CoP	<-->	CoO_x_SD_CoP	,895	,097	9,244	***
ZIFC	<-->	CuO_x_SD_CoP	-,013	,069	-,188	,851
CuO_x_SD_CoP	<-->	IFC_x_SD_Breadth	,077	,074	1,038	,299

			Estimate	SE	C.R.	P
IFC_x_SD_Depth	<-->	CuO_x_SD_CoP	,175	,078	2,256	,024
CuO_x_SD_CoP	<-->	IFC_x_SD_Level	,170	,077	2,223	,026
CuO_x_SD_CoP	<-->	IFC_x_SD_Number_BT	-,103	,069	-1,490	,136
CuO_x_SD_CoP	<-->	IFC_x_SD_CuP	-,252	,071	-3,537	***
CuO_x_SD_CoP	<-->	IFC_x_SD_CoP	,757	,088	8,642	***
Explor	<-->	CuO_x_SD_CoP	-,020	,069	-,291	,771
CuO_x_SD_CoP	<-->	Explor_x_SD_Breadth	,188	,076	2,460	,014
CuO_x_SD_CoP	<-->	Explor_x_SD_Depth	,298	,074	4,013	***
CuO_x_SD_CoP	<-->	Explor_x_SD_Level	,264	,079	3,343	***
CuO_x_SD_CoP	<-->	Explor_x_SD_Number_BT	-,195	,069	-2,821	,005
CuO_x_SD_CoP	<-->	Explor_x_SD_CuP	-,221	,075	-2,949	,003
CuO_x_SD_CoP	<-->	Explor_x_SD_CoP	,895	,096	9,303	***
CuO_x_SD_CoP	<-->	SD_Breadth	,029	,069	,424	,672
SD_Depth	<-->	CuO_x_SD_CoP	-,141	,070	-2,015	,044
CuO_x_SD_CoP	<-->	SD_Level	-,075	,070	-1,074	,283
CuO_x_SD_CoP	<-->	SD_Number_BT	,078	,070	1,121	,262
CuO_x_SD_CoP	<-->	SD_CuP	,028	,069	,400	,689
CuO_x_SD_CoP	<-->	SD_CoP	-,272	,072	-3,798	***
CoO	<-->	CoO_x_SD_Depth	-,095	,071	-1,341	,180
CoO	<-->	CoO_x_SD_Level	,007	,072	,095	,925
CoO	<-->	CoO_x_SD_Number_BT	,010	,066	,149	,882
CoO	<-->	CoO_x_SD_CuP	-,039	,070	-,551	,582
CoO	<-->	CoO_x_SD_CoP	,001	,073	,013	,990
CoO	<-->	ZIFC	,593	,078	7,604	***
CoO	<-->	IFC_x_SD_Breadth	-,131	,072	-1,826	,068
CoO	<-->	IFC_x_SD_Depth	-,101	,074	-1,356	,175
CoO	<-->	IFC_x_SD_Level	,095	,073	1,288	,198

			Estimate	SE	C.R.	P
CoO	<-->	IFC_x_SD_Number_BT	-,015	,067	-,230	,818
CoO	<-->	IFC_x_SD_CuP	-,067	,067	-1,001	,317
CoO	<-->	IFC_x_SD_CoP	,030	,069	,432	,666
CoO	<-->	Explor	,694	,082	8,505	***
CoO	<-->	Explor_x_SD_Breadth	-,056	,073	-,767	,443
CoO	<-->	Explor_x_SD_Depth	-,112	,069	-1,607	,108
CoO	<-->	Explor_x_SD_Level	,070	,075	,940	,347
CoO	<-->	Explor_x_SD_Number_BT	-,016	,065	-,250	,802
CoO	<-->	Explor_x_SD_CuP	-,131	,071	-1,832	,067
CoO	<-->	Explor_x_SD_CoP	,052	,073	,712	,476
CoO	<-->	SD_Breadth	,042	,067	,625	,532
CoO	<-->	SD_Depth	,207	,068	3,022	,003
CoO	<-->	SD_Level	,335	,071	4,741	***
CoO	<-->	SD_Number_BT	-,054	,067	-,801	,423
CoO	<-->	SD_CuP	-,035	,067	-,516	,606
CoO	<-->	SD_CoP	,276	,069	3,969	***
CoO_x_SD_Breadth	<-->	CoO_x_SD_Level	-,036	,075	-,485	,628
CoO_x_SD_Breadth	<-->	CoO_x_SD_Number_BT	-,070	,069	-1,020	,308
CoO_x_SD_Breadth	<-->	CoO_x_SD_CuP	-,002	,073	-,029	,977
CoO_x_SD_Breadth	<-->	CoO_x_SD_CoP	,213	,077	2,744	,006
ZIFC	<-->	CoO_x_SD_Breadth	-,131	,070	-1,868	,062
CoO_x_SD_Breadth	<-->	IFC_x_SD_Breadth	,687	,087	7,865	***
IFC_x_SD_Depth	<-->	CoO_x_SD_Breadth	,285	,079	3,590	***
CoO_x_SD_Breadth	<-->	IFC_x_SD_Level	-,110	,077	-1,440	,150
CoO_x_SD_Breadth	<-->	IFC_x_SD_Number_BT	,006	,069	,088	,930
CoO_x_SD_Breadth	<-->	IFC_x_SD_CuP	,050	,070	,718	,473
CoO_x_SD_Breadth	<-->	IFC_x_SD_CoP	,006	,072	,085	,933

			Estimate	SE	C.R.	P
Explor	<-->	CoO_x_SD_Breadth	-,056	,070	-,801	,423
CoO_x_SD_Breadth	<-->	Explor_x_SD_Breadth	,855	,095	8,991	***
CoO_x_SD_Breadth	<-->	Explor_x_SD_Depth	,286	,074	3,844	***
CoO_x_SD_Breadth	<-->	Explor_x_SD_Level	-,039	,077	-,505	,613
CoO_x_SD_Breadth	<-->	Explor_x_SD_Number_BT	-,089	,068	-1,297	,195
CoO_x_SD_Breadth	<-->	Explor_x_SD_CuP	,030	,074	,401	,689
CoO_x_SD_Breadth	<-->	Explor_x_SD_CoP	,183	,076	2,398	,016
CoO_x_SD_Breadth	<-->	SD_Breadth	,208	,071	2,921	,003
SD_Depth	<-->	CoO_x_SD_Breadth	-,116	,070	-1,652	,099
CoO_x_SD_Breadth	<-->	SD_Level	,018	,070	,263	,792
CoO_x_SD_Breadth	<-->	SD_Number_BT	,007	,070	,105	,916
CoO_x_SD_Breadth	<-->	SD_CuP	,026	,070	,372	,710
CoO_x_SD_Breadth	<-->	SD_CoP	,023	,070	,336	,737
CoO_x_SD_Depth	<-->	CoO_x_SD_Number_BT	,092	,070	1,319	,187
CoO_x_SD_Depth	<-->	CoO_x_SD_CuP	-,070	,074	-,944	,345
CoO_x_SD_Depth	<-->	CoO_x_SD_CoP	,297	,079	3,736	***
ZIFC	<-->	CoO_x_SD_Depth	-,101	,071	-1,425	,154
CoO_x_SD_Depth	<-->	IFC_x_SD_Breadth	,282	,077	3,647	***
IFC_x_SD_Depth	<-->	CoO_x_SD_Depth	,678	,090	7,525	***
CoO_x_SD_Depth	<-->	IFC_x_SD_Level	,119	,077	1,541	,123
CoO_x_SD_Depth	<-->	IFC_x_SD_Number_BT	,100	,070	1,425	,154
CoO_x_SD_Depth	<-->	IFC_x_SD_CuP	,021	,070	,301	,763
CoO_x_SD_Depth	<-->	IFC_x_SD_CoP	,156	,073	2,133	,033
Explor	<-->	CoO_x_SD_Depth	-,112	,071	-1,578	,115
CoO_x_SD_Depth	<-->	Explor_x_SD_Breadth	,290	,079	3,678	***
CoO_x_SD_Depth	<-->	Explor_x_SD_Depth	,818	,091	8,986	***
CoO_x_SD_Depth	<-->	Explor_x_SD_Level	,208	,079	2,619	,009

			Estimate	SE	C.R.	P
CoO_x_SD_Depth	<-->	Explor_x_SD_Number_BT	,014	,069	,200	,842
CoO_x_SD_Depth	<-->	Explor_x_SD_CuP	-,005	,074	-,071	,943
CoO_x_SD_Depth	<-->	Explor_x_SD_CoP	,304	,079	3,854	***
CoO_x_SD_Depth	<-->	SD_Breadth	-,116	,071	-1,636	,102
SD_Depth	<-->	CoO_x_SD_Depth	-,140	,071	-1,968	,049
CoO_x_SD_Depth	<-->	SD_Level	-,003	,070	-,043	,966
CoO_x_SD_Depth	<-->	SD_Number_BT	,111	,071	1,564	,118
CoO_x_SD_Depth	<-->	SD_CuP	-,055	,070	-,777	,437
CoO_x_SD_Depth	<-->	SD_CoP	-,115	,071	-1,620	,105
CoO_x_SD_Level	<-->	CoO_x_SD_CuP	-,201	,076	-2,633	,008
CoO_x_SD_Level	<-->	CoO_x_SD_CoP	,432	,084	5,175	***
ZIFC	<-->	CoO_x_SD_Level	,095	,072	1,315	,188
CoO_x_SD_Level	<-->	IFC_x_SD_Breadth	-,121	,077	-1,579	,114
IFC_x_SD_Depth	<-->	CoO_x_SD_Level	,088	,079	1,108	,268
CoO_x_SD_Level	<-->	IFC_x_SD_Level	,751	,093	8,056	***
CoO_x_SD_Level	<-->	IFC_x_SD_Number_BT	,121	,072	1,679	,093
CoO_x_SD_Level	<-->	IFC_x_SD_CuP	-,028	,072	-,397	,692
CoO_x_SD_Level	<-->	IFC_x_SD_CoP	,190	,075	2,542	,011
Explor	<-->	CoO_x_SD_Level	,070	,072	,975	,329
CoO_x_SD_Level	<-->	Explor_x_SD_Breadth	-,040	,078	-,514	,608
CoO_x_SD_Level	<-->	Explor_x_SD_Depth	,167	,075	2,231	,026
CoO_x_SD_Level	<-->	Explor_x_SD_Level	,862	,099	8,745	***
CoO_x_SD_Level	<-->	Explor_x_SD_Number_BT	,051	,070	,721	,471
CoO_x_SD_Level	<-->	Explor_x_SD_CuP	-,025	,076	-,329	,742
CoO_x_SD_Level	<-->	Explor_x_SD_CoP	,354	,081	4,362	***
CoO_x_SD_Level	<-->	SD_Breadth	,018	,072	,256	,798
SD_Depth	<-->	CoO_x_SD_Level	-,003	,072	-,042	,966

			Estimate	SE	C.R.	P
CoO_x_SD_Level	<-->	SD_Level	,080	,072	1,112	,266
CoO_x_SD_Level	<-->	SD_Number_BT	-,035	,072	-,489	,625
CoO_x_SD_Level	<-->	SD_CuP	-,137	,072	-1,896	,058
CoO_x_SD_Level	<-->	SD_CoP	,043	,072	,601	,548
CoO_x_SD_Number_BT	<-->	CoO_x_SD_CoP	-,195	,073	-2,659	,008
ZIFC	<-->	CoO_x_SD_Number_BT	-,015	,066	-,232	,817
CoO_x_SD_Number_BT	<-->	IFC_x_SD_Breadth	,009	,070	,132	,895
IFC_x_SD_Depth	<-->	CoO_x_SD_Number_BT	,112	,073	1,528	,126
CoO_x_SD_Number_BT	<-->	IFC_x_SD_Level	,132	,073	1,811	,070
CoO_x_SD_Number_BT	<-->	IFC_x_SD_Number_BT	,561	,076	7,393	***
CoO_x_SD_Number_BT	<-->	IFC_x_SD_CuP	,091	,066	1,372	,170
CoO_x_SD_Number_BT	<-->	IFC_x_SD_CoP	-,133	,069	-1,942	,052
Explor	<-->	CoO_x_SD_Number_BT	-,016	,066	-,247	,805
CoO_x_SD_Number_BT	<-->	Explor_x_SD_Breadth	-,087	,072	-1,213	,225
CoO_x_SD_Number_BT	<-->	Explor_x_SD_Depth	,025	,068	,368	,713
CoO_x_SD_Number_BT	<-->	Explor_x_SD_Level	,058	,074	,792	,428
CoO_x_SD_Number_BT	<-->	Explor_x_SD_Number_BT	,667	,079	8,476	***
CoO_x_SD_Number_BT	<-->	Explor_x_SD_CuP	,203	,071	2,847	,004
CoO_x_SD_Number_BT	<-->	Explor_x_SD_CoP	-,175	,073	-2,412	,016
CoO_x_SD_Number_BT	<-->	SD_Breadth	,007	,066	,111	,912
SD_Depth	<-->	CoO_x_SD_Number_BT	,111	,067	1,662	,096
CoO_x_SD_Number_BT	<-->	SD_Level	-,035	,066	-,530	,596
CoO_x_SD_Number_BT	<-->	SD_Number_BT	,091	,066	1,374	,169
CoO_x_SD_Number_BT	<-->	SD_CuP	-,072	,066	-1,079	,281
CoO_x_SD_Number_BT	<-->	SD_CoP	,086	,066	1,299	,194
ZIFC	<-->	CoO_x_SD_CuP	-,067	,070	-,954	,340
CoO_x_SD_CuP	<-->	IFC_x_SD_Breadth	,043	,075	,575	,565

			Estimate	SE	C.R.	P
IFC_x_SD_Depth	<-->	CoO_x_SD_CuP	-,016	,078	-,205	,838
CoO_x_SD_CuP	<-->	IFC_x_SD_Level	-,094	,077	-1,216	,224
CoO_x_SD_CuP	<-->	IFC_x_SD_Number_BT	,103	,070	1,463	,144
CoO_x_SD_CuP	<-->	IFC_x_SD_CuP	,571	,080	7,138	***
CoO_x_SD_CuP	<-->	IFC_x_SD_CoP	-,208	,073	-2,827	,005
Explor	<-->	CoO_x_SD_CuP	-,131	,071	-1,847	,065
CoO_x_SD_CuP	<-->	Explor_x_SD_Breadth	,019	,076	,244	,807
CoO_x_SD_CuP	<-->	Explor_x_SD_Depth	-,055	,073	-,762	,446
CoO_x_SD_CuP	<-->	Explor_x_SD_Level	-,113	,078	-1,439	,150
CoO_x_SD_CuP	<-->	Explor_x_SD_Number_BT	,218	,070	3,105	,002
CoO_x_SD_CuP	<-->	Explor_x_SD_CuP	,732	,089	8,213	***
CoO_x_SD_CuP	<-->	Explor_x_SD_CoP	-,184	,077	-2,389	,017
CoO_x_SD_CuP	<-->	SD_Breadth	,026	,070	,368	,713
SD_Depth	<-->	CoO_x_SD_CuP	-,055	,070	-,778	,437
CoO_x_SD_CuP	<-->	SD_Level	-,137	,071	-1,934	,053
CoO_x_SD_CuP	<-->	SD_Number_BT	-,072	,070	-1,016	,310
CoO_x_SD_CuP	<-->	SD_CuP	-,018	,070	-,249	,803
CoO_x_SD_CuP	<-->	SD_CoP	-,012	,070	-,174	,862
CoO_x_SD_CoP	<-->	IFC_x_SD_Breadth	,001	,078	,013	,989
IFC_x_SD_Depth	<-->	CoO_x_SD_CoP	,150	,081	1,843	,065
CoO_x_SD_CoP	<-->	IFC_x_SD_Level	,223	,081	2,734	,006
CoO_x_SD_CoP	<-->	IFC_x_SD_Number_BT	-,148	,073	-2,010	,044
CoO_x_SD_CoP	<-->	IFC_x_SD_CuP	-,157	,074	-2,129	,033
CoO_x_SD_CoP	<-->	IFC_x_SD_CoP	,672	,088	7,665	***
Explor	<-->	CoO_x_SD_CoP	,052	,073	,705	,481
CoO_x_SD_CoP	<-->	Explor_x_SD_Breadth	,187	,081	2,318	,020
CoO_x_SD_CoP	<-->	Explor_x_SD_Depth	,291	,078	3,732	***

			Estimate	SE	C.R.	P
CoO_x_SD_CoP	<-->	Explor_x_SD_Level	,388	,085	4,543	***
CoO_x_SD_CoP	<-->	Explor_x_SD_Number_BT	-,187	,073	-2,574	,010
CoO_x_SD_CoP	<-->	Explor_x_SD_CuP	-,115	,078	-1,480	,139
CoO_x_SD_CoP	<-->	Explor_x_SD_CoP	,886	,099	8,935	***
CoO_x_SD_CoP	<-->	SD_Breadth	,023	,073	,320	,749
SD_Depth	<-->	CoO_x_SD_CoP	-,115	,074	-1,559	,119
CoO_x_SD_CoP	<-->	SD_Level	,043	,073	,589	,556
CoO_x_SD_CoP	<-->	SD_Number_BT	,086	,073	1,175	,240
CoO_x_SD_CoP	<-->	SD_CuP	-,012	,073	-,167	,867
CoO_x_SD_CoP	<-->	SD_CoP	-,229	,075	-3,066	,002
ZIFC	<-->	IFC_x_SD_Depth	-,183	,075	-2,439	,015
ZIFC	<-->	IFC_x_SD_Level	,069	,073	,941	,347
ZIFC	<-->	IFC_x_SD_Number_BT	-,042	,067	-,629	,530
ZIFC	<-->	IFC_x_SD_CuP	-,065	,067	-,964	,335
ZIFC	<-->	IFC_x_SD_CoP	,033	,069	,478	,633
ZIFC	<-->	Explor	,607	,078	7,736	***
ZIFC	<-->	Explor_x_SD_Breadth	-,128	,073	-1,740	,082
ZIFC	<-->	Explor_x_SD_Depth	-,097	,069	-1,395	,163
ZIFC	<-->	Explor_x_SD_Level	,028	,074	,381	,703
ZIFC	<-->	Explor_x_SD_Number_BT	-,046	,065	-,696	,486
ZIFC	<-->	Explor_x_SD_CuP	-,054	,071	-,754	,451
ZIFC	<-->	Explor_x_SD_CoP	,025	,072	,341	,733
ZIFC	<-->	SD_Breadth	,069	,067	1,024	,306
ZIFC	<-->	SD_Depth	,270	,069	3,887	***
ZIFC	<-->	SD_Level	,286	,070	4,104	***
ZIFC	<-->	SD_Number_BT	-,012	,067	-,175	,861
ZIFC	<-->	SD_CuP	-,224	,069	-3,270	,001

			Estimate	SE	C.R.	P
ZIFC	<-->	SD_CoP	,333	,071	4,714	***
IFC_x_SD_Breadth	<-->	IFC_x_SD_Level	-,044	,078	-,568	,570
IFC_x_SD_Breadth	<-->	IFC_x_SD_Number_BT	-,062	,071	-,877	,380
IFC_x_SD_Breadth	<-->	IFC_x_SD_CuP	-,026	,071	-,366	,715
IFC_x_SD_Breadth	<-->	IFC_x_SD_CoP	,058	,073	,786	,432
Explor	<-->	IFC_x_SD_Breadth	-,128	,072	-1,777	,076
IFC_x_SD_Breadth	<-->	Explor_x_SD_Breadth	,685	,090	7,602	***
IFC_x_SD_Breadth	<-->	Explor_x_SD_Depth	,272	,076	3,589	***
IFC_x_SD_Breadth	<-->	Explor_x_SD_Level	-,148	,080	-1,852	,064
IFC_x_SD_Breadth	<-->	Explor_x_SD_Number_BT	-,008	,070	-,114	,909
IFC_x_SD_Breadth	<-->	Explor_x_SD_CuP	,027	,075	,359	,720
IFC_x_SD_Breadth	<-->	Explor_x_SD_CoP	,085	,077	1,101	,271
IFC_x_SD_Breadth	<-->	SD_Breadth	,116	,072	1,625	,104
SD_Depth	<-->	IFC_x_SD_Breadth	-,175	,072	-2,419	,016
IFC_x_SD_Breadth	<-->	SD_Level	-,175	,072	-2,424	,015
IFC_x_SD_Breadth	<-->	SD_Number_BT	-,005	,071	-,064	,949
IFC_x_SD_Breadth	<-->	SD_CuP	,092	,072	1,283	,200
IFC_x_SD_Breadth	<-->	SD_CoP	-,084	,071	-1,176	,240
IFC_x_SD_Depth	<-->	IFC_x_SD_Number_BT	,234	,075	3,110	,002
IFC_x_SD_Depth	<-->	IFC_x_SD_CuP	-,061	,074	-,829	,407
IFC_x_SD_Depth	<-->	IFC_x_SD_CoP	,203	,077	2,625	,009
IFC_x_SD_Depth	<-->	Explor	-,097	,074	-1,303	,193
IFC_x_SD_Depth	<-->	Explor_x_SD_Breadth	,283	,083	3,425	***
IFC_x_SD_Depth	<-->	Explor_x_SD_Depth	,650	,088	7,389	***
IFC_x_SD_Depth	<-->	Explor_x_SD_Level	,104	,083	1,263	,207
IFC_x_SD_Depth	<-->	Explor_x_SD_Number_BT	,146	,073	1,998	,046
IFC_x_SD_Depth	<-->	Explor_x_SD_CuP	-,017	,078	-,218	,828

			Estimate	SE	C.R.	P
IFC_x_SD_Depth	<-->	Explor_x_SD_CoP	,252	,082	3,081	,002
IFC_x_SD_Depth	<-->	SD_Breadth	-,175	,075	-2,333	,020
IFC_x_SD_Depth	<-->	SD_Depth	-,200	,075	-2,658	,008
IFC_x_SD_Depth	<-->	SD_Level	-,064	,074	-,870	,384
IFC_x_SD_Depth	<-->	SD_Number_BT	,014	,074	,188	,851
IFC_x_SD_Depth	<-->	SD_CuP	,003	,074	,035	,972
IFC_x_SD_Depth	<-->	SD_CoP	-,178	,075	-2,381	,017
IFC_x_SD_Level	<-->	IFC_x_SD_CuP	-,263	,075	-3,494	***
IFC_x_SD_Level	<-->	IFC_x_SD_CoP	,275	,077	3,555	***
Explor	<-->	IFC_x_SD_Level	,028	,073	,387	,698
IFC_x_SD_Level	<-->	Explor_x_SD_Breadth	-,135	,080	-1,689	,091
IFC_x_SD_Level	<-->	Explor_x_SD_Depth	,107	,076	1,408	,159
IFC_x_SD_Level	<-->	Explor_x_SD_Level	,876	,100	8,722	***
IFC_x_SD_Level	<-->	Explor_x_SD_Number_BT	,126	,072	1,747	,081
IFC_x_SD_Level	<-->	Explor_x_SD_CuP	-,186	,078	-2,371	,018
IFC_x_SD_Level	<-->	Explor_x_SD_CoP	,265	,081	3,262	,001
IFC_x_SD_Level	<-->	SD_Breadth	-,175	,074	-2,361	,018
SD_Depth	<-->	IFC_x_SD_Level	-,064	,073	-,879	,380
IFC_x_SD_Level	<-->	SD_Level	,122	,074	1,656	,098
IFC_x_SD_Level	<-->	SD_Number_BT	,031	,073	,426	,670
IFC_x_SD_Level	<-->	SD_CuP	-,032	,073	-,432	,666
IFC_x_SD_Level	<-->	SD_CoP	-,062	,073	-,849	,396
IFC_x_SD_Number_BT	<-->	IFC_x_SD_CoP	-,081	,069	-1,187	,235
Explor	<-->	IFC_x_SD_Number_BT	-,046	,067	-,684	,494
IFC_x_SD_Number_BT	<-->	Explor_x_SD_Breadth	-,010	,072	-,141	,888
IFC_x_SD_Number_BT	<-->	Explor_x_SD_Depth	,139	,069	2,002	,045
IFC_x_SD_Number_BT	<-->	Explor_x_SD_Level	,119	,074	1,593	,111

			Estimate	SE	C.R.	P
IFC_x_SD_Number_BT	<-->	Explor_x_SD_Number_BT	,564	,075	7,489	***
IFC_x_SD_Number_BT	<-->	Explor_x_SD_CuP	,035	,071	,491	,623
IFC_x_SD_Number_BT	<-->	Explor_x_SD_CoP	-,084	,072	-1,157	,247
IFC_x_SD_Number_BT	<-->	SD_Breadth	-,005	,067	-,069	,945
SD_Depth	<-->	IFC_x_SD_Number_BT	,014	,067	,209	,834
IFC_x_SD_Number_BT	<-->	SD_Level	,031	,067	,468	,640
IFC_x_SD_Number_BT	<-->	SD_Number_BT	-,027	,067	-,404	,686
IFC_x_SD_Number_BT	<-->	SD_CuP	-,073	,067	-1,099	,272
IFC_x_SD_Number_BT	<-->	SD_CoP	,018	,067	,271	,786
IFC_x_SD_CuP	<-->	IFC_x_SD_CoP	-,395	,074	-5,357	***
Explor	<-->	IFC_x_SD_CuP	-,054	,067	-,799	,424
IFC_x_SD_CuP	<-->	Explor_x_SD_Breadth	,018	,073	,249	,803
IFC_x_SD_CuP	<-->	Explor_x_SD_Depth	-,015	,069	-,222	,824
IFC_x_SD_CuP	<-->	Explor_x_SD_Level	-,182	,075	-2,417	,016
IFC_x_SD_CuP	<-->	Explor_x_SD_Number_BT	,029	,065	,441	,659
IFC_x_SD_CuP	<-->	Explor_x_SD_CuP	,670	,084	7,985	***
IFC_x_SD_CuP	<-->	Explor_x_SD_CoP	-,261	,075	-3,499	***
IFC_x_SD_CuP	<-->	SD_Breadth	,092	,067	1,366	,172
SD_Depth	<-->	IFC_x_SD_CuP	,003	,067	,039	,969
IFC_x_SD_CuP	<-->	SD_Level	-,032	,067	-,473	,637
IFC_x_SD_CuP	<-->	SD_Number_BT	-,073	,067	-1,095	,274
IFC_x_SD_CuP	<-->	SD_CuP	-,035	,067	-,527	,598
IFC_x_SD_CuP	<-->	SD_CoP	,048	,067	,710	,478
IFC_x_SD_CoP	<-->	Explor_x_SD_Breadth	,097	,075	1,296	,195
IFC_x_SD_CoP	<-->	Explor_x_SD_Depth	,245	,073	3,370	***
IFC_x_SD_CoP	<-->	Explor_x_SD_Level	,255	,078	3,251	,001
IFC_x_SD_CoP	<-->	Explor_x_SD_Number_BT	-,075	,067	-1,111	,266

			Estimate	SE	C.R.	P
IFC_x_SD_CoP	<-->	Explor_x_SD_CuP	-,257	,075	-3,439	***
IFC_x_SD_CoP	<-->	Explor_x_SD_CoP	,744	,090	8,294	***
IFC_x_SD_CoP	<-->	SD_Breadth	-,084	,069	-1,219	,223
SD_Depth	<-->	IFC_x_SD_CoP	-,178	,070	-2,556	,011
IFC_x_SD_CoP	<-->	SD_Level	-,062	,069	-,904	,366
IFC_x_SD_CoP	<-->	SD_Number_BT	,018	,069	,263	,793
IFC_x_SD_CoP	<-->	SD_CuP	,048	,069	,690	,490
IFC_x_SD_CoP	<-->	SD_CoP	-,204	,070	-2,904	,004
Explor	<-->	Explor_x_SD_Depth	-,146	,070	-2,088	,037
Explor	<-->	Explor_x_SD_Level	-,034	,074	-,459	,646
Explor	<-->	Explor_x_SD_Number_BT	-,001	,065	-,017	,986
Explor	<-->	Explor_x_SD_CuP	-,083	,071	-1,165	,244
Explor	<-->	Explor_x_SD_CoP	-,009	,072	-,126	,900
Explor	<-->	SD_Breadth	,053	,067	,796	,426
Explor	<-->	SD_Depth	,373	,072	5,217	***
Explor	<-->	SD_Level	,405	,072	5,603	***
Explor	<-->	SD_Number_BT	-,042	,067	-,625	,532
Explor	<-->	SD_CuP	-,304	,070	-4,345	***
Explor	<-->	SD_CoP	,435	,073	5,956	***
Explor_x_SD_Breadth	<-->	Explor_x_SD_Level	-,126	,081	-1,554	,120
Explor_x_SD_Breadth	<-->	Explor_x_SD_Number_BT	-,162	,072	-2,249	,024
Explor_x_SD_Breadth	<-->	Explor_x_SD_CuP	,006	,077	,072	,943
Explor_x_SD_Breadth	<-->	Explor_x_SD_CoP	,202	,080	2,522	,012
Explor_x_SD_Breadth	<-->	SD_Breadth	,303	,076	4,006	***
SD_Depth	<-->	Explor_x_SD_Breadth	-,204	,074	-2,751	,006
Explor_x_SD_Breadth	<-->	SD_Level	-,132	,073	-1,795	,073
Explor_x_SD_Breadth	<-->	SD_Number_BT	-,042	,073	-,583	,560

			Estimate	SE	C.R.	P
Explor_x_SD_Breadth	<-->	SD_CuP	,059	,073	,811	,417
Explor_x_SD_Breadth	<-->	SD_CoP	,022	,073	,308	,758
Explor_x_SD_Depth	<-->	Explor_x_SD_Number_BT	,050	,068	,741	,459
Explor_x_SD_Depth	<-->	Explor_x_SD_CuP	-,078	,073	-1,059	,290
Explor_x_SD_Depth	<-->	Explor_x_SD_CoP	,373	,079	4,737	***
Explor_x_SD_Depth	<-->	SD_Breadth	-,204	,070	-2,894	,004
SD_Depth	<-->	Explor_x_SD_Depth	-,182	,070	-2,600	,009
Explor_x_SD_Depth	<-->	SD_Level	-,112	,069	-1,618	,106
Explor_x_SD_Depth	<-->	SD_Number_BT	,088	,069	1,269	,204
Explor_x_SD_Depth	<-->	SD_CuP	-,078	,069	-1,133	,257
Explor_x_SD_Depth	<-->	SD_CoP	-,183	,070	-2,616	,009
Explor_x_SD_Level	<-->	Explor_x_SD_CuP	-,230	,080	-2,870	,004
Explor_x_SD_Level	<-->	Explor_x_SD_CoP	,513	,088	5,859	***
Explor_x_SD_Level	<-->	SD_Breadth	-,132	,075	-1,757	,079
SD_Depth	<-->	Explor_x_SD_Level	-,112	,075	-1,502	,133
Explor_x_SD_Level	<-->	SD_Level	,126	,075	1,677	,094
Explor_x_SD_Level	<-->	SD_Number_BT	-,075	,075	-1,009	,313
Explor_x_SD_Level	<-->	SD_CuP	-,048	,074	-,639	,523
Explor_x_SD_Level	<-->	SD_CoP	-,082	,075	-1,096	,273
Explor_x_SD_Number_BT	<-->	Explor_x_SD_CoP	-,104	,071	-1,459	,145
Explor_x_SD_Number_BT	<-->	SD_Breadth	-,042	,065	-,649	,516
SD_Depth	<-->	Explor_x_SD_Number_BT	,088	,066	1,339	,181
Explor_x_SD_Number_BT	<-->	SD_Level	-,075	,066	-1,147	,251
Explor_x_SD_Number_BT	<-->	SD_Number_BT	,052	,066	,788	,431
Explor_x_SD_Number_BT	<-->	SD_CuP	-,054	,066	-,828	,407
Explor_x_SD_Number_BT	<-->	SD_CoP	,031	,065	,478	,633
Explor_x_SD_CuP	<-->	SD_Breadth	,059	,071	,833	,405

			Estimate	SE	C.R.	P
SD_Depth	<-->	Explor_x_SD_CuP	-,078	,071	-1,104	,270
Explor_x_SD_CuP	<-->	SD_Level	-,048	,071	-,671	,502
Explor_x_SD_CuP	<-->	SD_Number_BT	-,054	,071	-,765	,444
Explor_x_SD_CuP	<-->	SD_CuP	-,081	,071	-1,143	,253
Explor_x_SD_CuP	<-->	SD_CoP	-,017	,071	-,245	,806
SD_Depth	<-->	Explor_x_SD_CoP	-,183	,074	-2,496	,013
Explor_x_SD_CoP	<-->	SD_Level	-,082	,073	-1,126	,260
Explor_x_SD_CoP	<-->	SD_Number_BT	,031	,073	,431	,666
Explor_x_SD_CoP	<-->	SD_CuP	-,017	,072	-,240	,811
Explor_x_SD_CoP	<-->	SD_CoP	-,239	,074	-3,222	,001
SD_Breadth	<-->	SD_Level	-,036	,067	-,530	,596
SD_Breadth	<-->	SD_Number_BT	-,068	,067	-1,016	,310
SD_Breadth	<-->	SD_CuP	-,032	,067	-,480	,631
SD_Breadth	<-->	SD_CoP	,139	,068	2,052	,040
SD_Depth	<-->	SD_Number_BT	,041	,067	,615	,539
SD_Depth	<-->	SD_CuP	-,188	,068	-2,765	,006
SD_Depth	<-->	SD_CoP	,215	,069	3,143	,002
SD_Level	<-->	SD_CuP	-,205	,068	-3,003	,003
SD_Level	<-->	SD_CoP	,257	,069	3,710	***
SD_Number_BT	<-->	SD_CoP	-,039	,067	-,579	,563
SD_Number_BT	<-->	SD_CuP	,246	,069	3,572	***
SD_CuP	<-->	SD_CoP	-,319	,070	-4,532	***
SD_Level	<-->	SD_Number_BT	,043	,067	,635	,526
SD_Depth	<-->	SD_Level	,190	,068	2,793	,005
SD_Depth	<-->	SD_Breadth	,309	,070	4,408	***
Explor_x_SD_CoP	<-->	SD_Breadth	,022	,072	,309	,757
Explor_x_SD_CuP	<-->	Explor_x_SD_CoP	-,245	,078	-3,122	,002

			Estimate	SE	C.R.	P
Explor_x_SD_Number_BT	<-->	Explor_x_SD_CuP	,212	,071	2,994	,003
Explor_x_SD_Level	<-->	Explor_x_SD_Number_BT	,101	,073	1,384	,167
Explor_x_SD_Depth	<-->	Explor_x_SD_Level	,245	,078	3,120	,002
Explor_x_SD_Breadth	<-->	Explor_x_SD_Depth	,329	,078	4,207	***
Explor	<-->	Explor_x_SD_Breadth	-,104	,073	-1,428	,153
Explor	<-->	IFC_x_SD_CoP	,025	,069	,360	,719
IFC_x_SD_Number_BT	<-->	IFC_x_SD_CuP	,190	,068	2,799	,005
IFC_x_SD_Level	<-->	IFC_x_SD_Number_BT	,050	,073	,682	,495
IFC_x_SD_Depth	<-->	IFC_x_SD_Level	,117	,081	1,445	,148
IFC_x_SD_Depth	<-->	IFC_x_SD_Breadth	,560	,087	6,413	***
ZIFC	<-->	IFC_x_SD_Breadth	-,186	,072	-2,567	,010
ZIFC	<-->	CoO_x_SD_CoP	,030	,073	,406	,685
CoO_x_SD_CuP	<-->	CoO_x_SD_CoP	-,376	,081	-4,649	***
CoO_x_SD_Number_BT	<-->	CoO_x_SD_CuP	,295	,072	4,090	***
CoO_x_SD_Level	<-->	CoO_x_SD_Number_BT	,098	,071	1,375	,169
CoO_x_SD_Depth	<-->	CoO_x_SD_Level	,265	,077	3,422	***
CoO_x_SD_Breadth	<-->	CoO_x_SD_Depth	,402	,078	5,156	***
CoO	<-->	CuO_x_SD_CoP	-,036	,069	-,512	,609
CuO_x_SD_CoP	<-->	CoO_x_SD_Breadth	,191	,073	2,609	,009
CoO	<-->	CoO_x_SD_Breadth	-,070	,070	-1,009	,313
CuO_x_SD_CuP	<-->	CuO_x_SD_CoP	-,297	,076	-3,920	***
CuO_x_SD_Number_BT	<-->	CuO_x_SD_CuP	,300	,076	3,927	***
CuO_x_SD_Level	<-->	CuO_x_SD_Number_BT	-,054	,073	-,737	,461
CuO_x_SD_Depth	<-->	CuO_x_SD_Level	,118	,071	1,670	,095
CuO	<-->	CuO_x_SD_Breadth	-,022	,072	-,304	,761

APPENDIX 9

CORRELATION MATRIX

	CuC1	CuC2	CuC3	CuC4	CuC5	CuC6	CuC7	CuC8	CuC9	CuC10	CuC11	CoC1	CoC2	CoC3	CoC4	CoC5	CoC6	CoC7	IFC1	IFC2
CuC1	1,000	,236**	,383**	,178**	,203**	,448**	,269**	,174**	,319**	,347**	,306**	,268**	,246**	,234**	,119*	,269**	,200**	,233**	,339**	,271**
CuC2	,236**	1,000	0,047	,304**	,365**	,224**	,205**	,284**	,340**	,264**	0,057	0,067	0,105	0,104	,118*	0,024	,145*	0,109	0,062	,174**

	IFC3	IFC4	IFC5	IFC6	IFC7	IFC8	IFC9	Exploi_1	Exploi_2	Exploi_3	Exploi_4	Explor_1	Explor_2	Explor_3	Explor_4	Explor_5	Explor_6	Explor_7	Explor_8	SD_Breadth
CuC1	,241**	,310**	,247**	,122*	,128*	,317**	,358**	,313**	,220**	,200**	,200**	,295**	,338**	,253**	,263**	,269**	,217**	,137*	,344**	0,007
CuC2	,138*	,172**	0,089	,148*	0,095	,129*	,174**	,276**	,128*	,261**	,196**	,128*	,206**	,145*	,121*	,193**	0,060	0,099	0,112	0,075

	SD_Depth	SD_CuP_1	SD_CuP_2	SD_CuP_3	SD_Level	SD_CoP	SD_Number_BT	SR_2018	PR_2018	SR_5	PR_5	S_BP1	S_BP2	S_BP3	S_BP4	S_BP5	S_BP6	S_BP7	S_BP8	S_BP9
CuC1	,149*	-,143**	-,113*	-,187**	,147**	,214**	-0,075	-,131*	-0,052	0,085	-0,003	,152**	,207**	,125*	,130*	,157**	,187**	0,067	,190**	,215**
CuC2	,136*	-0,037	0,002	-,117*	0,049	0,017	-0,030	-0,038	-0,019	0,006	0,065	0,087	0,110	0,012	0,019	,148*	,141*	,169**	0,107	0,068

CuC3	,383**	0,047	1,000	,188**	0,113	,369**	0,097	,149**	,272**	,235**	,236**	,214**	0,072*	,161**	0,059	,117*	0,081	0,085	,231**	0,092	0,073	,160**	0,089	0,017	0,070	,159**	,239**	,199**	,166**	,153**	,119*	,201**	,195**	,262**	,167**	,156**	,157**	0,056	,281**	0,003	0,068	-0,091	-,172**	-,163**	0,107	,132*	-0,098	0,000	-0,029	0,108	0,054	0,009	0,092	0,101	0,106	0,065	0,079	0,017	,156**	0,108
CuC4	,178**	,304**	,188**	1,000	,522**	,225**	,236**	,224**	,361**	,245**	0,014	-0,039	,147*	0,051	0,018	0,086	,187**	0,075	0,045	,165**	,143*	0,106	0,085	0,032	0,097	,157**	,119*	,303**	,135*	,132*	,232**	0,109	0,094	0,107	0,057	0,100	0,011	,143*	0,079	,146*	,142*	-,161**	-0,115	-,188**	0,047	,137*	-0,039	-0,055	-0,067	0,052	0,001	,179**	,197**	0,045	0,041	,247**	,213**	,175**	,181**	,175**
CuC5	,203**	,365**	0,113	,522**	1,000	,255**	,345**	,280**	,327**	,256**	0,010	-0,034	0,100	0,016	-0,057	0,029	,174**	0,048	0,029	,142*	,165**	0,074	,122*	0,067	0,118	,152**	,128*	,300**	,147*	0,084	,247**	,146*	,132*	0,036	0,004	0,099	0,080	0,115	0,038	0,122	0,124	-0,067	-0,012	-0,094	0,044	0,061	-0,048	-0,011	-0,011	0,109	0,106	,136*	,120*	-0,018	-0,036	,164**	,184**	,189**	,139*	0,063
CuC6	,448**	,224**	,369**	,225**	,255**	1,000	,268**	,324**	,330**	,377**	,372**	,300**	,326**	,258**	,186**	,224**	,245**	,259**	,408**	,348**	,298**	,294**	,265**	,250**	,136*	,325**	,358**	,368**	,353**	,234**	,311**	,272**	,286**	,281**	,166**	,298**	,331**	,245**	,371**	0,032	,196**	-,201**	-,186**	-,233**	,217**	,335**	-0,074	0,029	,148**	,219**	,141*	,293**	,250**	,229**	,225**	,284**	,299**	,116*	,304**	,315**
CuC7	,269**	,205**	0,097	,236**	,345**	,268**	1,000	,182**	,300**	,230**	,205**	0,019	,212**	0,110	-0,013	,148*	,148*	,123*	,139*	,177**	,168**	,202**	0,114	,132*	0,104	,145*	0,038	,290**	,227**	,136*	,255**	0,096	0,011	0,016	0,044	,184**	,135*	,150*	,133*	,165**	0,054	0,083	0,009	0,086	0,002	0,014	-0,106	0,046	,123*	0,120	0,089	,169**	0,099	0,018	0,021	,145*	,198**	,220**	,131*	0,108

CuC8	,174**	,284**	,149**	,224**	,280**	,324**	,182**	1,000	,291**	,268**	,155**	0,060	,153**	0,058	0,099	0,058	,175**	,170**	,116*	,189**	,149**	,153**	,116*	,219**	0,101	,149**	,229**	,315**	,303**	,112*	,316**	,134*	,241**	,187**	,126*	,216**	,148**	,201**	,218**	0,070	,156**	-,154**	-,134*	-,243**	,201**	0,089	-0,096	,158**	0,097	,168**	,142*	,185**	,244**	,206**	,199**	,239**	,224**	0,078	,222**	,233**
CuC9	,319**	,340**	,272**	,361**	,327**	,330**	,300**	,291**	1,000	,336**	,252**	0,101	,196**	,163**	0,106	,184**	,200**	,175**	,191**	,267**	,202**	,244**	,219**	,130*	,210**	,283**	,205**	,371**	,247**	,172**	,315**	,216**	,247**	,190**	,155**	,167**	,115*	0,099	,211**	0,111	0,064	-0,081	-,175**	-,127*	,120*	,195**	-0,110	0,037	0,064	0,102	0,033	,126*	,170**	0,001	0,001	,167**	,181**	0,081	,200**	0,094
CuC10	,347**	,264**	,235**	,245**	,256**	,377**	,230**	,268**	,336**	1,000	,264**	,236**	,365**	,288**	0,060	,208**	,228**	,221**	,274**	,192**	,185**	,243**	,195**	0,072	,180**	,242**	,219**	,337**	,319**	,211**	,258**	,258**	,423**	,369**	,273**	,364**	,224**	,240**	,429**	0,103	,216**	-0,091	-0,033	-0,094	,253**	,220**	-0,029	-0,041	-0,045	,134*	0,071	,133*	,245**	,156**	,136*	,218**	,186**	,128*	,190**	,218**
CuC11	,306**	0,057	,236**	0,014	0,010	,372**	,205**	,155**	,252**	,264**	1,000	,242**	,285**	,221**	,129*	,200**	,196**	,334**	,303**	,239**	,170**	,244**	,180**	,156**	,130*	,253**	,205**	,250**	,303**	,210**	,251**	,335**	,331**	,346**	,237**	,373**	,443**	,251**	,440**	0,054	,165**	-0,062	-,134*	-,108*	,222**	,250**	-0,005	0,042	0,071	0,104	-0,029	0,059	,148**	,166**	,145**	0,102	,117*	0,087	,272**	,214**
CoC1	,268**	0,067	,214**	-0,039	-0,034	,300**	0,019	0,060	0,101	,236**	,242**	1,000	,381**	,543**	,358**	,390**	,326**	,281**	,270**	,237**	,168**	,252**	,141*	0,112	,124*	,204**	,164**	,118*	,235**	,165**	,127*	,200**	,308**	,233**	,217**	,238**	,181**	,148**	,392**	-0,001	0,090	-0,029	0,060	-,120*	,222**	,161**	-,148**	0,026	,127*	0,085	-0,019	-0,030	0,074	,121*	0,085	-0,005	0,043	-0,035	,124*	,198**

CoC2	,246**	0,105	0,072	,147*	0,100	,326**	,202**	,153**	,196**	,365**	,285**	,381**	1,000	,399**	,230**	,345**	,316**	,283**	,255**	,313**	,225**	,237**	,213**	,151**	,176**	,268**	0,084	,262**	,317**	0,072	,285**	,223**	,285**	,239**	,166**	,310**	,280**	,206**	,384**	,120*	0,078	0,040	0,061	-0,029	,148**	,161**	-0,029	0,030	,114*	,158**	0,048	0,080	0,091	0,079	0,090	0,108	,114*	0,061	,170**	,159**
CoC3	,234**	0,104	,161**	0,051	0,016	,258**	0,110	0,058	,163**	,288**	,221**	,543**	,399**	1,000	,347**	,288**	,271**	,157**	,276**	,228**	,192**	,264**	0,103	0,086	0,030	,198**	,176**	0,080	,220**	,122*	,118*	,171**	,273**	,189**	,196**	,183**	,124*	0,069	,286**	-0,002	0,074	-0,024	-0,005	-0,006	,153**	0,099	-0,108	0,010	0,095	0,019	-0,100	-0,022	0,085	,127*	0,080	-0,010	0,017	0,061	0,053	0,083
CoC4	,119*	,118*	0,059	0,018	-0,057	,186**	-0,013	0,099	0,106	0,060	,129*	,358**	,230**	,347**	1,000	,266**	,271**	,179**	,187**	,159**	,147**	,244**	0,107	,214**	0,090	,145**	,120*	,153**	,174**	0,074	,124*	,162**	,148**	,121*	,137*	,188**	,125*	,115*	,207**	0,041	,130*	0,000	0,011	0,031	,145**	-0,001	-0,039	-0,017	,146**	0,069	0,053	0,100	0,040	0,076	0,078	-0,005	0,011	0,105	0,065	0,104
CoC5	,269**	0,024	,117*	0,086	0,029	,224**	,148*	0,058	,184**	,208**	,200**	,390**	,345**	,288**	,266**	1,000	,504**	,257**	,198**	,224**	,217**	,181**	,250**	,140*	,127*	,324**	0,064	,201**	,223**	0,022	,151**	,187**	,224**	,177**	,118*	,123*	,162**	,169**	,260**	0,087	0,034	-0,036	-0,023	-0,084	,154**	,236**	-,126*	-0,023	0,088	0,071	-0,017	0,084	,135*	0,021	0,025	0,037	0,061	-0,010	,159**	,170**
CoC6	,200**	,145*	0,081	,187**	,174**	,245**	,148*	,175**	,200**	,228**	,196**	,326**	,316**	,271**	,271**	,504**	1,000	,315**	,177**	,243**	,245**	,261**	,280**	,270**	,202**	,247**	0,104	,258**	,209**	,130*	,178**	,182**	,182**	,187**	,168**	,200**	,157**	,291**	,211**	0,087	0,086	-0,077	-0,040	-,130*	,130*	,141*	-,145*	0,002	,115*	0,011	0,048	0,109	,133*	0,066	0,069	0,108	,166**	-0,014	,159**	,189**
Co	,23	0,1	0,0	0,0	0,0	,25	,12	,17	,17	,22	,33	,28	,28	,15	,17	,25	,31	1,0	,22	,25	,16	,23	,20	,17	,14	,20	,12	,28	,27	,13	,18	,19	,33	,28	,29	,37	,29	,27	,34	-0,	-0,	-0,	-0,	-,1	,17	,22	-0,	0,0	0,0	,13	0,0	,11	,21	,15	,16	,12	,11	0,0	,18	,26

C7	3**	09	85	75	48	9**	3*	0**	5**	1**	4**	1**	3**	7**	9**	7**	5**	00	5**	0**	7**	8**	1**	9**	5*	3**	3*	3**	3**	6*	6**	6**	3**	7**	7**	5**	0**	7**	6**	017	029	051	044	55**	6**	8**	072	12	92	3*	56	4*	9**	6**	6**	4*	4*	47	0**	7**
IFC1	,339**	0,062	,231**	0,045	0,029	,408**	,139*	,116*	,191**	,274**	,303**	,270**	,255**	,276**	,187**	,198**	,177**	,225**	1,000	,484**	,426**	,407**	,368**	,364**	,293**	,522**	,286**	,266**	,320**	,244**	,265**	,315**	,352**	,238**	,253**	,307**	,294**	,280**	,343**	0,021	,166**	-0,087	-,134*	-,124*	,235**	,257**	-,111*	-0,019	,128*	,169**	,136*	,159**	,206**	,185**	,182**	,149**	,167**	0,008	,201**	,214**
IFC2	,271**	,174**	0,092	,165**	,142*	,348**	,177**	,189**	,267**	,192**	,239**	,237**	,313**	,228**	,159**	,224**	,243**	,250**	,484**	1,000	,521**	,443**	,535**	,463**	,437**	,536**	,317**	,359**	,354**	,184**	,431**	,259**	,245**	,133*	,182**	,277**	,239**	,243**	,312**	0,095	,187**	-,124*	-,116*	-,156**	,145*	,268**	-0,014	0,073	,120*	,195**	0,111	,232**	,293**	,204**	,211**	,235**	,283**	0,080	,295**	,349**
IFC3	,241**	,138*	0,073	,143*	,165**	,298**	,168**	,149**	,202**	,185**	,170**	,168**	,225**	,192**	,147**	,217**	,245**	,167**	,426**	,521**	1,000	,497**	,547**	,474**	,373**	,549**	,246**	,340**	,298**	,185**	,346**	,290**	,294**	,186**	,233**	,261**	,249**	,270**	,262**	0,039	,221**	-,146**	-,170**	-,156**	,233**	,180**	0,000	-0,045	,152**	,179**	,150**	,213**	,245**	,229**	,228**	,261**	,316**	-0,001	,272**	,272**
IFC4	,310**	,172**	,160**	0,106	0,074	,294**	,202**	,153**	,244**	,243**	,244**	,252**	,237**	,264**	,244**	,281**	,261**	,238**	,407**	,443**	,497**	1,000	,472**	,310**	,352**	,482**	,238**	,308**	,279**	,187**	,297**	,305**	,279**	,192**	,179**	,259**	,162**	,226**	,307**	-0,011	0,093	-0,097	-,151**	-0,101	,177**	,161**	-0,041	-0,050	,191**	0,079	0,006	,134*	,163**	,120*	0,101	,184**	,192**	0,023	,187**	,228**
IF	,2	0,	0,	0,	,1	,2	0,	,1	,2	,1	,1	,1	,2	0,	0,	,2	,2	,2	,3	,5	,5	,4	1,	,4	,4	,5	,1	,2	,2	0,	,2	,2	,2	,1	,2	,2	,2	,2	,2	0,	,1	-,	-,	-,	,1	,2	0,	-0	0,	,1	0,	,2	,2	,1	,1	,2	,2	-0	,3	,3

C5	47**	089	089	085	22*	65**	114	16*	19**	95**	80**	41*	13**	103	107	50**	80**	01**	68**	35**
IFC6	,122*	,148*	0,017	0,032	0,067	,250**	,132*	,219**	,130*	0,072	,156**	0,112	,151**	0,086	,214**	,140*	,270**	,179**	,364**	,463**
IFC7	,128*	0,095	0,070	0,097	0,118	,136*	0,104	0,101	,210**	,180**	,130*	,124*	,176**	0,030	0,090	,127*	,202**	,145*	,293**	,437**
IFC8	,317**	,129*	,159**	,157**	,152*	,325**	,145*	,149**	,283**	,242**	,253**	,204**	,268**	,198**	,145**	,324**	,247**	,203**	,522**	,536**
IFC9	,358**	,174**	,239**	,119*	,128*	,358**	0,038	,229**	,205**	,219**	,205**	,164**	0,084	,176**	,120*	0,064	0,104	,123*	,286**	,317**
Ex	,3	,2	,1	,3	,3	,3	,2	,3	,3	,3	,2	,1	,2	0,	,1	,2	,2	,2	,2	,3

C5	47**	72**	000	24**	71**	68**	64**	70**	88**	076	92**	80**	32**	84**	07**	37**	09**	84**	25**	035
IFC6	,474**	,310**	,424**	1,000	,266**	,393**	,139*	,210**	,249**	,199**	,236**	,174**	,166**	0,106	,116*	,233**	,179**	,226**	,164**	-0,050
IFC7	,373**	,352**	,471**	,266**	1,000	,413**	0,070	,245**	,226**	0,095	,226**	,256**	,207**	,152**	,176**	,222**	,190**	,213**	,236**	0,086
IFC8	,549**	,482**	,568**	,393**	,413**	1,000	,213**	,379**	,375**	,163**	,371**	,350**	,329**	,257**	,264**	,352**	,261**	,299**	,330**	0,056
IFC9	,246**	,238**	,164**	,139*	0,070	,213**	1,000	,224**	,185**	,236**	,266**	,161**	,187**	,183**	,121*	,211**	,116*	,186**	,224**	0,107
Ex	,3	,3	,2	,2	,2	,3	,2	1,	,4	,3	,5	,3	,4	,3	,3	,3	,2	,3	,4	,1

C5	53*	170**	201**	164**	68**	33**	062	,032	101	76**	104	18**	33**	51**	67**	80**	79**	,023	31**	41**
IFC6	,156*	-0,028	-0,097	-0,040	,189**	0,084	0,017	-0,023	,156**	,166**	,157**	,186**	,152**	,203**	,236**	,208**	,215**	0,036	,238**	,247**
IFC7	0,081	-0,104	-0,071	-,121*	,156**	,150**	0,073	-0,020	,116*	,128*	0,100	,167**	,188**	0,078	0,086	,216**	,183**	-0,016	,271**	,310**
IFC8	,173**	-,146**	-,177**	-,179**	,249**	,260**	0,003	0,006	,166**	,138*	0,103	,200**	,276**	,160**	,160**	,308**	,281**	0,070	,333**	,344**
IFC9	,336**	-,264**	-,123*	-,232**	,125*	,125*	-0,069	0,028	0,018	,161**	0,065	,156**	,223**	,213**	,176**	,220**	,278**	,113*	,163**	,196**
Ex	,2	-,	-,	-,	,2	,2	-,	-0	0,	,1	0,	,2	,3	,2	,2	,3	,3	,1	,3	,2

ploi_1	13**	76**	99**	03**	00**	68**	90**	15**	71**	37**	50**	18*	62**	080	53**	01**	58**	83**	66**	59**	40**	08**	70**	10**	45**	79**	24**	000	89**	11**	74**	79**	12**	63**	19**	71**	96**	29**	09**	91**	68**	206***	180***	248***	09**	77**	127*	,026	078	69**	104	54**	56**	82**	11**	58**	73**	14*	12**	78**
Exploi_2	,220**	,128*	,166**	,135*	,147*	,353**	,227**	,303**	,247**	,319**	,303**	,235**	,317**	,220**	,174**	,223**	,209**	,273**	,320**	,354**	,298**	,279**	,288**	,249**	,226**	,375**	,185**	,489**	1,000	,197**	,522**	,314**	,368**	,422**	,279**	,401**	,314**	,334**	,383**	,119*	,267**	-,133*	-,145**	-,210**	,190**	,277**	-0,070	-0,006	0,058	,185**	0,098	,256**	,271**	,234**	,206**	,315**	,339**	,109*	,296**	,329**
Exploi_3	,200**	,261**	,153**	,132*	0,084	,234**	,136*	,112*	,172**	,211**	,210**	,165**	0,072	,122*	0,074	0,022	,130*	,136*	,244**	,184**	,185**	,187**	0,076	,199**	0,095	,163**	,236**	,311**	,197**	1,000	,238**	,217**	,269**	,217**	,169**	,233**	,150**	,218**	,267**	-0,003	,175**	-0,021	0,028	-,113*	,152**	0,110	-0,072	-0,090	0,014	,127*	0,083	0,070	,144**	,214**	,195**	,163**	,183**	0,098	,139*	0,096
Exploi_4	,200**	,196**	,119*	,232**	,247**	,311**	,255**	,316**	,315**	,258**	,251**	,127*	,285**	,118*	,124*	,151**	,178**	,186**	,265**	,431**	,346**	,297**	,292**	,326**	,226**	,371**	,256**	,574**	,522**	,238**	1,000	,356**	,262**	,259**	,200**	,345**	,279**	,322**	,318**	,184**	,230**	-,241***	-,218***	-,264***	,200**	,273**	-,115*	0,032	0,055	,177**	0,115	,256**	,327**	,303**	,284**	,346**	,379**	0,088	,350**	,301**
Exp	,29	,12	,20	0,1	,14	,27	0,0	,13	,21	,25	,33	,20	,22	,17	,16	,18	,18	,19	,31	,25	,29	,30	,28	,17	,25	,35	,16	,37	,31	,21	,35	1,0	,51	,35	,44	,31	,41	,22	,39	0,0	,27	-,1	-,1	-,1	,24	,27	-0,	-,1	-0,	0,0	0,0	0,0	,22	,21	,14	,17	,20	-0,	,26	,22

lor_1	5**	8*	1**	09	6*	2**	96	4*	6**	8**	5**	0**	3**	1**	2**	7**	2**	6**	5**	9**	0**	5**	0**	4**	6**	0**	1**	9**	4**	7**	6**	00	4**	7**	2**	3**	5**	5**	9**	24	9**	71**	87**	84**	2**	3**	061	11*	014	67	23	86	5**	3**	3*	5**	5**	009	3**	4**
Explor_2	,338**	,206**	,195**	0,094	,132*	,286**	0,111	,241**	,247**	,423**	,331**	,308**	,285**	,273**	,148**	,224**	,282**	,333**	,352**	,245**	,294**	,279**	,232**	,166**	,207**	,329**	,187**	,412**	,368**	,269**	,262**	,514**	1,000	,554**	,533**	,483**	,404**	,348**	,505**	0,048	,249**	-,175**	-,164**	-,218**	,269**	,330**	-0,060	-0,066	0,029	,137*	0,092	0,099	,229**	,178**	,117*	,201**	,225**	0,008	,243**	,271**
Explor_3	,253**	,145*	,262**	0,107	0,036	,281**	0,016	,187**	,190**	,369**	,346**	,233**	,239**	,189**	,121*	,177**	,187**	,287**	,238**	,133*	,186**	,192**	,184**	0,106	,152**	,257**	,183**	,363**	,422**	,217**	,259**	,357**	,554**	1,000	,479**	,423**	,369**	,304**	,446**	0,050	,268**	-,198**	-,237**	-,281**	,306**	,319**	-0,040	-0,066	0,047	,112*	0,058	0,101	,222**	,201**	,203**	,173**	,213**	-0,022	,271**	,308**
Explor_4	,263**	,121*	,167**	0,057	0,004	,166**	0,044	,126*	,155**	,273**	,237**	,217**	,166**	,196**	,137*	,118*	,168**	,297**	,253**	,182**	,233**	,179**	,200**	,116*	,176**	,264**	,121*	,319**	,279**	,169**	,240**	,442**	,533**	,479**	1,000	,400**	,360**	,246**	,403**	0,053	,249**	-,170**	-,186**	-,200**	,242**	,271**	-0,025	-0,106	0,000	0,056	0,011	0,085	,204**	,188**	,116*	,169**	,158**	0,031	,232**	,298**
Expl	,269	,193	,156	0,1	0,0	,298	,184	,216	,167	,364	,373	,238	,310	,183	,188	,12	,200	,375	,307	,277	,261	,259	,237	,233	,232	,352	,211	,371	,401	,233	,345	,313	,483	,423	,400	1,0	,419	,489	,549	0,0	,235	-0,1	-0,0	-0,1	,189	,186	-0,0	0,0	,139	,260	,173	,211	,288	,261	,272	,265	,306	,175	,351	,389

or_5	**	**	**	00	99	**	**	**	**	**	**	**	**	**	**	3*	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Explor_6	,217**	0,060	,157**	0,011	0,080	,331**	,135*	,148**	,115*	,224**	,443**	,181**	,280**	,124*	,125*	,162**	,157**	,290**	,294**	,239**	,249**	,162**	,209**	,179**	,190**	,261**	,116*	,296**	,314**	,150**
Explor_7	,137*	0,099	0,056	,143*	0,115	,245**	,150*	,201**	0,099	,240**	,251**	,148**	,206**	0,069	,115*	,169**	,291**	,277**	,280**	,243**	,270**	,226**	,284**	,226**	,213**	,299**	,186**	,329**	,334**	,218**
Explor_8	,344**	0,112	,281**	0,079	0,038	,371**	,133*	,218**	,211**	,429**	,440**	,392**	,384**	,286**	,207**	,260**	,211**	,346**	,343**	,312**	,262**	,307**	,225**	,164**	,232**	,330**	,224**	,409**	,383**	,267**
SD_Br	.0070	0,075	0,003	,146*	0,122	0,032	,165	0,070	0,011	0,103	0,054	-0,0	,120*	-0,0	0,041	0,087	0,087	-0,0	0,021	0,095	0,039	-0,0	0,035	-0,0	0,086	0,056	0,107	,191	,119*	-0,0

or_5	**	**	**	**	**	00	**	**	**	77	**	08	85	07	**	**	33	49	**	**	**	**	**	**	**	**	**	**	**	**
Explor_6	,279**	,415**	,404**	,369**	,360**	,419**	1,000	,346**	,426**	0,005	,243**	-0,091	-,124*	-,138*	,292**	,284**	0,046	0,017	,114*	,174**	,117*	,158**	,199**	,236**	,217**	,210**	,208**	0,077	,314**	,298**
Explor_7	,322**	,225**	,348**	,304**	,246**	,489**	,346**	1,000	,346**	,169**	,283**	-,198**	-,151**	-,203**	,198**	,235**	-0,044	0,034	0,098	,277**	,194**	,228**	,362**	,295**	,246**	,333**	,377**	,122*	,371**	,409**
Explor_8	,318**	,399**	,505**	,446**	,403**	,549**	,426**	,346**	1,000	0,038	,248**	-,160**	-,119*	-,224**	,359**	,261**	-0,108	-0,030	0,103	,215**	,131*	,117*	,244**	,287**	,263**	,188**	,214**	0,097	,358**	,350**
SD_Br	,184	0,024	0,048	0,050	0,053	0,077	0,005	,169	0,038	1,000	,306	-0,0	0,017	-0,0	-0,0	,127*	-0,0	,148*	-0,0	,130*	0,002	0,080	0,075	0,078	0,039	,176	,209	,160	,182	,184

eadth	8069983253728						**					01		02				17				11		50				**		03
SD_Depth	,149*	,136*	0,068	,142*	0,124	,196**	0,054	,156**	0,064	,216**	,165**	0,090	0,078	0,074	,130*	0,034	0,086	-0,029	,166**	,187**	,221**	0,093	,153*	,156*	0,081	,173**	,336**	,268**	,267**	,175**
SD_CuP_1	-,143**	-0,037	-0,091	-,161**	-0,067	-,201**	0,083	-,154**	-0,081	-0,091	-0,062	-0,029	0,040	-0,024	0,000	-0,036	-0,077	-0,051	-0,087	-,124*	-,146**	-0,097	-,170**	-0,028	-0,104	-,146**	-,264**	-,206**	-,133*	-0,021
SD_C	-,11	0,0	-,17	-0,1	-0,0	-,18	0,0	-,13	-,17	-0,0	-,13	0,0	0,0	-0,0	0,0	-0,0	-0,0	-0,0	-,13	-,11	-,17	-,15	-,20	-0,0	-0,0	-,17	-,12	-,18	-,14	0,0

eadth	**							**			**	11		16	17		53		15							**	**	**	**	**
SD_Depth	,230**	,279**	,249**	,268**	,249**	,235**	,243**	,283**	,248**	,306**	1,000	-,154**	-0,057	-,137*	,175**	,175**	0,023	0,075	0,056	,162**	0,068	,203**	,174**	,264**	,190**	,303**	,336**	,116*	,287**	,302**
SD_CuP_1	-,241**	-,171**	-,175**	-,198**	-,170**	0,108	0,091	-,198**	-,160**	0,011	-,154**	1,000	,580**	,685**	-,138*	-,243**	,236**	0,022	-0,089	-,159**	-,131*	-,228**	-,443**	-,329**	-,270**	-,304**	-,325**	,149**	-,303**	-,363**
SD_C	-,21	-,18	-,16	-,23	-,18	-0,0	-,12	-,15	-,11	0,0	-0,0	,580	1,0	,483	-,13	-,17	,157	0,0	-0,0	-0,0	-0,0	-,14	-,36	-,29	-,22	-,22	-,23	,197	-,24	-,22

uP_2	3*	02	2**	15	12	6**	09	4*	5**	33	4*	06	61	05	11	23	40	44	4*	6*	0**	1**	1**	97	71	7**	3*	0**	5**	28	8**	7**	4**	7**	6**	85	4*	1**	9*	17	57	**	00	**	7*	7**	**	26	89	91	52	4*	9**	4**	7**	8**	2**	**	7**	1**
SD_CuP_3	-,187**	-,117*	-,163**	-,188**	-0,094	-,233**	0,086	-,243**	-,127*	-0,094	-,108*	-,120*	-0,029	-0,006	0,031	-0,084	-,130*	-,155**	-,124*	-,156**	-,156**	-0,101	-,164**	-0,040	-,121*	-,179**	-,232**	-,248**	-,210**	-,113*	-,264**	-,184**	-,218**	-,181**	-,200**	-0,107	-,138*	-,203**	-,224**	-0,016	-,137*	,685**	,483**	1,000	-,225**	-,305**	,250**	0,030	-0,079	-0,107	-0,109	-,159**	-,416**	-,306**	-,264**	-,300**	-,272**	,159*	-,289**	-,344**
SD_Level	,147**	0,049	0,107	0,047	0,044	,217**	0,002	,201**	,120*	,253**	,222**	,222**	,148**	,153**	,145**	,154**	,130*	,176**	,235**	,145*	,233**	,177**	,168**	,189**	,156**	,249**	,125*	,209**	,190**	,152**	,200**	,242**	,269**	,306**	,242**	,189**	,292**	,198**	,359**	-0,017	,175**	-,138**	-,137**	-,225**	1,000	,216**	0,026	0,000	0,102	0,063	-0,016	0,087	,250**	,198**	,179**	,118*	,120*	-0,001	,263**	,254**
SD_CoP	,214**	0,017	,132*	,137*	0,061	,335**	0,104	0,089	,195**	,220**	,250**	,161**	,161**	0,099	-0,001	,236**	,141*	,228**	,257**	,268**	,180**	,161**	,233**	0,084	,150**	,260**	,125*	,277**	,277**	0,110	,273**	,273**	,330**	,319**	,271**	,186**	,284**	,235**	,261**	,127*	,175**	-,243***	-,177***	-,305***	,216**	1,000	-0,040	-0,052	0,012	0,104	0,043	,253**	,200**	,210**	,150**	,258**	,304**	0,062	,285**	,368**
SD_Num	-.0748	-0,030	-0,098	-0,039	-0,048	-0,074	-0,106	-0,096	-0,110	-0,029	-0,005	-,148	-0,029	-0,108	-0,039	-,126*	-,145*	-0,072	-,111*	-0,014	0,000	-0,041	0,062	0,017	0,073	0,003	-0,069	-,127*	-0,070	-0,072	-,115*	-0,061	-0,060	-0,040	-0,025	-0,033	0,046	-0,044	-0,108	-0,053	0,023	,236**	,157**	,250**	0,026	-0,040	1,000	0,051	-0,048	-0,071	-,138*	0,025	-0,064	-0,084	-0,093	-0,024	-0,037	,121*	0,011	-0,034

ber_BT	389226593548										**																																																
SR_2018	-,131*	-0,038	0,000	-0,055	-0,011	0,029	0,046	,158**	0,037	-0,041	0,042	0,026	0,030	0,010	-0,017	-0,023	0,002	0,012	-0,019	0,073	-0,045	-0,050	-0,032	-0,023	-0,020	0,006	0,028	-0,026	-0,006	-0,090	0,032	-,111*	-0,066	-0,066	-0,106	0,049	0,017	0,034	-0,030	,148*	0,075	0,022	0,026	0,030	0,000	-0,052	0,051	1,000	,428**	,190**	,115*	0,102	0,067	0,041	0,072	0,111	,119*	,142**	0,052	0,047
PR_2018	-.052235348283	-0,019	-0,029	-0,067	-0,011	,148**	,123*	0,097	0,064	-0,045	0,071	,127*	,114*	0,095	,146**	0,088	,115*	0,092	,128*	,120*	,152**	,191**	0,101	,156**	,116*	,166**	0,018	0,078	0,058	0,014	0,055	-0,014	0,029	0,047	0,000	,139**	,114*	0,098	0,103	-0,015	0,056	-0,089	-0,089	-0,079	0,102	0,012	-0,048	,428**	1,000	,276**	,264**	,193**	,127*	,134*	,177**	0,094	,125*	0,049	0,091	,163**

	6185																																																											
SR_5	.0850508955151547	0,006	0,108	0,052	0,109	,219**	0,120	,168**	0,102	,134*	0,104	0,085	,158**	0,019	0,069	0,071	0,111	,133*	,169**	,195**	,179**	0,079	,176**	,166**	,128*	,138*	,161**	,169**	,185**	,127*	,177**	0,067	,137*	,112*	0,056	,260**	,174**	,277**	,215**	,130*	,162**	-,159**	-0,091	-0,107	0,063	0,104	-0,071	,190**	,276**	1,000	,635**	,295**	,226**	,323**	,335**	,279**	,305**	,164**	,317**	,322**
PR_5	-.0032606050	0,065	0,054	0,001	0,106	,141*	0,089	,142*	0,033	0,071	-0,029	-0,019	0,048	-0,100	0,053	-0,017	0,048	0,056	,136*	0,111	,150**	0,006	0,104	,157**	0,100	0,103	0,065	0,104	0,098	0,083	0,115	0,023	0,092	0,058	0,011	,173**	,117*	,194**	,131*	0,002	0,068	-,131*	-0,052	-0,109	-0,016	0,043	-,138*	,115*	,264**	,635**	1,000	,249**	,164**	,268**	,316**	,205**	,232**	0,093	,219**	,268**

	2028116																																																											
S_BP1	,152**	0,087	0,009	,179**	,136*	,293**	,169**	,185**	,126*	,133*	0,059	-0,030	0,080	-0,022	0,100	0,084	0,109	,114*	,159**	,232**	,213**	,134*	,218**	,186**	,167**	,200**	,156**	,254**	,256**	0,070	,256**	0,086	0,099	0,101	0,085	,211**	,158**	,228**	,117*	0,080	,203**	-,228**	-,144*	-,159**	0,087	,253**	0,025	0,102	,193**	,295**	,249**	1,000	,459**	,394**	,437**	,548**	,466**	,201**	,287**	,372**
S_BP2	,207**	0,110	0,092	,197**	,120*	,250**	0,099	,244**	,170**	,245**	,148**	0,074	0,091	0,085	0,040	,135*	,133*	,219**	,206**	,293**	,245**	,163**	,233**	,152**	,188**	,276**	,223**	,356**	,271**	,144**	,327**	,225**	,229**	,222**	,204**	,288**	,199**	,362**	,244**	0,075	,174**	-,443**	-,369**	-,416**	,250**	,200**	-0,064	0,067	,127*	,226**	,164**	,459**	1,000	,512**	,459**	,522**	,459**	0,057	,404**	,464**
S_BP3	,125*	0,012	0,101	0,045	-0,018	,229**	0,018	,206**	0,001	,156**	,166**	,121*	0,079	,127*	0,076	0,021	0,066	,156**	,185**	,204**	,229**	,120*	,151**	,203**	0,078	,160**	,213**	,282**	,234**	,214**	,303**	,213**	,178**	,201**	,188**	,261**	,236**	,295**	,287**	0,078	,264**	-,329**	-,294**	-,306**	,198**	,210**	-0,084	0,041	,134*	,323**	,268**	,394**	,512**	1,000	,824**	,411**	,402**	0,065	,331**	,417**
S_BP4	,130*	0,019	0,106	0,041	-0,0	,225	0,021	,199	0,001	,136*	,145	0,085	0,090	0,080	0,078	0,025	0,069	,166	,182	,211	,228	0,101	,167	,236	0,086	,160	,176	,211	,206	,195	,284	,143*	,117*	,203	,116*	,272	,217	,246	,263	0,039	,190	-,270	-,227	-,264	,179	,150	-0,0	0,072	,177	,335	,316	,437	,459	,824	1,000	,395	,338	0,085	,299	,396

					36	**		**			**							**	**	**	**		**	**		**	**	**	**	**	**			**		**	**	**	**		**	**	**	**	**	**	93		**	**	**	**	**	**		**	**		**	**
S_BP5	,157**	,148*	0,065	,247**	,164**	,284**	,145*	,239**	,167**	,218**	0,102	-0,005	0,108	-0,010	-0,005	0,037	0,108	,124*	,149**	,235**	,261**	,184**	,280**	,208**	,216**	,308**	,220**	,358**	,315**	,163**	,346**	,175**	,201**	,173**	,169**	,265**	,210**	,333**	,188**	,176**	,303**	-,304**	-,228**	-,300**	,118*	,258**	-0,024	0,111	0,094	,279**	,205**	,548**	,522**	,411**	,395**	1,000	,693**	,213**	,493**	,516**
S_BP6	,187**	,141*	0,079	,213**	,184**	,299**	,198**	,224**	,181**	,186**	,117*	0,043	,114*	0,017	0,011	0,061	,166**	,114*	,167**	,283**	,316**	,192**	,279**	,215**	,183**	,281**	,278**	,373**	,339**	,183**	,379**	,205**	,225**	,213**	,158**	,306**	,208**	,377**	,214**	,209**	,336**	-,325**	-,232**	-,272**	,120*	,304**	-0,037	,119*	,125*	,305**	,232**	,466**	,459**	,402**	,338**	,693**	1,000	,202**	,554**	,512**
S_BP7	.0665346123758719	,169**	0,017	,175**	,189**	,116*	,220**	0,078	0,081	,128*	0,087	-0,035	0,061	0,061	0,105	-0,010	-0,014	0,047	0,008	0,080	-0,001	0,023	-0,023	0,036	-0,016	0,070	,113*	,114*	,109*	0,098	0,088	-0,009	0,088	-0,022	0,031	,175**	0,077	,122*	0,097	,160**	,116*	,149**	,197**	,159**	-0,001	0,062	,121*	,142**	0,049	,164**	0,093	,201**	0,057	0,065	0,085	,213**	,202**	1,000	,250**	,203**

S_BF8	,190**	0,107	,156**	,181**	,139*	,304**	,131*	,222**	,200**	,190**	,272**	,124*	,170**	0,053	0,065	,159**	,159**	,180**	,201**	,295**
S_BF9	,215**	0,068	0,108	,175**	0,063	,315**	0,108	,233**	0,094	,218**	,214**	,198**	,159**	0,083	0,104	,170**	,189**	,267**	,214**	,349**

S_BF8	,272**	,187**	,331**	,238**	,271**	,333**	,163**	,312**	,296**	,139*	,350**	,263**	,243**	,271**	,232**	,351**	,314**	,371**	,358**	,182**
S_BF9	,272**	,228**	,341**	,247**	,310**	,344**	,196**	,278**	,329**	0,096	,301**	,224**	,271**	,308**	,298**	,389**	,298**	,409**	,350**	,184**

S_BF8	,287**	-,303**	-,247**	-,289**	,263**	,285**	0,011	0,052	0,091	,317**	,219**	,287**	,404**	,331**	,299**	,493**	,554**	,250**	1,000	,645**
S_BF9	,302**	-,363**	-,221**	-,344**	,254**	,368**	-0,034	0,047	,163**	,322**	,268**	,372**	,464**	,417**	,396**	,516**	,512**	,203**	,645**	1,000

APPENDIX 10

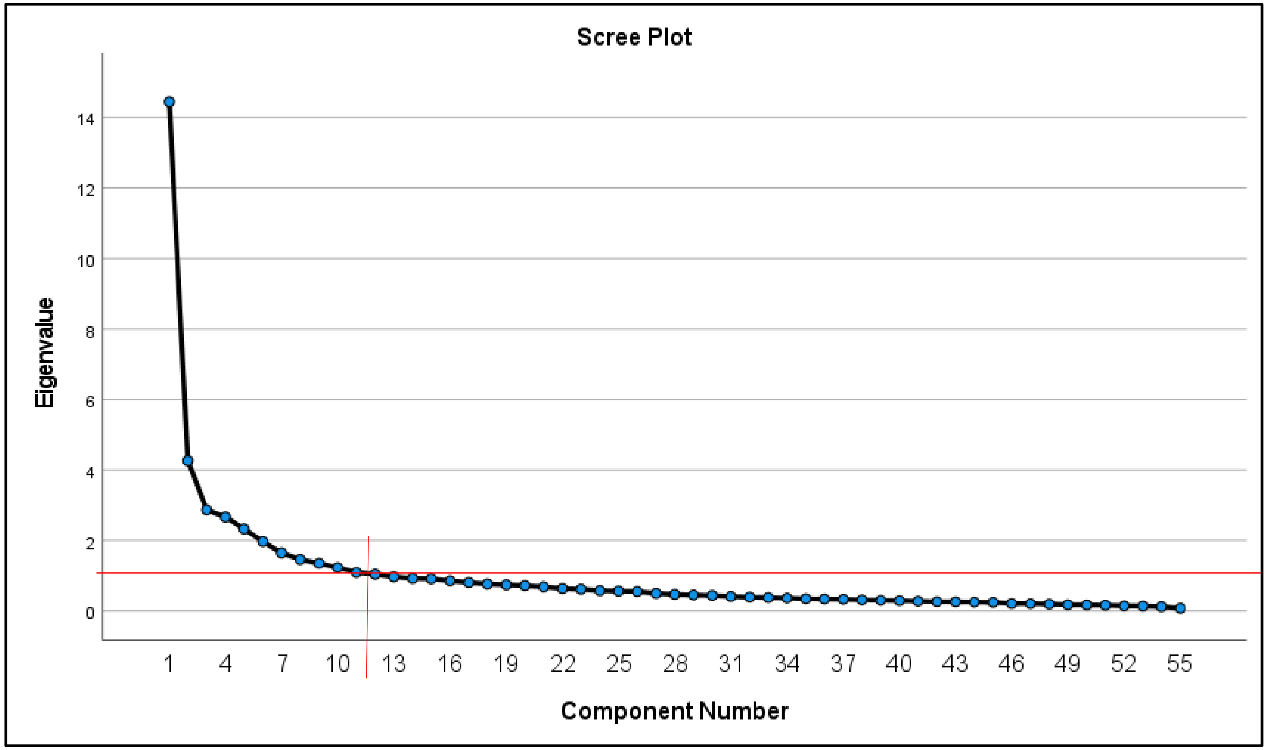
DESCRIPTIVE STATISTICS										
Sample groups and items	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
CuO1	222	1	5	3,22	1,114	1,241	-,089	,163	-,685	,325
CuO2	222	1	5	4,49	,650	,423	-1,410	,163	3,449	,325
CuO3	222	1	5	2,59	1,109	1,230	,434	,163	-,391	,325
CuO4	222	2	5	4,56	,668	,447	-1,501	,163	2,009	,325
CuO5	222	2	5	4,60	,650	,422	-1,672	,163	2,700	,325
CuO6	222	1	5	3,61	1,061	1,125	-,299	,163	-,779	,325
CuO7	222	1	5	4,41	,749	,561	-1,369	,163	2,232	,325
CuO8	222	1	5	3,97	1,061	1,126	-,763	,163	-,200	,325
CuO9	222	1	5	4,23	,787	,619	-,928	,163	,929	,325
CuO10	222	1	5	3,84	1,007	1,014	-,527	,163	-,447	,325
CuO11	222	1	5	3,40	1,164	1,354	-,288	,163	-,740	,325
CoO1	222	1	5	2,72	1,159	1,342	,051	,163	-,840	,325
CoO2	222	1	5	3,57	1,127	1,269	-,524	,163	-,433	,325
CoO3	222	1	5	2,55	1,078	1,163	,134	,163	-,797	,325
CoO4	222	1	5	3,19	1,223	1,496	-,211	,163	-,836	,325
CoO5	222	1	5	3,62	1,038	1,078	-,512	,163	-,293	,325
CoO6	222	1	5	3,76	,989	,979	-,750	,163	,464	,325
CoO7	222	1	5	3,54	1,095	1,200	-,353	,163	-,563	,325
IFC1	222	1	5	3,37	1,222	1,493	-,357	,163	-,778	,325

IFC2	222	1	5	4,04	,965	,931	-1,018	,163	,851	,325
IFC3	222	1	5	3,82	1,058	1,120	-,688	,163	-,103	,325
IFC4	222	1	5	3,48	1,250	1,563	-,400	,163	-,838	,325
IFC5	222	1	5	3,87	,954	,910	-,681	,163	,170	,325
IFC6	222	1	5	3,96	,863	,745	-,646	,163	,516	,325
IFC7	222	1	5	3,95	1,032	1,065	-,888	,163	,377	,325
IFC8	222	1	5	3,76	,976	,952	-,597	,163	-,093	,325
IFC9	222	1	5	2,60	1,286	1,653	,384	,163	-,867	,325
Exploi_1	222	1	5	3,83	1,084	1,174	-,795	,163	,063	,325
Exploi_2	222	1	5	3,51	1,092	1,192	-,444	,163	-,417	,325
Exploi_3	222	1	5	2,51	1,195	1,427	,273	,163	-,882	,325
Exploi_4	222	1	5	4,14	,803	,646	-,892	,163	,918	,325
Explor_1	222	1	5	3,54	1,148	1,318	-,451	,163	-,666	,325
Explor_2	222	1	5	3,11	1,213	1,472	-,148	,163	-,892	,325
Explor_3	222	1	5	2,90	1,258	1,583	,051	,163	-,985	,325
Explor_4	222	1	5	2,91	1,294	1,675	-,008	,163	-1,105	,325
Explor_5	222	1	5	3,64	1,120	1,254	-,559	,163	-,362	,325
Explor_6	222	1	5	3,22	1,322	1,747	-,200	,163	-1,012	,325
Explor_7	222	1	5	3,82	1,148	1,319	-,736	,163	-,285	,325
Explor_8	222	1	5	2,92	1,204	1,450	,126	,163	-,838	,325
SD_Breadth	222	1	3	2,20	,628	,395	-,177	,163	-,575	,325
SD_Depth	222	1	3	2,43	,626	,391	-,637	,163	-,543	,325
SD_CuP_1	222	1	5	2,49	1,338	1,790	,420	,163	-1,009	,325
SD_CuP_2	222	1	5	2,53	1,445	2,087	,432	,163	-1,190	,325
SD_CuP_3	222	1	5	2,56	1,360	1,849	,383	,163	-1,088	,325

SD_Level	222	1	5	3,09	1,164	1,355	-,064	,163	-,651	,325
SD_CoP	222	1	5	3,76	,915	,836	-,465	,163	-,039	,325
SD_Number_BT	222	1	6	2,09	1,384	1,914	1,070	,163	,095	,325
SR_2018	222	1	6	4,12	1,368	1,872	-,361	,163	-,671	,325
PR_2018	222	1	8	4,05	2,297	5,278	,465	,163	-1,010	,325
SR_5	222	1	5	3,63	,812	,659	-,455	,163	,785	,325
PR_5	222	1	6	3,50	,921	,848	-,245	,163	,110	,325
SBP1	222	1	5	3,98	,929	,864	-,638	,163	-,123	,325
SBP2	222	1	5	3,62	1,138	1,296	-,617	,163	-,261	,325
SBP3	222	1	5	3,22	,997	,994	-,059	,163	-,278	,325
SBP4	222	1	5	3,10	1,035	1,071	,063	,163	-,358	,325
SBP5	222	1	5	4,06	,838	,702	-,958	,163	1,408	,325
SBP6	222	1	5	4,06	,862	,743	-,755	,163	,448	,325
SBP7	222	1	5	2,91	1,312	1,720	-,002	,163	-1,076	,325
SBP8	222	1	5	3,47	1,032	1,065	-,264	,163	-,389	,325
SBP9	222	1	5	3,55	1,057	1,118	-,444	,163	-,066	,325
AgeCompany	222	1	5	3,16	1,104	1,219	-,032	,163	-,938	,325
SizeCompany	222	1	55	10,55	8,950	80,109	2,084	,163	5,792	,325
Inhabit	222	1	7	3,63	1,620	2,623	,659	,163	-,515	,325
AgeResp	222	2	6	3,88	,734	,538	-,091	,163	,626	,325
Pos	222	1	6	1,58	1,047	1,095	2,317	,163	5,230	,325
Sex	222	1	3	1,18	,393	,155	1,939	,163	2,477	,325
Valid N (listwise)	222									

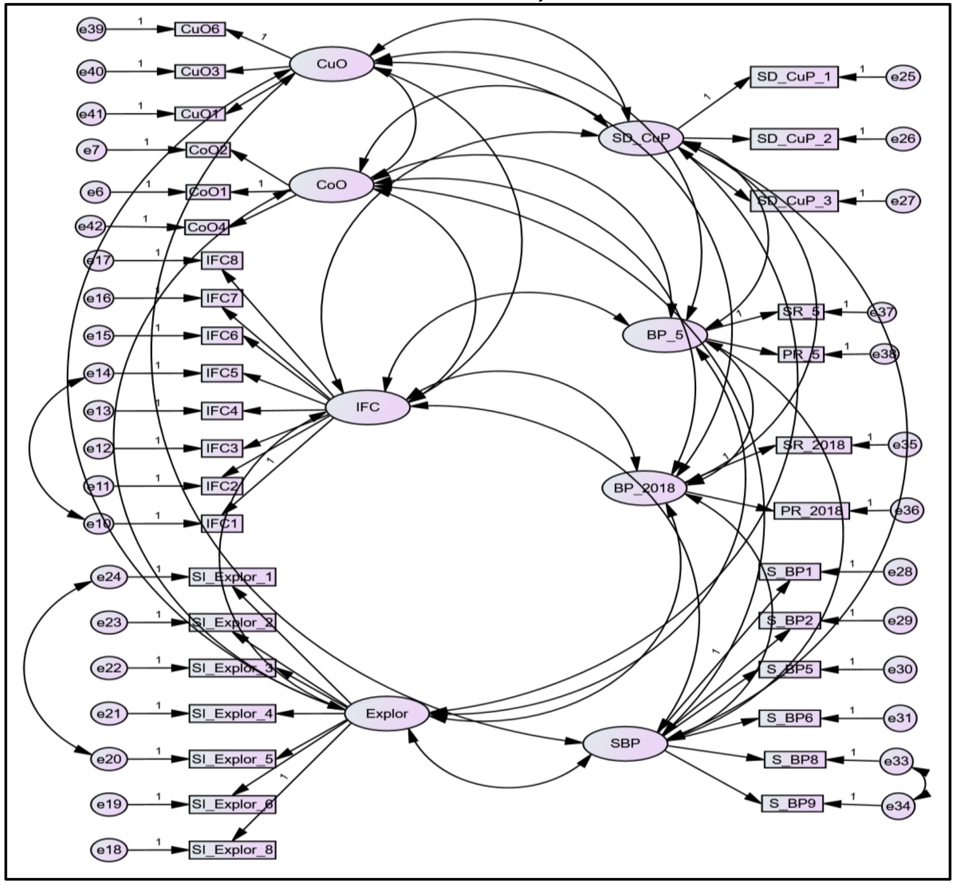
APPENDIX 11

SCREE PLOT
The intercept point of both red lines is the turning point. It indicates a 12-factor solution at the Eigenvalue 1.



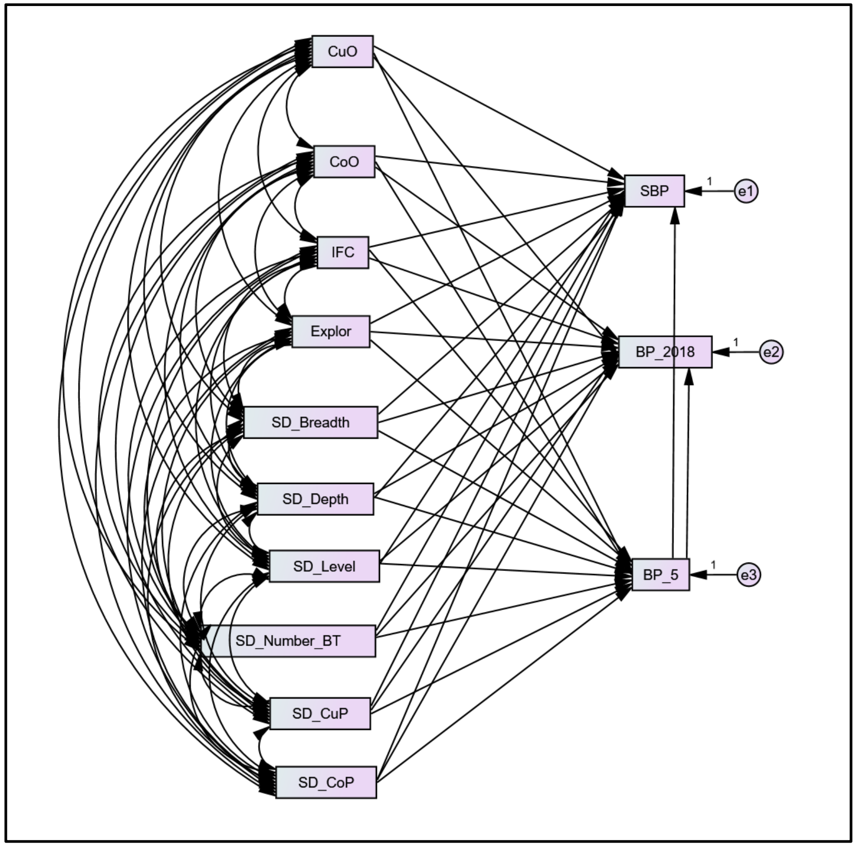
APPENDIX 12

MEASUREMENT MODEL (CONFIRMATORY FACTOR ANALYSIS)



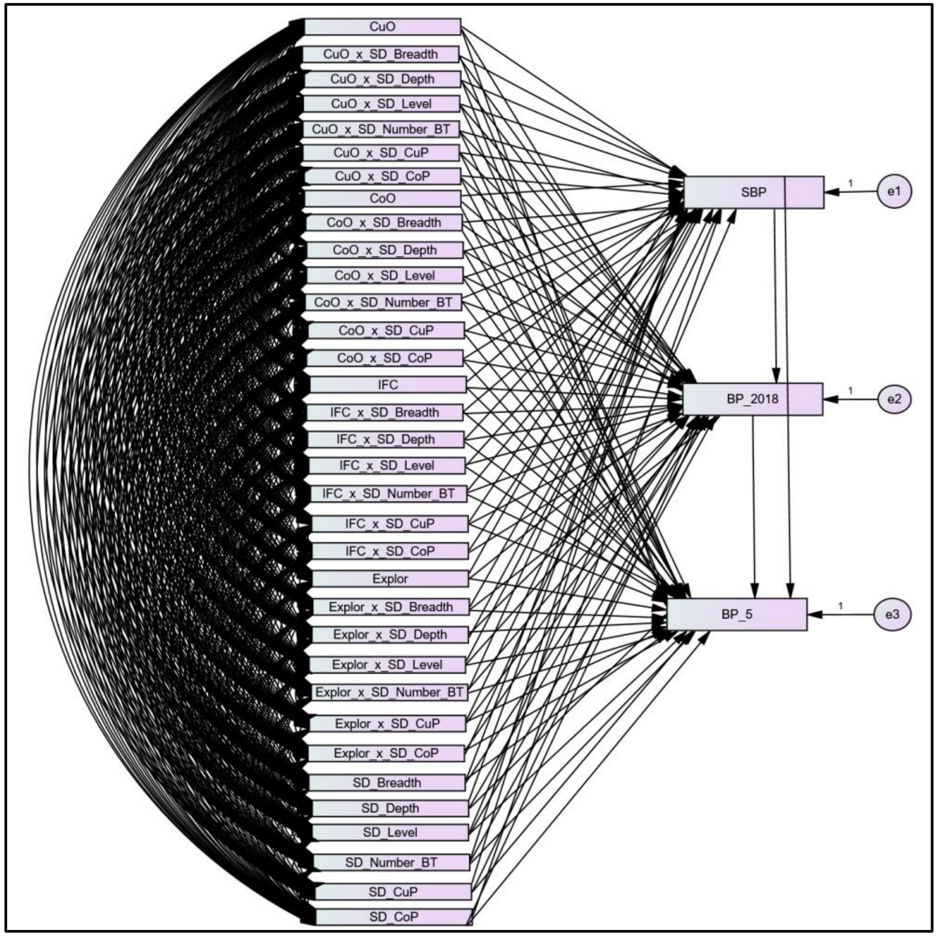
APPENDIX 13

STRUCTURAL MODEL SECTION ADDRESSING DIRECT EFFECTS ADDRESSING OF THE FIRST RESEARCH GAP



APPENDIX 14

STRUCTURAL MODEL SECTION ADDRESSING INDIRECT, MODERATING EFFECTS OF THE SECOND RESEARCH GAP



APPENDIX 15

PATH COEFFICIENTS (B-VALUE) OF ALL MEDIATING EFFECTS

Technique: Causal steps method in accordance to Baron and Kenny (1986)

1. condition: X - Y without mediator						
IV	**--->**	**DV**	**Estimate (β-value)**	**SE**	**C.R.**	**Support**
CuO	**--->**	**SBP**	**.223*** **	**.063**	**3.56**	**Yes**
CuO	**--->**	**BP_2018**	**-.417*** **	**.094**	**-4.449**	**Yes**
CuO	**--->**	**BP_5**	**.237* **	**.097**	**2.449**	**Yes**
CoO	**--->**	**SBP**	**-.382*** **	**.056**	**-6.845**	**Yes**
CoO	**--->**	**BP_2018**	**.532*** **	**.083**	**6.225**	**Yes**
CoO	**--->**	**BP_5**	**-.159* **	**.087**	**-1.831**	**Yes**
IFC	**--->**	**SBP**	**.227*** **	**.045**	**5.068**	**Yes**
IFC	**--->**	**BP_2018**	**.156** **	**.067**	**2.483**	**Yes**
IFC	**--->**	**BP_5**	**.140* **	**.07**	**2.008**	**Yes**
Explor	**--->**	**SBP**	**.242*** **	**.047**	**5.11**	**Yes**
Explor	**--->**	**BP_2018**	**-.153** **	**.071**	**-2.165**	**Yes**
Explor	--->	BP_5	.042(n/s)	.074	.569	no
2. condition: X - M						
CuO	--->	SD_Breadth	-.020	.1	-.196	no
CuO	--->	SD_Depth	.055	.087	.626	no
CuO	--->	SD_Level	-.056	.169	-.331	no
CuO	--->	SD_Number_BT	-.303	.219	-1.383	no
CuO	**--->**	**SD_CuP**	**-.911*** **	**.156**	**-5.833**	**Yes**
CuO	**--->**	**SD_CoP**	**.349** **	**.128**	**2.729**	**Yes**

CoO	--->	SD_Breadth	-.003	.09	-.035	no
CoO	**--->**	**SD_Depth**	**-.133***	**.078**	**-1.707**	**Yes**
CoO	--->	SD_Level	.16	.151	1.055	no
CoO	--->	SD_Number_BT	-.016	.197	-.081	no
CoO	**--->**	**SD_CuP**	**.973*****	**.14**	**6.971**	**Yes**
CoO	**--->**	**SD_CoP**	**-.236***	**.115**	**-2.055**	**Yes**
IFC	--->	SD_Breadth	.051	.072	.709	no
IFC	--->	SD_Depth	.051	.063	.814	no
IFC	--->	SD_Level	.068	.121	.561	no
IFC	--->	SD_Number_BT	.145	.158	.921	no
IFC	--->	SD_CuP	-.013	.112	-.12	no
IFC	--->	SD_CoP	.054	.092	.582	no
Explor	--->	SD_Breadth	.023	.077	.298	no
Explor	**--->**	**SD_Depth**	**.272*****	**.067**	**4.078**	**Yes**
Explor	**--->**	**SD_Level**	**.443*****	**.129**	**3.425**	**Yes**
Explor	--->	SD_Number_BT	.046	.168	.273	no
Explor	**--->**	**SD_CuP**	**-.407*****	**.119**	**-3.412**	**Yes**
Explor	**--->**	**SD_CoP**	**.349*****	**.098**	**3.558**	**Yes**
3. condition: M - Y						
IV	**--->**	**DV**	**Estimate**	**SE**	**C.R.**	
SD_Breadth	**--->**	**SBP**	**.077***	**.042**	**1.850**	**Yes**
SD_Breadth	--->	BP_2018	-.044	.083	-.533	no
SD_Breadth	--->	BP_5	.041	.063	.65	no
SD_Depth	**--->**	**SBP**	**.166*****	**.044**	**3,81**	**Yes**
SD_Depth	--->	BP_2018	.105	.085	1.224	no
SD_Depth	**--->**	**BP_5**	**.135***	**.065**	**2.075**	**Yes**
SD_Level	--->	SBP	.035	.022	1.543	no
SD_Level	--->	BP_2018	.061	.044	1.382	no
SD_Level	--->	BP_5	-.034	.034	-1.013	no
SD_Number_BT	**--->**	**SBP**	**.045***	**.019**	**2.442**	**Yes**
SD_Number_BT	--->	BP_2018	-.031	.037	-.843	no

SD_Number_BT	--->	BP_5	-.025	.028	-.884	no
SD_CuP	**--->**	**SBP**	**-.221*** **	**.023**	**-9.576**	**Yes**
SD_CuP	--->	BP_2018	-.044	.045	-.982	no
SD_CuP	**--->**	**BP_5**	**-.071***	**.034**	**-2.08**	**Yes**
SD_CoP	**--->**	**SBP**	**.095*****	**.029**	**3.235**	**Yes**
SD_CoP	--->	BP_2018	-.042	.058	-.728	no
SD_CoP	--->	BP_5	.024	.044	.543	no
4. condition: X - Y with mediators						
IV	--->	**DV**	**Estimate**	**SE**	**C.R.**	**Strength of mediation**
CuO	**--->**	**SBP**	**.047(n/s)**	**.056**	**.839**	
CuO	--->	BP_5	.196*	.104	1.876	
CuO	--->	BP_2018	-.532***	.098	-5.428	
CoO	**--->**	**SBP**	**-.187*****	**.053**	**-3.528**	
CoO	--->	BP_5	-.110(n/s)	.101	-1.089	
CoO	--->	BP_2018	.639***	.092	7.533	
IFC	--->	SBP	.214***	.035	6.114	
IFC	--->	BP_5	.142*	.077	1.844	
IFC	--->	BP_2018	.169**	.071	2.380	
Explor	**--->**	**SBP**	**.117****	**.047**	**2.489**	
Explor	--->	BP_5	.029(n/s)	.091	3.820	
Explor	--->	BP_2018	-.224**	.083	-2.698	
SD_Breadth	--->	SBP	.090**	.036	2.500	
SD_Breadth	--->	BP_5	.037(n/s)	.072	.513	
SD_Breadth	--->	BP_2018	-.088(n/s)	.066	-.133	
SD_Depth	**--->**	**SBP**	**.107****	**.049**	**2.184**	**Partial Mediation**
SD_Depth	--->	BP_5	.111(n/s)	.076	1.460	
SD_Depth	--->	BP_2018	.047(n/s)	.072	.653	
SD_Level	--->	SBP	.013(n/s)	.021	.619	
SD_Level	--->	BP_5	-.034(n/s)	.038	-.894	
SD_Level	--->	BP_2018	.029(n/s)	.038	.763	

SD_Number_BT	--->	SBP	.036*	.017	2.117	
SD_Number_BT	--->	BP_5	-.0380(n/s)	.032	1.187	
SD_Number_BT	--->	BP_2018	.008(n/s)	.031	.258	
SD_CuP	**--->**	**SBP**	**-.182*** **	**.027**	**-6.740**	**Full Mediation, Partial Mediation**
SD_CuP	--->	BP_5	-.044(n/s)	.047	-.936	
SD_CuP	--->	BP_2018	-.126***	.038	-3.316	
SD_CoP	--->	SBP	.041(n/s)	.034	1.206	
SD_CoP	--->	BP_5	-.056(n/s)	.054	-1.037	
SD_CoP	--->	BP_2018	-.01(n/s)	.050	-.200	

APPENDIX 16

PATH COEFFICIENTS (B-VALUE) OF ALL MEDIATING EFFECTS

Technique: Bootstrapping in accordance to Preacher and Hayes (2008)

H	IV (X)	DV (Y)	Model 1: D.E. before mediation, without mediators (X - Y)	SE	CR	Model 2: I.D.E., with mediators (X - M - Y)	SE	CR	Model 3: D.E. after mediation, with mediators (X - Y)	SE	CR	Result	TE	VAF	Strength of mediation	S.I.D.E. (M)	S.I.D.E. (M)
H5a	**CuO**	**SBP**	**.223*** **	**.063**	**3.56**	**.233*** **	**.046**	**5.065**	**.047(n/s)**	**.057**	**.827**	**Yes**	**.280*** **	**83.03**	**Full**	**SD_CuP**	
H5a	CuO	BP_2018	-.417***	.094	-4.449	.253***	.072	3.514	-.532***	.099	-5.365	Yes	-.279**	-90.68	n/s		
H5a	CuO	BP_5	.237*	.097	2.449	.041(n/s)	.052	.788	.196*	.104	1.876	No	.237*	17,3	n/s		
H5a	**CoO**	**SBP**	**-.382*** **	**.056**	**-6.845**	**-.233*** **	**.042**	**-5.548**	**-.187*** **	**.051**	**-3.638**	**Yes**	**-.421*** **	**55.34**	**Partial**	**SD_Depth**	**SD_CuP**
H5a	CoO	BP_2018	.532***	.083	6.225	-.211***	.068	-3.103	.639***	.09	7.125	Yes	.427***	-49.41	Partial		
H5a	CoO	BP_5	-.159*	.087	-1.831	-.049(n/s)	.051	-.961	-.110(n/s)	.095	-1.155	No	-.159*	30,82	n/s		

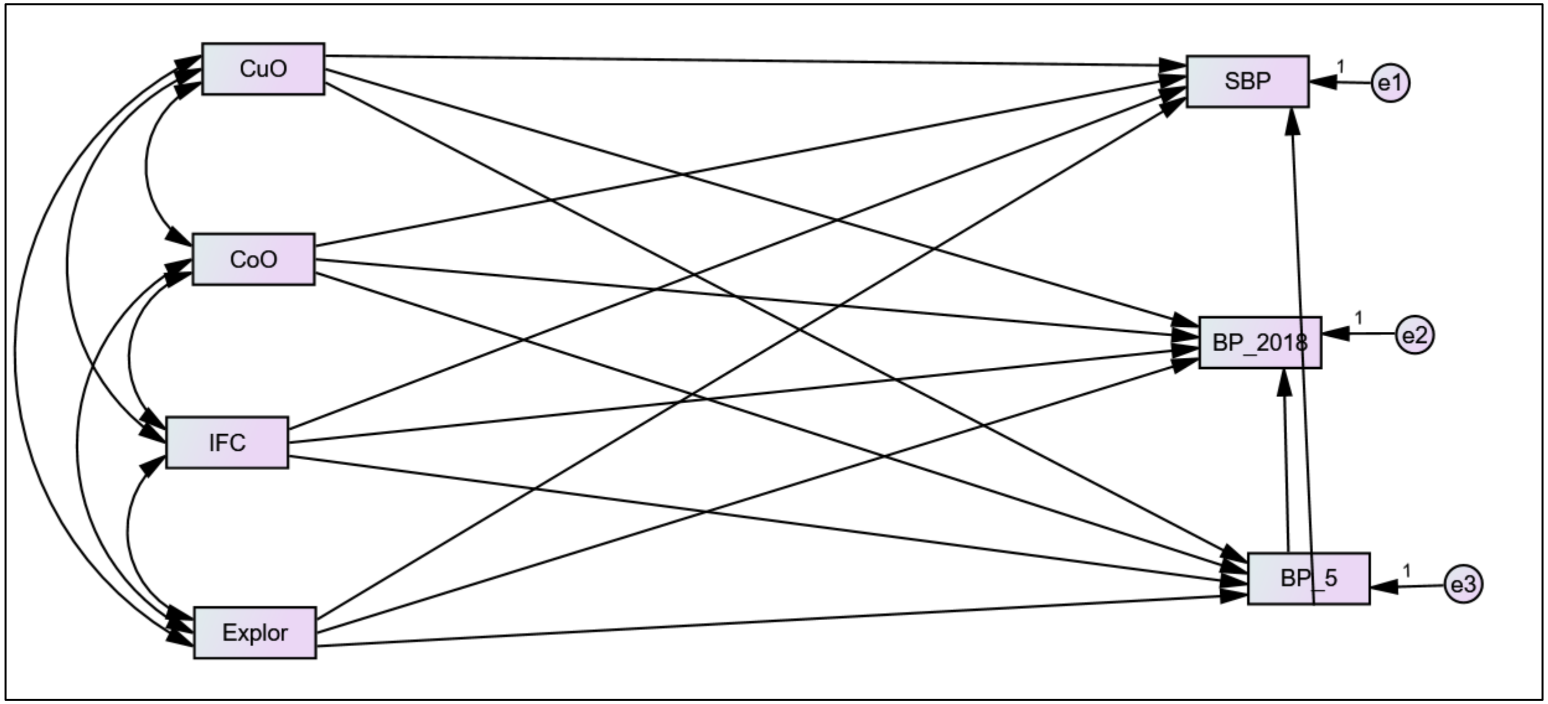
H5a	IFC	SBP	.227***	.045	5.068	.047(n/s)	.038	1.237	.214***	.038	5.701	No	.261***	18.00	n/s		
H5a	IFC	BP_2018	.156**	.067	2.483	.079(n/s)	.054	1.463	.169***	.065	2.577	No	.248**	31.85	n/s		
H5a	IFC	BP_5	.140*	.07	2.008	-.002(n/s)	.020	-.100	.142*	.069	2.066	No	.140*	1.43	n/s		
H5b	**Explor**	**SBP**	**.242*** **	**.047**	**5.11**	**.135*** **	**.039**	**3.461**	**.117** **	**.044**	**2.688**	**Yes**	**.252*** **	**53.57**	**Partial**	**SD_Depth**	**SD_CuP**
H5b	Explor	BP_2018	-.153**	.071	-2.165	.095(n/s)	.064	1.484	-.224***	.036	5.815	No	-.129(n/s)	-73.64	n/s		
H5b	Explor	BP_5	.042(n/s)	.074	.569	.013(n/s)	.041	.317	.029(n/s)	.081	0.363	No	.042(n/s)	30.95	n/s		

APPENDIX 17

STRUCTURAL MODEL SECTION ADDRESSING INDIRECT, MEDIATING EFFECTS ADDRESSING OF THE SECOND RESEARCH GAP

Technique: Causal steps method in accordance to Baron and Kenny (1986)

First condition: direct effects (X – Y) without mediator variables

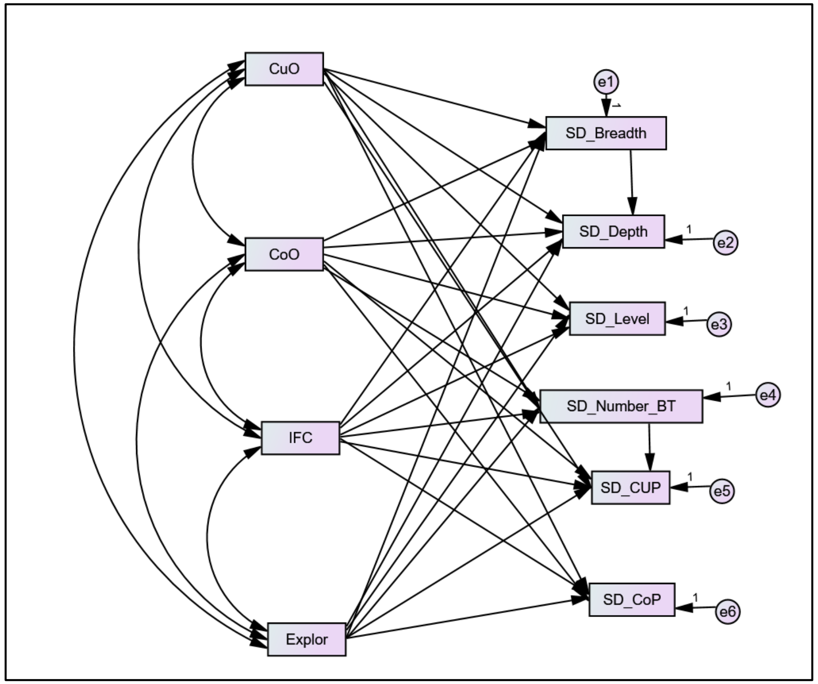


APPENDIX 18

STRUCTURAL MODEL SECTION ADDRESSING INDIRECT, MEDIATING EFFECTS ADDRESSING OF THE SECOND RESEARCH GAP

Technique: Causal steps method in accordance to Baron and Kenny (1986)

Second condition: direct effects (X – M) with independent and mediator variables

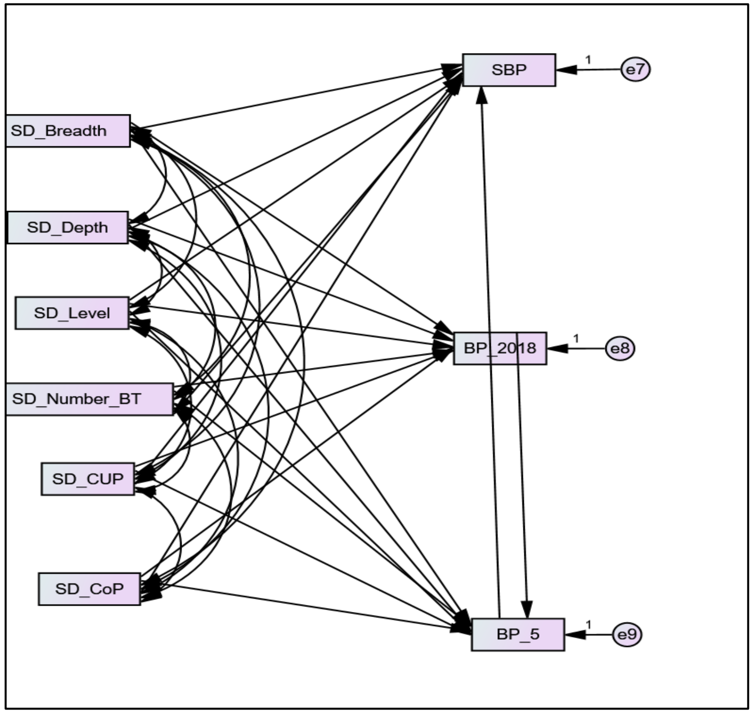


APPENDIX 19

STRUCTURAL MODEL SECTION ADDRESSING INDIRECT, MEDIATING EFFECTS ADDRESSING OF THE SECOND RESEARCH GAP

Technique: Causal steps method in accordance to Baron and Kenny (1986)

Third condition: direct effects (M – Y) with mediator variables and dependent variables

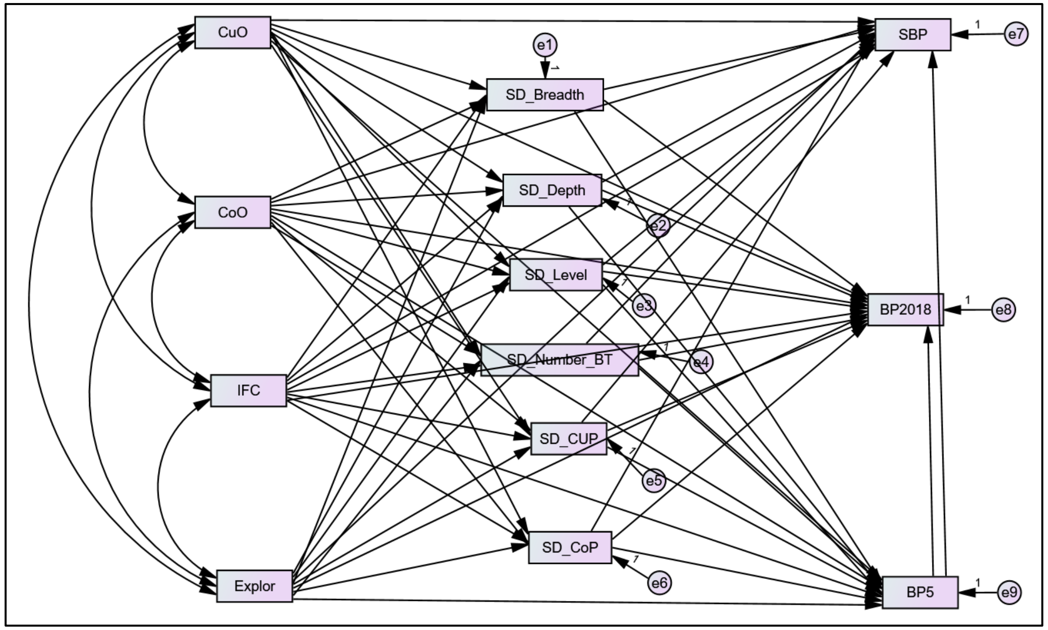


APPENDIX 20

STRUCTURAL MODEL SECTION ADDRESSING INDIRECT, MEDIATING EFFECTS ADDRESSING OF THE SECOND RESEARCH GAP

Technique: Causal steps method in accordance to Baron and Kenny (1986)

Fourth condition: direct effects (X – Y) with independent, dependent variables, and mediator variables



APPENDIX 21

STRUCTURAL MODEL SECTION ADDRESSING SPECIFIC, INDIRECT EFFECTS OF THE SECOND RESEARCH GAP

Technique: Bootstrap method in accordance to Preacher and Hayes (2008).

The path coefficients are recoded to identify the specific, indirect mediator variables. They are in red.