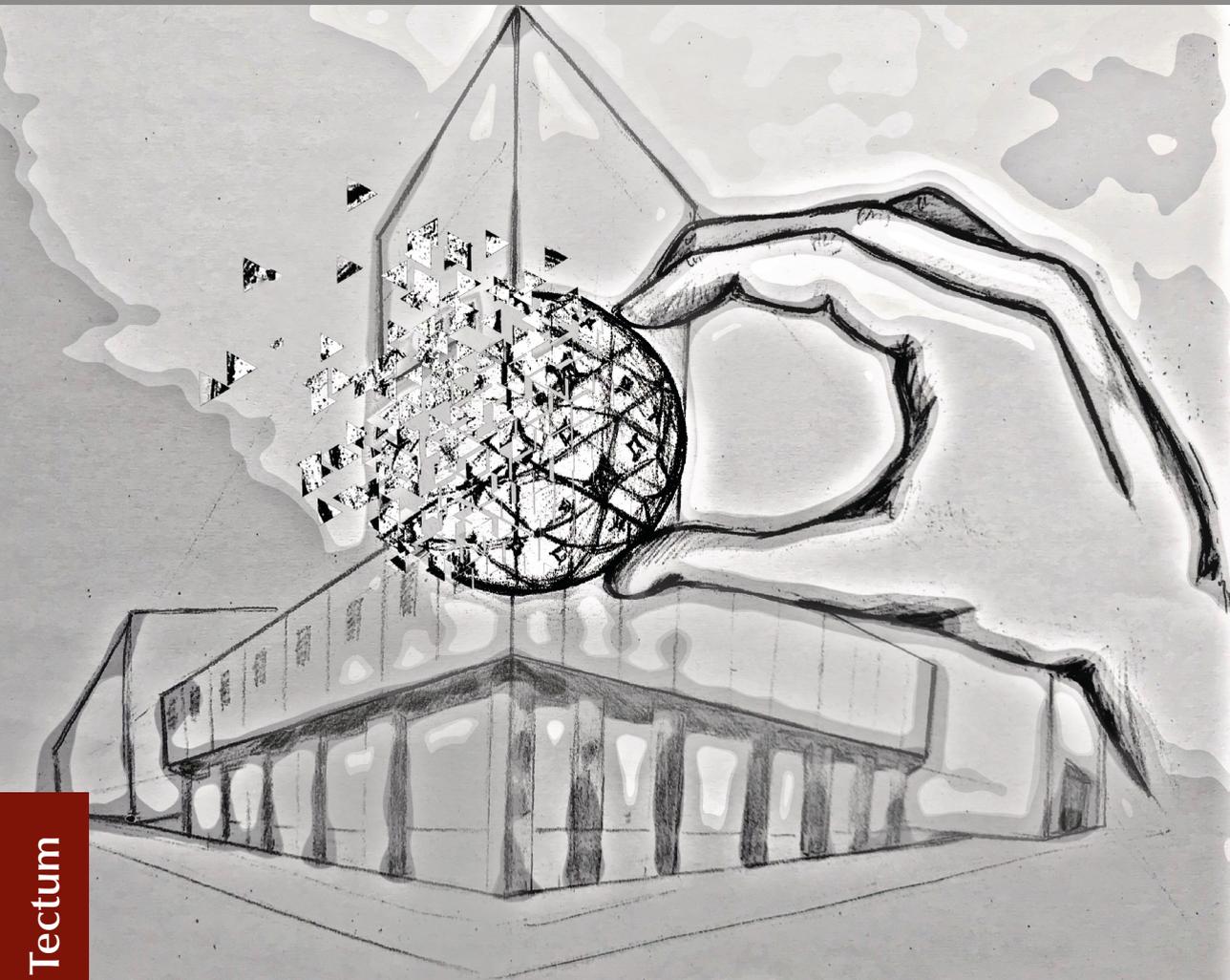


Christian Schlicht

Methods of Measuring the Added Value of Facility Management for Generating Competitive Advantages

Illustrated by the Example of the German
Shopping Center Market



**Wissenschaftliche Beiträge
aus dem Tectum Verlag**

Reihe Wirtschaftswissenschaften

Wissenschaftliche Beiträge
aus dem Tectum Verlag

Reihe Wirtschaftswissenschaften
Band 93

Christian Schlicht

Methods of Measuring the Added Value of Facility Management for Generating Competitive Advantages

Illustrated by the Example of the German Shopping
Center Market

Tectum Verlag

Die Deutsche Nationalbibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über <http://dnb.d-nb.de> abrufbar.

Zugl.: Seattle, School of Management / CityU of Seattle, Dissertation/2020

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available on the Internet at <http://dnb.d-nb.de>

ISBN 978-3-8288-4595-4 (Print)
978-3-8288-7657-6 (ePDF)

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library.

ISBN 978-3-8288-4595-4 (Print)
978-3-8288-7657-6 (ePDF)

Library of Congress Cataloging-in-Publication Data

Christian Schlicht

Methods of Measuring the Added Value of Facility Management for Generating Competitive Advantages Illustrated by the Example of the German Shopping Center Market
268 pp.

Includes bibliographic references.

ISBN 978-3-8288-4595-4 (Print)
978-3-8288-7657-6 (ePDF)

Umschlaggestaltung: Tectum Verlag, unter Verwendung einer Abbildung von Angelika Flad
Cover design: Tectum Verlag, using an illustration by Angelika Flad

1. Auflage 2021

© Nomos Verlagsgesellschaft, Baden-Baden 2021

This work is subject to copyright. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage or retrieval system, without prior permission in writing from the publishers. Under § 54 of the German Copyright Law where copies are made for other than private use a fee is payable to "Verwertungsgesellschaft Wort", Munich.

No responsibility for loss caused to any individual or organization acting on or refraining from action as a result of the material in this publication can be accepted by Nomos or the author.

Preface by Alexander Otto

We are facing challenging times these days. Investors are now confronted with the VUCA question in detail and increasingly realize that climate change also represents a massive investment risk. In this context, Corona accelerates these trends. Investment criteria are changing rapidly, and we are currently undergoing a fundamental transformation of the investment sector. In this way, we will experience a substantial reallocation of capital and assets. Every government, every company and every investor has to proactively face climate change and its impact. “Sustainable Finance” is imperative – an improved disclosure of decision-relevant information for Shareholders and Stakeholders is therefore urgently required. Especially in a real estate context, data evaluation therefore forms the essential basis for investment decisions and reporting activities.

Due to the progressing saturation of the shopping center market, ECE no longer develops new shopping center sites – yet, such developments represented the corporate core business some 15 years ago. Today we focus upon managing a diversified portfolio of existing assets and only acquire center locations that we consider viable in the future. This changed corporate strategy induces a re-focusing upon real estate operations, clearly the longest phase within the real estate life cycle.

Christian Schlicht’s dissertation thesis impressively demonstrates that targeted added value measurement in Facility Management (FM) can effectively influence corporate success. The developed AVIC-tool represents the basis for evidence & performance-based management on department level and is designed to be integrated easily into any given KPI environment. With his long-term experience in the international real estate sector, Christian successfully managed to bring the actual real estate users and customers into the operational focus. His thesis incorporates a FM-adopted Customer Journey approach and thus considers essential and valuable insights from different stakeholder perspectives. I really appreciate the important results of Christian’s latest empirical study in which he develops new innovative methods to measure real impact, actual USPs.

FM takes a decisive role when it comes to accompanying stakeholders along their Customer Journey with this new data driven approach. His work is an important contribution to our journey of turning shopping centers into new marketplaces.

Preface by Alexander Otto

I am impressed that Christian has committed himself that deeply to the topic of customer satisfaction next to his tasks and responsibilities as ECE Director.

Enjoy reading and learn how to focus: it's all about your stakeholders.

Alexander Otto
CEO
ECE Projektmanagement G.m.b.H. & Co. KG

Preface by Jöri Engel

Data management, transparency and communication represent the core pillars of Corporate Real Estate Management. It might be an old, widely spread wisdom that data form the basis for understanding the past and creating the future. Yet, up-to-now, this has been much harder than initially assumed. As a matured management discipline, Corporate Real Estate Management is no longer exclusively about creating standard KPIs but about measuring added-value contributions in favor of the actual core business. This attempt becomes even more significant, when Real Estate and Facility management from different sectors can be compared – with a branch-comprehensive and uniform method. We are no longer satisfied with “only” reaching our objectives and outer-/ or underperforming our parameters – we want to beat the benchmark, the bests on the market!

Dream of the future? Impossible? Non-comparable basis? No longer until recently!

Christian Schlicht’s thesis demonstrates impressively how this magic can actually happen. Based on my state of knowledge, we (CREM organizations) are there-with enabled for the first time to identify levers and their impact in a systematic and practice-oriented manner – in exactly a manner which should be focused in CREM and FM in order to support respective core businesses ideally.

With Christian Schlicht’s 15 years of active experience as real estate expert, it is logical to assume that the applied methodology can easily be combined with the existing system of indicators and can be used for measuring purposes among any sector or branch.

By that also branch-comprehensive comparisons are possible, offering significant advantages for the CREM world and many colleagues. Everyone with CREM responsibility therewith receives a practical tool in order to consult and thrill our Stakeholders to an even larger extent!

I have great respect for Mr. Schlicht and his creation and wish for myself and the entire CREM community that his thesis will find large acceptance and application. When professional CREM is based upon data management, transparency and com-

Preface by Jöri Engel

munication, we now have a tool at our disposal which will make the experience of these terms even more vivid and tangible.

Jöri Engel
President CoreNet global Central Europe
Head Corporate Real Estate Management Swisscom

Preface by Dirk Otto

Real Estate (REM) and Facility Management (FM) has developed rapidly over the last few years and today already comprises many areas that are particularly responsible for the success of a company.

As a professional association, Real FM e. V. has a strong interest in promoting the national and international exchange of knowledge and experience as well as in research and training and further education in the field of real estate and FM. An indicator for the continuing professionalization in REM & FM is the need to further define, differentiate and specify processes as well as functions, tasks and activities in FM. In order to further advance and support this development, the description of all functions and services of the property and service-related management has been transferred into a function and service model.

The present dissertation by Christian Schlicht now shows impressively how the bridge between research and business practice can be built. As a well-known Corporate Real Estate Management (CREM) and FM expert, he has many years of experience in the implementation of various projects in Germany and abroad. He uses the proximity to universities and colleges to further develop his ideas methodically and didactically as well as to conduct research.

In the course of his extra-occupational doctorate, he succeeded in developing the first model for measuring the added value of CREM / FM in relation to corporate success. His scientific findings show for the first time the concrete and measurable value contribution of CREM & FM and are perfectly transferable to the entire CREM & FM world. Due to the developments of digital transformation in CREM and FM, more and more data will be available to the real estate operator. These can now be made accessible for modern REM. The same applies to the added value of REM & FM for the achievement of climate protection goals, which can now also be concretely measured.

The AVIC measurement model enables an evidence-based CREM and FM that also plays a decisive role in corona-related issues such as Workplace / New Work, UX or Customer Experience/Satisfaction with regard to the return to the office or other workplaces with the help of measurability with regard to hygiene & prevention concepts, operator responsibility, etc. as a kind of confidence-building measure.

Preface by Dirk Otto

In the sense of the broad professionalization work we wish you a high gain of knowledge and benefit from reading this book, as well as much success in its implementation in practice!

Dirk Otto
President RealFM e. V.
Managing Director in the Gegenbauer Group of Companies

Preface by Jörg Hossenfelder

Without facility management, no operation in hospital. A decade ago, this slogan was intended to point out the special importance of the sector for the real estate industry. So far, FM has not everywhere achieved the status it deserves. Too often, facility management is primarily seen as a cost factor.

What has been missing until now has been a clear measurement of the value contribution to corporate success. However, in the course of the digital transformation, CREM departments now have access to data that not only helps to optimise the business, but also makes the added value of the activity measurable. This information must be used. Christian Schlicht's work clearly demonstrates this.

From the point of view of a market researcher, Schlicht's work is particularly impressive in the example of a significant increase in customer satisfaction within a shopping centre. Concrete, data-supported measures and accompanying communication made it possible to verify not only which actions contribute to success, but also to what extent this increases customer frequency and turnover.

Schlicht's dissertation is science for practice and practice for science. His many years of expertise in the CREM environment is reflected not least in the interpretative part of his analysis. And he clearly shows that he is not only concerned about his own business, but above all about the property of his employers – whether at Würth or currently at ECE.

His work has not only earned him an academic title. His dissertation demonstrates the value contribution of FM and promotes the image and reputation of an entire industry.

Jörg Hossenfelder
Managing Director
Lünendonk & Hossenfelder GmbH

Preface by Tanja Zirnstein

As a real estate expert, Christian Schlicht is no stranger to thinking outside the box and constantly looking at innovative systems. Creating concrete added value in the FM sector by means of hygiene and safety for center customers was already one of his goals prior to the current Corona pandemic. In doing so, he focused on customer centricity with the help of the Customer Journey – starting with owners, tenants, employees and end customers on their journey through the center with touch points.

Until now, the reluctance of investors to invest has made it difficult to establish new approaches of this kind on the market. With his AVIC (Added Value Identification Concept) model, Christian Schlicht has created the first measuring instrument for added value of facility management measures in connection with corporate goals. He has thus provided real estate owners and operators with a tool that will be indispensable in the future, since investment decisions can now be made on an evidence-based basis and the performance contributions of the departments involved can be realistically measured. The combination of factual and subjective added value creates corresponding competitive advantages and USPs.

Even more so, the AVIC model is not only easy to integrate into an existing KPI structure of companies, but also works across industries, if one thinks in the current situation of occupational safety, health management and in this regard of customer satisfaction e.g. in public transport, in the health sector or in industry, where UVIS is also in use.

Through the very cooperative partnership we have been able to contribute to making ECE shopping center customers feel safer and more secure. This is one of the cornerstones of our company. We are therefore very proud that Christian Schlicht has made us a part of the Customer Journey by integrating our hygiene systems ESCALITE and TiTANO into his module-based FM concept for hygiene and preventive and at the same time confidence-building measures for the safety of customers and employees.

Tanja Zirnstein
Managing Director
UVIS UV-Innovative Solutions GmbH

Acknowledgment

While writing my dissertation, I received a lot of support from both the academicians and my family.

I would like to thank my family for their full trust, support, patience, and understanding during the past years. I was allowed to fully concentrate on my tasks only as a result of their encouragement. I would like to thank my girlfriend for her indulgence and assistance during the intense period of my doctoral studies.

Special thanks go to my doctoral advisor, Pavol Molnár, who contributed significantly to the success of this work through his experience, helpfulness, and suggestions. At this point, I would also like to thank Professor Dr. Torben Bernhold and Dr. Vanessa Lellek for their critical, intense, and constructive discussions. Through their shared interest in this topic, they were able to point out new perspectives to me.

The aforementioned aspects facilitated the realization of my dissertation and created a strong, intrinsic, and lasting personal motivation.

Special thanks go to my friend and study companion, Christoph Müller. This achievement would not have been possible without our intense exchanges on both professional and human levels. Last but not least, I would like to thank Kira Pusch for her support, layout, and critical reflection of this work, as well as all of the support not explicitly mentioned.

I dedicate this thesis to my family.
Many thanks!

Hamburg, June 2020

Christian Schlicht

Abstract

[English]

Increasingly important benefits of Corporate Real Estate Management (CREM) and Facility Management (FM) are widely described in theoretical literature. Although FM practically is often regarded as a cost collector only, this management discipline can significantly contribute to core businesses and competitive entrepreneurial positions by secondary process control. Yet this FM contribution is currently not perceived by many corporate decision makers. Therefore, a qualitative and quantitative benefit evidence is imperative which subsequently requires the definition of a clear measurement-approach.

This dissertation describes the measurable and transferable added value (AV) of CREM/FM. Focus is set upon the impact measurement of CREM/FM on the core business. An AV measurement tool is developed in accordance with the Tableau de bord and is applied for a horizontal and vertical corporate objective-relationship-visualization.

The methodical research approach is primarily of qualitative nature. The developed instrument is based on an embedded case study conducted at ECE Projektmanagement G.m.b.H. & Co. KG (ECE). Important case study impulses have been identified during a literature-based comparison of different AV measurement instruments from various industries. An additional quantitative exploratory study on TPB basis has been executed describing the connection between general AV measurement attitudes and an actual implementation tendency in reality. By means of a second quantitative study, the developed AV model has been tested and finally provided an important impetus for AV measurement implementation and its integrability for future research. The developed method represents an initial approach to directly combine core business objectives with CREM/FM objectives, finally enabling a concrete operationalization in business practice.

Table of Contents

Preface by Alexander Otto	V
Preface by Jöri Engel	VII
Preface by Dirk Otto	IX
Preface by Jörg Hossenfelder	XI
Preface by Tanja Zirnstein	XIII
Acknowledgment	XV
Abstract	XVII
List of Illustrations	XXIII
List of Tables	XXVII
List of Abbreviations and Symbols	XXIX
1 Introduction	1
1.1 Problem description and current state of the solved topic	1
1.1.1 VUCA – Progress is imperative	1
1.1.2 The German Shopping Center Market	1
1.1.3 Key stakeholders and trends – the retail market on the move	2
1.1.4 The VUCA effect on different stakeholder groups	3
1.1.4.1 Impact for investors	3
1.1.4.2 Impact for tenants	4
1.1.4.3 Impact for visitors	4
1.1.4.4 Impact for operators	5
1.1.5 Conceptual delimitation of FM	6
1.1.6 FM as part of the company's value chain	8
1.1.7 Conceptual delimitation of CREM	10
1.1.8 Trends in FM	10
1.1.8.1 Current situation	11
1.1.8.2 VUCA and FM	11
1.1.8.3 The development of new real estate concepts	11
1.1.8.4 Influencing factors	11
1.1.8.5 Holistic approach and challenges in FM	12
1.1.8.6 Use cases of digitalization and new technologies	12

Table of Contents

1.2 Hypotheses and research questions	13
1.3 Goal and work methodology	13
2 Analysis of the literature	17
2.1 Introduction	17
2.2 Definition of the review focus and the goal	20
2.3 Description of the coverage	21
2.4 Conceptualization of the topic	23
2.5 Literature search	25
2.6 Analysis and synthesis of the literature	27
2.6.1 Operationalizability	30
2.6.2 Transferability	30
2.6.3 Efficiency	31
2.6.4 Up-to-datedness	31
2.7 Extraction of essential models and concepts	35
2.7.1 Balanced Scorecard	35
2.7.2 Tableau de bord	38
2.7.3 Value Map	41
2.7.4 Economic Value Added	43
2.7.5 ORMM method	47
2.7.6 Guest Model	49
2.7.7 Beyond budgeting	51
2.7.8 Comparison of the models and concepts	56
2.8 Summary	58
3 Quantitative research – Online survey	61
3.1 Introduction	61
3.2 Theory of planned behavior	63
3.3 Development of indicators	64
3.4 Development and formulation of hypotheses	66
3.5 Pre-test	69
3.6 Data collection	69
3.7 Data preparation	71
3.8 Data evaluation	73

3.8.1	Descriptive Statistics	73
3.8.2	Inductive Statistics	74
3.9	Data interpretation and limitations	75
4	ECE – Embedded case study	79
4.1	Introduction of ECE Projektmanagement G.m.b.H. & Co. KG	80
4.2	Objectives and structure of the case study	81
4.3	Qualitative research – Expert interviews	84
4.3.1	Data collection	84
4.3.2	Data evaluation and interpretation	90
4.4	Development of the AVIC model	91
4.5	Summary	98
5	Quantitative research – Point of sale survey	99
5.1	Introduction	100
5.2	The service concept of ECE “At your Service”	100
5.3	Double touchpoint pilot project	101
5.3.1	FM is making the customer journey a tangible experience	101
5.3.2	The innovation partner – UVIS	102
5.3.3	The innovative product – ESCALITE	102
5.3.4	The location – Phoenix-Center Hamburg	103
5.3.5	The measurement of the results – POS survey	105
5.3.5.1	Research design	105
5.3.5.2	POS survey	105
5.3.5.3	Results and interpretation	107
5.3.6	Summary	110
6	Conclusion	113
6.1	Closing the research gap	113
6.2	Concluding summary	114
6.3	Outlook and options for further scientific research	118
6.3.1	Further evaluation of the AVIC model	118
6.3.1.1	Plan-phase	118
6.3.1.2	Do-phase	118
6.3.1.3	Check-phase	119

Table of Contents

6.3.1.4 Act-phase	119
6.3.1.5 Integration into the corporate strategy	119
6.3.2 The Ishikawa Model – The theory behind the model	120
6.3.3 The vision of the Digital Marketplace	122
6.3.4 Options for potential scientific connectivity	122
Reference List	XXXVII
Literature	XXXVII
Online sources:	XLVII
Appendices	LIII
Appendix A – Mega trends	LIV
Appendix B – Template of the online survey	LV
Appendix C – Results of the online survey	LX
Appendix D – Results of the ECE expert interviews – E1–E9	LXXVIII
Interview transcript protocol – E1	LXXXIII
Interview transcript protocol – E2	LXXXV
Interview transcript protocol – E3	LXXXIX
Interview transcript protocol – E4	XCII
Interview transcript protocol – E5	XCVI
Interview transcript protocol – E6	XCIX
Interview transcript protocol – E7	CIII
Interview transcript protocol – E8	CV
Interview transcript protocol – E9	CVII
Appendix E – Results of the ECE expert interviews – E10–E12	CXI
Interview transcript protocol – E10	CXIV
Interview transcript protocol – E11	CXXII
Interview transcript protocol – E12	CXXVII
Appendix F – The Bernhold model	CXXXII
Appendix G – Tableau de bord	CXXXIII
Appendix H – Explanation of the AVIC model	CXXXIV
Appendix I – Phoenix-Center Harburg	CXL
Appendix J – Vision: Digital Marketplace	CXLIII
Appendix K – List of academic activities	CXLIV

List of Illustrations

Illustration 1-1: Facility Management as a functional subsystem	9
Illustration 1-2: Research design of the dissertation	15
Illustration 2-1: Desk research – Analysis of the literature	17
Illustration 2-2: First mind map	23
Illustration 2-3: Final mind map	24
Illustration 2-4: Overview of the reviewed literature sources	25
Illustration 2-5: Development of the definition of the AV over time	26
Illustration 2-6: Overview of relevant decision criteria	29
Illustration 2-7: Evaluation of the reviewed models	32
Illustration 2-8: Overview of selected models	35
Illustration 2-9: Structure of Balanced Scorecard	36
Illustration 2-10: Overview of the strategy map	37
Illustration 2-11: Structure of VM	41
Illustration 2-12: The impacts and surroundings of the VM	43
Illustration 2-13: Economic Added Value (EVA) – Formula	44
Illustration 2-14: Outcome-Relationship-Measures-Manage (ORMM) model	49
Illustration 2-15: Interrelation within ORMM model	50
Illustration 2-16: Beyond budgeting	53
Illustration 2-17: Identified challenges during the analysis of the literature	59
Illustration 2-18: Overview of selected models and concepts for further research	60
Illustration 3-1: Quantitative research (exploratory) – Online survey	61
Illustration 3-2: Theory of planned behavior	63
Illustration 3-3: TPB as structural model for the measurement model of AV	64
Illustration 3-4: TPB combined with developed hypotheses	69
Illustration 3-5: Systematic data preparation for the evaluation	72
Illustration 3-6: Structure of the evaluation slides	74
Illustration 3-7: Expected relationships as a result of the exploratory approach	77
Illustration 4-1: ECE Embedded case study	79
Illustration 4-2: Essential components for the development of the AV model	83
Illustration 4-3: Qualitative research – Expert interviews	84
Illustration 4-4: Development of AV track record model of FM	91
Illustration 4-5: Example of the track record model for measuring the AV of FM	95
Illustration 4-6: Cockpit of the AV track record model	97

List of Illustrations

Illustration 4-7: Example of endo- and exogen factors referring to the AV model	97
Illustration 5-1: Quantitative research – Point of sale survey	99
Illustration 5-2: Important touchpoints along the customer journey	101
Illustration 5-3: Main advantages of ESCALITE	103
Illustration 5-4: Tenant mix of the PCH	104
Illustration 5-5: Interior view of the PCH	104
Illustration 5-6: Overall satisfaction with the shopping center visit	108
Illustration 5-7: Assessment of individual aspects	108
Illustration 5-8: Image of the shopping center	109
Illustration 5-9: Value creation model in CREM/FM	111
Illustration 6-1: FM approach of PDCA in the corporate environment	120
Illustration 6-2: The Ishikawa Model	121
Illustration 6-3: Megatrend-Map	LIV
Illustration 6-4: Structure of the evaluation slides	LX
Illustration 6-5: Results in “Attitude”: employees for AV measurement	LX
Illustration 6-6: Results in “Subjective norm”: support by managers	LXI
Illustration 6-7: Results in “Subjective norm”: support by management	LXI
Illustration 6-8: Results in “Subjective norm”: support by employees	LXII
Illustration 6-9: Results in “S ubjective norm”: forced by competitors	LXII
Illustration 6-10: Results in “Subjective norm”: political demand	LXIII
Illustration 6-11: Results in “Subjective norm”: support by shareholders/owners	LXIII
Illustration 6-12: Results in “Perceived control”: professional expertise	LXIV
Illustration 6-13: Results in “Perceived control”: financial resources	LXIV
Illustration 6-14: Results in “Perceived control”: time resources	LXV
Illustration 6-15: Results in “Perceived control”: infrastructure basis and KPI	LXV
Illustration 6-16: Results in “Perceived control”: real estate strategy	LXVI
Illustration 6-17: Results in “Behavioral intention”: intention for AV measurement	LXVI
Illustration 6-18: Results in “Behavior”: system or method for AV measurement	LXVII
Illustration 6-19: Results in “Demography”: industry	LXVII
Illustration 6-20: Results in “Demography”: position	LXVIII
Illustration 6-21: Results in “Demography”: number of employees	LXVIII
Illustration 6-22: Results in “Demography”: area to be managed	LXVIII
Illustration 6-23: Correlations in the original model	LXXII

Illustration 6-24: Correlations in the adapted model focusing on indicators	LXXIV
Illustration 6-25: Results of the relevant indicators hypotheses review	LXXVII
Illustration 6-26: Overall conceptual construct of AV of FM	LXXXI
Illustration 6-27: Track record of the performance of CREM/FM	CXXXII
Illustration 6-28: Tableau de bord model	CXXXIII
Illustration 6-29: Cascaded goal development: corporate level	CXXXV
Illustration 6-30: Cascaded goal development: functional level	CXXXVI
Illustration 6-31: Cascaded goal development: CREM/FM & task level	CXXXVIII
Illustration 6-32: Floor plan – Basement of PCH	CXLI
Illustration 6-33: Floor plan – Ground floor of PCH	CXLI
Illustration 6-34: Floor plan – First floor of PCH	CXLII
Illustration 6-35: Digital Marketplace	CXLIII

List of Tables

Table 1-1: Definitions of facility management	7
Table 2-1: Information on preparing a literature review	20
Table 2-2: Information on preparing a literature review – focus clusters	22
Table 2-3: Explanation of the analysis matrix	27
Table 2-4: Advantages & disadvantages of BSc	38
Table 2-5: Advantages & disadvantages of Tdb	40
Table 2-6: Advantages & Disadvantages of VM	43
Table 2-7: Advantages & disadvantages of EVA	47
Table 2-8: Overview of the ORMM method	48
Table 2-9: Advantages & disadvantages of GM	51
Table 2-10: Advantages & disadvantages of BB	55
Table 2-11: Advantages & disadvantages of model comparison	57
Table 3-1: Summary of the developed indicators	64
Table 3-2: Overview of the developed hypotheses	66
Table 3-3: Summary of the derived hypotheses	68
Table 3-4: Overview of the five defined hypotheses H1–H6	68
Table 3-5: Developed questionnaire for the online survey	70
Table 3-6: Descriptive statistics – parameters used	73
Table 3-7: Results of the evaluation of the define hypotheses H1–H6	76
Table 4-1: ECE at one glance	80
Table 4-2: Overview of the interviewed experts E1–9	84
Table 4-3: Catalogue of key questions in the first interview block	85
Table 4-4: Overview of the interviewed experts E10–12	86
Table 4-5: Content structure of the expert interviews E10–12	88
Table 4-6: Hierarchy model level	92
Table 4-7: Measuring of goal achievement with track record	93
Table 4-8: Value of the track record	94
Table 4-9: Overview of the variables used in the AV formula	94
Table 5-1: POS survey	106
Table 6-1: Online survey template	LV
Table 6-2: SPSS results – correlations of indicators	LXIX
Table 6-3: Definition of alternative and null hypothesis	LXXVI
Table 6-4: Overview of the interviewed experts E1–E9	LXXVIII
Table 6-5: Result matrix of the identified added value factors	LXXIX

List of Tables

Table 6-6: Result presentation of the AV of FM for the stakeholders	LXXX
Table 6-7: Interview structure	CXI
Table 6-8: Content structure	CXII
Table 6-9: Transcription interview E10	CXIV
Table 6-10: Transcription interview E11	CXXII
Table 6-11: Transcription interview E12	CXXVIII
Table 6-12: Chronology	CXL
Table 6-13: Property data	CXL
Table 6-14: Inhabitants in the catchment area	CXL
Table 6-15: List of academic activities	CXLIV

List of Abbreviations and Symbols

-	minus
+	plus
x	times
/	divided by
<	less than
>	greater than
=	equal
α	alpha
&	and
€	Euro
\$	Dollar
%	Percent
m ²	Square meter
24/7	Twenty-four seven, 24 hours a day/7 days a week
4P	Planet, People, Performance, Profit
AI	Artificial Intelligence
AKNW	Architektenkammer Nordrhein-Westfalen
AM	Asset Management
approx.	approximately
Assoc.	Associate
AV	Added Value
AVIC	Added Value Identification Concept
AYS	At your Service
B	Benefit
B2B	Business to Business
B2C	Business to Customer
BAMB	Buildings as material banks
BC	Before Christus

List of Abbreviations and Symbols

BIM	Building Information Modeling
bn	Billion
BSC	Balanced Scorecard
BSc	Bachelor of Science
C2C	Cradle to cradle
ca.	circa
C&A	Clemens und August
CAPM	Capital Asset Pricing Model
CA	Cronbach's Alpha
CAV	Cronbach's Alpha value
CC	Content Code
CEO	Chief Executive Officer
cf.	compare
CFO	Chief Financial Officer
CFROI	Cash-flow return on investment
CIB	International Council for Building
CIO	Chief Investment Officer
CIP	Continual improvement process
CIPD	Chartered Institute of Personnel and Development
cit.	citation
CityU	City University of Seattle
CM	Center Management
CNG	CoreNet Global – The Global Association for Corporate Real Estate
Co.	Company
COVID-19	Coronavirus disease 2019
CO2	Carbon dioxide
CRE	Corporate Real Estate
CREM	Corporate Real Estate Management
CRM	Customer Relationship Management

CVM	Contingent Valuation Method
CX	Customer Experience
DAD	Dhanarak Asset Development
DCF	Discounted Cash Flow
DEA	Data envelopment analysis
DGNB	Deutsche Gesellschaft für Nachhaltiges Bauen – DGNB e.V. German Sustainable Building Council
DHBW	Duale Hochschule Baden Württemberg
DIN	Deutsches Institute für Normung
DLT	Distributed Ledger Technology
Dreso	Drees and Sommer
E	Expert
EC	Expert code
EC Aid	European Commission Aid
ECE	ECE Projektmanagement G.m.b.H. & Co. KG
e-commerce	Electronic commerce
EE	Equity Equivalents
EN	European Norm
e. g.	exempli gratia, for example
ESG	Environmental, Social, and Governance
et al.	et alii, et aliae, et alia; and others
etc.	et cetera
EU	European Union
EuroFM Research Initiative	European Facility Management Research Initiative
EVA	Economic Value Added

List of Abbreviations and Symbols

e.V.	eingetragener Verein, incorporated association
EX	Exploratory question
ff.	et seq. = et sequentes, and following pages
FH	Fachhochschule
FINDEX	Word creation of find and index, Digital university library of FH Münster
FM	Facility Management
FMC	Facility Management Consulting
GB	Great Britain
GER	Germany
GEFMA	German Facility Management Association
GFA	Gross floor area
Gen Z	Generation Z = People that are younger than 20 years
GM	Guest Model
GMA	Gesellschaft für Markt- & Absatzforschung
G.m.b.H. & Co. KG	Gesellschaft mit beschränkter Haftung & Compagnie Kommanditgesellschaft
H	Hypothesis
HDE	Handelsverband Deutschland – HDE e. V.
HHL	Handelshochschule Leipzig
H&M	Hennes und Mauritz
HR	Human Resources
HRM	Human Resource Management
IBM	International Business Machines Corporation
IC	Investment Committee
ICSC	International Council of Shopping Centers
ID 21	Data set
i.e.,	id est, that is
IFH	Institut für Handelsforschung
IFMA	International Facility Management Association
Inc.	Incorporated

incl.	including
IoT	Internet of Things
IPM	Infrastructural Property Management
ISBN	International Standard Book Number
ISO	International Standardization Organization
ISSN	International Standard Serial Number
IT	Information Technology
K	Key question
KPI	Key performance indicators
LS	Leasing Management
MBA	Master of Business Administration
m-commerce	Mobile commerce
min	Minutes
MIS	Management Information System
MEC	Metro-ECE Centermanagement (joint venture between ECE and Metro Group)
MS	Microsoft
MVA	Market Value Added
n	Number of cases
N1	Zero measurement
N2	Follow-up measurement
NAV	Net Asset Value
nm	Nanometer
No.	Number
NOPAT	Net Operating Profit After Taxes
NSGMM	The New St. Gallen Management Model
NY	New York
ORMM model	Outcome-Relationships-Measures-Manage model
OTI	Office, Traffic, Industries
p	Significance

List of Abbreviations and Symbols

p.	Page
padCAPI	Computer Assisted Personal Interview using Apple iPads
PCH	Phoenix-Center Hamburg
PDCA	Plan-Do-Check-Act
Ph.D.	Doctor of Philosophy
POS	Point of sale
Pros & Cons	Advantages and disadvantages
Q1 2020	First quarter in 2020
Rewe	Revisionsverband der Westkauf-Genossenschaften
ROI	Return on invest
Prof.	Professor
Sa	Sacrifice
SC	Shopping Center
SPSS	Statistical Package for the Social Sciences
sqm	Square meter
SRH	Stiftung Rehabilitation Heidelberg
St.	Sankt
Tdb	Tableau de bord
TIB	German National Library of Science and Technology Hannover
TPB	Theory of planned behavior
TR	Track record
ULCA	University of California
URL	Uniform Resource Locator
USA	United States of America
USP	Unique selling point or unique selling proposition
UVC	Ultraviolet radiation in the wavelength range C from 280–100 nm
UVIS	UVIS UV-Innovative Solutions GmbH
VAP	Value Added Printing
VBM	Value-Based Management

VDMA	Verband Deutscher Maschinen- und Anlagenbau e. V.
VDE	Verband der Elektrotechnik Elektronik Informationstechnik e. V.
VM	Value Map
vs.	versus
VSM	Vysoká škola manažmentu
VUCA	Volatility, uncertainty, complexity, and ambiguity
WACC	Weighted Average Cost of Capital
web or www	World Wide Web
WS	Winter semester
XING	Social network specializing in maintaining and establishing professional business contacts.

