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A Handbook of Management Theories and Models for Office Environments and Services

Edited by Vitalija Danivska and Rianne Appel-Meulenbroek

A HANDBOOK OF MANAGEMENT THEORIES AND MODELS FOR OFFICE ENVIRONMENTS AND SERVICES

Although workplace design and management are gaining more and more attention from modern organizations, workplace research is still very fragmented and spread across multiple disciplines in academia. There are several books on the market related to workplaces, facility management (FM), and corporate real estate management (CREM) disciplines, but few open up a theoretical and practical discussion across multiple theories from different disciplines. Therefore, workplace researchers are not aware of all the angles from which workplace management and effects of workplace design on employees has been or could be studied. A lot of knowledge is lost between disciplines, and sadly, many insights do not reach workplace managers in practice. Therefore, this new book series is started by associate professor Rianne Appel-Meulenbroek (Eindhoven University of Technology, the Netherlands) and postdoc researcher Vitalija Danivska (Aalto University, Finland) as editors, published by Routledge. It is titled 'Transdisciplinary Workplace Research and Management' because it bundles important research insights from different disciplinary fields and shows its relevance for both academic workplace research and workplace management in practice. The books will address the complexity of the transdisciplinary angle necessary to solve ongoing workplace-related issues in practice, such as knowledge worker productivity, office use, and more strategic management. In addition, the editors work towards further collaboration and integration of the necessary disciplines for further development of the workplace field in research and in practice. This book series is relevant for workplace experts both in academia and industry.

This second book in the series focuses on the role of workplace management in the organization and the tasks that workplace management needs to consider. The 18 theories that are presented in this book and applied to workplace research discuss management aspects from the organization's perspective or dive deeper into issues related to people and/or building management. They all emphasize that workplace management is a complex matter that requires more strategic attention in order to add value for various stakeholders. The final chapter of the book describes a first step towards integrating the presented theories into an interdisciplinary framework for developing a grand workplace management theory.

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TRANSDISCIPLINARY WORKPLACE RESEARCH AND MANAGEMENT

Series Editors: Rianne Appel-Meulenbroek and Vitalija Danivska

A HANDBOOK OF THEORIES ON DESIGNING ALIGNMENT BETWEEN PEOPLE AND THE OFFICE ENVIRONMENT

Rianne Appel-Meulenbroek and Vitalija Danivska

A HANDBOOK OF MANAGEMENT THEORIES AND MODELS FOR OFFICE ENVIRONMENTS AND SERVICES

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CONTENTS

PREFACE

A book that collects theories that are useful for workplace research. It was an idea that had been in Rianne's head for some years before she shared it with Vitalija at a conference in Hong Kong in early 2019. Meanwhile, Vitalija recalled the struggle she had with mapping the theoretical constructs when she started studying issues related to workplace management, so she met the idea of the book with high enthusiasm. After the summer break, together we turned that idea into action which materialized into a new book series called Transdisciplinary Workplace Research & Management, of which this volume is the second book.

Our backgrounds in engineering and economics cannot oversee all relevant theories to cover workplace management issues, as workplace research is spread across many disciplines and it is difficult to pin down what would be the most important ones to start with. Therefore, we were very happy that our call for potentially relevant theories in our networks received so many responses and ideas. Clearly, there are many relevant theories that can be used to advance workplace management and design research and practice. And our idea that a lot of knowledge is lost between disciplines was fortified by our unfamiliarity with several theories that were submitted to appear in this book. The described application of each theory to our own field was very valuable for us and has provided new directions to advance our own research further. We expect it will do the same for you when you read the book.

The chapters in this second book of the series contain theories and models focused on management processes, strategy development and delivering value to multiple stakeholders. It explains 18 theories in equally set-up chapters. Additionally, together with all 35 authors in this book, we took a step towards a real 'transdisciplinary' approach and connected the insights from these theories in the last chapter. This presents a conceptual framework towards a holistic grand theory for workplace management.

The idea of the book was born in 2019 and it took us almost two years to have the first two books ready and published. It has been a much bigger task than we initially expected. There were a lot of things that we were not aware of in the beginning of the process, so it was a learning curve for both of us. As with any learning process, it had its ups and downs. But we remained motivated and driven by the curiosity and support that we received from all the authors too. The number of chapters and authors required strong self-discipline and management skills from us, but at the end, when we reflect, we are happy to have taken this task upon us. We saw how much work all the authors have put into their chapters, how much they have

improved them throughout the review process and how collaborative all the authors have been. Thus, we take this chance to thank everyone for getting on board in what seemed a bit daring at first and ended in a collection of work we are proud of. We also hope that new collaborations will be born, and more interdisciplinary knowledge will be created.

Besides authors sharing their knowledge, there were more people that made these books widely accessible. Thanks to the institutions of several authors and a crowdfunding campaign that we started on GoFundMe, we were able to make the e-book versions of the first two books in the series open access to all. It means that all book chapters can be downloaded from routledgehandbooks.com at no cost. Therefore, we would like to thank all 54 donors who contributed to the crowdfunding campaign on an individual note. A special acknowledgement and sincere thank you go to Kardham Group, the Sonneborgh Group, IVBN (Association of Institutional Property Investors in the Netherlands) and CREME (Dutch end-user platform for corporate real estate managers) that supported us with large donations. Additionally, we thank Buck Consultants International and the Dutch branch of CBRE Global Investors for their significant donation to this initiative too. We are very happy to see that so many people and organisations believe that these books are useful and need to reach as many readers as possible.

We hope you enjoy reading the book. You can read it from front to back, or you can start at the end with the framework towards the grand theory for workplace management. You can also jump through individual theories based on your own interest. This book is aimed at both researchers and practitioners as all chapters explain a theory, apply it to the workplace context, introduce research methods for researchers and discuss implications for workplace management in practice. So, we think you will all enjoy reading it. We hope the books will support you in advancing the academic research in the field and transferring scientific knowledge to practice. In addition, we hope that future books in the series will bring even more angles to workplace management and more disciplines together. If you have ideas for the future, we are happy to hear your suggestions.

For now, we wish you lots of inspiration from reading this book. Hopefully, it will bring you as much joy in reading it as we had while preparing it.

Vitalija Danivska and Rianne Appel-Meulenbroek

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1

COLLECTING THEORIES TO OBTAIN AN INTERDISCIPLINARY UNDERSTANDING OF WORKPLACE MANAGEMENT

Vitalija Danivska and Rianne Appel-Meulenbroek*

1 Introduction

Workplace in general is understood as a "place where work is done" (WordNet-Online, n.d.). Workplace management, in one form or another, has been around since the first buildings dedicated to performing work-related tasks appeared. But only in the late 19th and early 20th centuries, when office building construction boomed, the attention was directed to office layouts and 'the best way to perform work tasks', highly influenced by scientific management father Frederick Winslow Taylor. With improvement of building techniques and growth of employees' rights, offices started changing and providing more personalization opportunities. Around the middle of the 20th century, dedicated managers for managing physical space (office buildings) started appearing. However, their focus remained on timely provision of square metres and they considered real estate users rather limitedly. Around the 1980s, the need to organise operations that were spread across multiple locations led to the birth of a new – facilities – management (FM) regime in research. Later in the 1990s, Joroff et al. (1993) introduced corporate real estate as the fifth resource, "whose strategic value is just emerging", which led towards development of the corporate real estate management (CREM) research field. FM originally concentrated on a more operational level of building management, while CREM emphasized the financial management of real estate.

During the same time, organisational studies were developing knowledge about organisations and human behaviour in organisational settings. Already in the first half of the 20th century, organisational researchers introduced the idea that work performance relates to group dynamics and that the physical space is a factor that affects formal and informal relationships in the organisation. Studies on the social work environment started to criticise the scientific management approach, which is now considered as the beginning of the human relations field (Chanlat, 2006). In organisational studies, physical space is seen as part of organisational space, however, often only as a setting in which organisational relationships happen and can be studied.

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Nonetheless, from the 1990s onwards, the number of studies on the employee–(physical) workplace relationship started to grow, showing the interest to align workplace design to employee needs as well.

Even though workplace management is widely discussed, there is no one definition used among academics and practitioners. The International FM Association (IFMA) defines workplace management as "the management of all resources needed to design & maintain appropriate, effective and economical workplace experiences that align to strategic business objectives and support people in doing their best work every day, wherever they are" (Jervis & Mawson, 2014, p. 10). Similarly, Redlein et al. (2020) define workplace strategy as "the alignment of the organisation's workplace with the business strategy in order to optimise the effectiveness of its people and achieve its strategic business goals. It takes into account different dimensions of a company, its physical and virtual work environments, culture, business processes, technologies and other resources" (p. 179).

In practice, workplace management has been understood as one of the functions of facility management (FM), corporate real estate management (CREM), or human resource management (HRM) departments. Facilities management (FM) is now officially defined in a European Committee for Standardization (CEN) norm as "the integration of processes within an organisation to maintain and develop the agreed services which support and improve the effectiveness of its primary activities" (CEN, 2007, p. 5). Corporate real estate management (CREM) is not defined officially, but it generally is understood as the management of a corporation's real estate portfolio by aligning the portfolio and services to the needs of the core business, with the ultimate goal to add value to the corporation (Dewulf et al., 2000). Human resource management (HRM) does not have a unified definition either but can be referred to as the policies and practices that influence employees' behaviour, attitudes, and performance (De Cieri & Kramar, 2005). In most organisations, workplace management is the responsibility of one of these three departments. However, as Redlein et al. (2020) point out, it really needs a collaboration of HRM, FM, CREM, and also finance, marketing, IT, business unit leaders, employee advocates, and the C-suite to be able to create a workplace that is effective for the organisation and healthy for the employees. So, there seems to be agreement that workplace management is a collaborative task towards aligning the workplace with the organisation and the employees using it.

Various aspects of workplace (management) are studied in the fields of economics, organisational management, architecture, engineering sciences, medical sciences, and psychology. These different areas of research bring diverse approaches to workplace management, concentrating on either people, the environment, or the organisation. Each of these disciplines have their own focus on the mechanisms behind successful management of workplaces and how its different aspects relate to each other. In addition, academics from these different backgrounds (often working in different faculties and departments) tend to present their workplace-related research at different conferences and publish in specific disciplinary journals. This fragmentation leads to much knowledge being lost between disciplines and many insights not being integrated in an overall theoretical framework or used in workplace management in practice.

1.1 A complex wicked problem

Workplace management is generally not considered to be a separate academic discipline. As both this introduction and the first chapter of the first book in this series demonstrate, workplace management needs input from many different disciplines, thus it could be considered as a 'complex problem' that needs to be seen as a whole rather than the sum of all the parts

(Appel-Meulenbroek & Danivska, 2021; Bernstein, 2015). Complex, real-world problems require knowledge from multiple disciplines and might suffer from fragmented knowledge and discipline-specific reasoning. Moreover, managing organisational workplaces can be considered as a wicked problem. Wicked problems are difficult to detect, and they are influenced by many social and political factors that change over time (Kreuter et al., 2004). The four characteristics of wicked problems that Kreuter et al. identified clearly apply to workplace management processes:

1 the nature of the problem is viewed differently depending on the perspectives and biases of those with a stake in the problem,
2 multiple stakeholders are involved which disagree about the problem and the optimal solution,
3 it is unclear when the problem is actually solved,
4 what works in one context does not necessarily work in another, similar context.

In other fields that deal with complex real-world problems, a transdisciplinary approach is proven to be effective. The term transdisciplinarity has been explained in detail in the first book of this series. To summarise its essence here: *Trans* means going "across the disciplines, between the disciplines, and beyond and outside all disciplines" with the goal to understand the complex world (McGregor, 2004, p. 2). Transdisciplinarity can be captured in two main aspects. First, it is a different manner of seeing the world (Max-Neef, 2005). It means that common patterns are searched instead of separate ideas, which leads to a deeper understanding of the world, opening up new perspectives and complexity of the world. Second, transdisciplinarity addresses the relation between science and society. It focuses on demand-driven research of real-world problems (Jahn et al., 2012). Only then the produced knowledge can be really shared with practice, as there is a common process of making sense of it all, which is what distinguishes interdisciplinary from transdisciplinary (Jahn et al., 2012).

A transdisciplinary approach is also the essence of this book series and its books. While several other books and journals are dedicated to workplace management and design, only very few open up a theoretical discussion across multiple theories from different disciplines. Moreover, there is a lack of a holistic interdisciplinary Workplace Management framework that ties such theories together. This research gap is precisely the goal of this second book in the series. This book provides insights in the (potential) application of 18 theories from multiple disciplinary fields towards managing the complex world of workplace, consisting of organisations, buildings, and people. Each chapter addresses one theory (or a set of related theories) that is (or can be) used in workplace research and practice. It explains the main assumptions of the theory and methodologies that are used in research. Moreover, it provides insights regarding how the knowledge stemming from each theory can benefit workplace managers in practice. The last chapter of this book starts the integration of these assumptions from 18 theories into a transdisciplinary framework towards a holistic Workplace Management theory. The set-up of this framework is based on an empirical concept-mapping study, involving authors of this book as respondents. Transdisciplinary research should not be considered as an opposing but rather a complementary approach to disciplinary, multidisciplinary, or interdisciplinary research. A transdisciplinary approach calls for a 'mutual learning' between academia, practice, as well as other stakeholders, with the aim to create new connections between distinct groups and achieve new forms of communication and knowledge (Jahn et al., 2012). This, in particular, is what motivated us to create the last chapter of this book – to create an overall framework for

workplace management that integrates the different theories described in the different chapters of this book.

The next sections of this introductory chapter will first introduce the different disciplines presented in this book and discuss the logic of the chapter order in the book. Then, a brief discussion of terminologies will follow to prevent cross-disciplinary confusions on terms. Last, the chapter set-up for the rest of the book will be described, together with the 35 co-authors of the different chapters.

2 Selecting theories

This book is dedicated to opening up the complexity of workplace management and to inspire academics and practitioners to look past their own fields and find more theories and concepts that can be applied towards a more holistic workplace management approach. Even though management science in itself is considered to be interdisciplinary (Van Baalen & Karsten, 2012), workplace management has been scattered across different disciplines for a long time, especially the physical versus the psychosocial environment. Moreover, for a long time, design of spaces had not been of interest from a management point of view at all. In workplace management, researchers and practitioners aim at finding the best ways to manage an organisation's resources through the (physical) work environment lens, which is a complex task trying to juggle between the needs of different stakeholders. To make it even more complex, the boundaries between physical and virtual environments are blurring, adding another perspective of time and space that needs to be managed. In addition, the role of human needs and behaviour has become more important than ever.

Management science first developed under the influence of mathematical, social, psychological, and natural sciences (Luthans, 1973). The theories in this book also represent various aspects of management fields such as performance management, decision-making, service management, etc. Some of the theories come from more distinctive fields, like building science or ICT, but many can be traced to multiple disciplines. Because of the interdisciplinary nature of workplace research, this selection of theories was not meant to be exhaustive. The nature of the workplace management 'problem' and its boundaries are endless, and the editors thus cannot oversee all potential contributions either. Therefore, the selection of theories happened in an uncontrolled, open manner; namely, the editors solicited suggestions for theories and accompanying authors from their networks and on social media (LinkedIn). As a result, the book presents an interesting selection of theories from several relevant fields and sub-fields:

- Management
    - Process management (Chapters 2, 9, 12, 14)
    - Decision-making in management (Chapters 7, 8)
    - Innovation management (Chapter 14)
    - Service management (Chapters 17, 18)
    - Operations management (Chapters 13, 17)
- Business
    - Human relations (Chapter 19)
    - Marketing (Chapters 11, 18)
    - Economics (Chapter 10)

- Others
    - Systems-thinking (Chapters 3, 4, 5)
    - Information science (Chapters 3, 15, 16)
    - Building science (Chapter 19)

Although the chaotic spread of the chapter numbers in this list may suggest otherwise, there is of course a logical reading order in the book. On purpose, the (sub)disciplines were not used to group the chapters, but instead the chapters were ordered based on a logical flow of their contents: first the organisational perspective and then the managing of people and/or buildings. The book starts by presenting the Corporate Real Estate Management *(CREM) Maturity model* and explaining how the role of real estate has been changing towards a stronger strategic role as a source of competitive advantage. Many see this model as the 'birth' of the CRE and workplace management field. The introduced model provides a nice introduction to the following chapters which discuss various issues related to organisational management as a way to align people and resources for achieving desired goals of different stakeholders.

The following chapter, on *systems-thinking theory*, introduces a philosophical view to organisations as holistic systems, which are composed of different interconnected system-components and properties. The chapter emphasizes the need of understanding relationships between the components for sustainable decision-making and managing workplaces properly. The *St. Gallen Management Model*, presented in the next chapter, can be seen as an adaptation of the systems-thinking approach into a framework that takes these relationships between organisations, environments and management into consideration. It is a useful tool to reflect on the complexity of the organisational world and to structure the work of management into operative, normative, and strategic aspects. The chapter on *socio-technical systems* theory continues the discussion on different levels of systems and introduces the aspect of time in relation to change. It explains that organisations influence their built environment at a different pace. Then, the chapter on *resilience* further deals specifically with systems that experience transitions, emphasising the need to understand the risks and identify mitigation actions. A longitudinal view of vulnerability is an essential component for a resilient organisation. Last, the *Strategy-as-Practice* chapter claims that organisational strategy is a social phenomenon and is highly influenced by interactions of people. Therefore, not only can organisational strategy affect the workplace solution, but workplaces can have an effect on organisational strategy as well.

Decision-making is the focus of the next set of chapters as one of the core elements of management. First, a chapter on *Multiple Perspective Strategic Decision Making* introduces a systemic view to decision-making, including various dimensions to help decision makers with the complexity of the process. The discussed iterative process can be helpful in formulating workplace objectives too. Additionally, successful strategy implementation emphasises the role of alignment that is needed between organisational strategy and corporate real estate. The *alignment* chapter introduces models and model components for alignment between real estate-related activities and overall organisational strategy. This alignment between different organisational units can be affected by the relationships between them. Then, the *principal-agent theory* chapter reviews issues of the relationship between business and corporate real estate units and explains the main agency problems that might arise from it. The *branding* chapter expands this discussion by pointing out that it specifically should be communicated better how workplace decisions can support core business activities, in order to gain trust and a valued position within the organisation and among customers. The chapter on the *Value Adding Management model* completes the discussion on alignment by introducing the idea that buildings, workplaces, facilities, and services

can add value to organisations, but different values might be differently prioritized in different organisations.

The next set of chapters explain how workplaces can be improved through adjustments of the physical work environment. The chapter on the *Toyota Production System* discusses the challenges that CRE managers face while dealing with the usage of buildings. It promotes the reduction of overconsumption of resources and unwanted output, and better alignment on work, system, and employee levels. Next, the *radical innovation* chapter elaborates on the role of technology and combining physical and digital environments into the overall workplace. According to different innovation typologies introduced, technology can transform workplaces in multiple ways.

The last set of chapters address the aspects related to the end user of a workplace. They concentrate on the human perspective and emphasize the role of employees both as the users of a workplace and as the providers of workplace services. The *usability* chapter argues that the main purpose of a work environment is to support user activities and outcomes. The authors emphasize the role of user experience being more important than architectural or technical quality of the building. The *user-centric design thinking* chapter elaborates on this by explaining how workplace management decisions can be improved through understanding users' needs and preferences and incorporating their feedback into the decision-making process. Moreover, the *hospitality* chapter explains that user experience comes not only from experiencing the physical environment and facilities but also from the social atmosphere associated with it. Therefore, workplace management should be concerned with creating a hospitable workplace experience for employees. Similarly, the *service management* chapter argues that experience is affected by individual perceptions as well as the behaviour of service personnel and emphasises the relationship between human behaviour and organisational practices. Last, the *organisational socialisation* chapter explains how to integrate those employees that service providers have outsourced to support with the FM service activities, through socialisation. This helps them blend in, adapt fitting behavioural practices, and thus provide increased service to the client organisation and their employees.

Despite the introduced flow of the book, it is not necessary to read the book from the beginning to the end. One can pick up an interesting or unfamiliar theory and start reading there. One can also start with reading the final chapter about the overarching framework across the theories first and continue with selected theories later.

The next section explains the definitions of some terms used in this book. If you are familiar with them, you can move directly to Section 4 which introduces the authors and the common structure of the next chapters.

3 Relevant terminologies

This book introduces a list of theories, models, and frameworks that are (or could be) applied to workplace research. There is no uniform agreement in the scholarly world on what a theory is, but generally academics define theory as a way to describe a specific realm and explain how it works (e.g. Bunge, 2012; Kivunja, 2018; Lynham, 2002; Wacker, 1998). A theory should be able to help in predicting or examining why certain elements lead to certain outcomes. Corley and Gioia (2011) define theory as "a statement of concepts and their interrelationships that shows how and/or why a phenomenon occurs" (p. 12). The chapters in this book have tried to address different concepts and explain the interrelationships between them, also in the light of workplace management research on different levels of depth and in different ways. Based on the level of abstraction, generalizability, and role, a theory can also be assigned to multiple levels:

meta-, grand-, mid-range, and micro (Higgins & Moore, 2000). While metatheories represent more of a world view on the nature of knowledge and grand theories describe broad theoretical perspectives instead of a working theory, the mid-range theories are the ones social researchers usually understand as 'real' theories. Micro-theories explain a certain phenomenon within a limited scope, often also with a limited possibility to generalize. Some academics argue that they are better called models. For example, Nilsen (2015) states that models are theories with a more narrowly defined scope of explanation, which is descriptive and not as explanatory as a theory. Another closely related term is framework. Frameworks do not provide explanations but describe the phenomena by fitting them into a set of categories (Nilsen, 2015). This is what is produced in the last chapter of this book as the first step towards a grand workplace management theory.

While reading the next chapters, several commonly used workplace and management terms will pass by. Although some of them have official definitions, the scope of the definition and the focus of it sometimes differ in different disciplines, in different countries, and/or due to historical reasons. Without aiming to pick the 'best' definition for each term, this section provides a brief discussion of the most relevant terms and their interpretations, to provide some context for the following chapters. The authors of the different chapters will use the terms in different ways as they see fit from their own disciplinary background and experience.

First, the two terms 'workplace' and 'workspace' are both used. It is important to point out that two terms are used differently, interchangeably, and as definitions of different scale levels of the work environment. The differences appear in the understanding of what is a space and what is a place, where the physical component of it appears and where the boundaries lie (see Appel-Meulenbroek and Danivska [2021] for a more extensive discussion in the first book of this series). 'Total workplace' or 'organisational space' are additional terms used in the organisational management field, referring to "built environments and the objects and social practices within them" (Luhman & Cunlife, 2013, p. 135). It is a system of social and physical factors "which is experienced by users and providing the context in which they live their work lives" (Becker & Steele, 1990, p. 9). As this book contains authors from all mentioned disciplines, the editors did not want to force terminology definitions on them, so all these terms are used in different ways by the different chapters. More general terms like work environment or workstation are also used.

Both FM and CREM terminologies are used widely in the chapters of this book as well. There has been a long ongoing discussion between academics about the differences and the similarities between FM and CREM, and until this day, no agreement has been reached. However, van der Voordt and Jensen (2018, p. 178) annotate that "In both definitions of CREM and FM, supporting (business) processes and adding value to the organisation are key concepts". Even though both FM and CREM concentrate on management activities and play a strategic role in achieving organisational goals, their focus can be said to be somewhat different. Redlein and Stopajnik (2020) present a new CREM triangle, based on Teichmann's work, portraying FM as a part of CREM, bringing in the user perspective to the otherwise strong investor/owner-oriented Portfolio, Asset and Property Management activities of CREM. On the other hand, van der Voordt (2017) visualises the development of the CREM and FM relationship through time and shows that the perception changes, where CREM is considered as an activity that aligns asset management, cost control, and FM to general management for the best accommodation of people and FM is seen as the management of buildings-in-use. Redlein and Stopajnik (2020) write that FM (together with Property Management) is considered less strategic and more operative management. On the contrary, the CEN (2007) definition of FM indicates that FM tasks are defined at all three levels (strategic, tactical, and operational) of the organisation.

Redlein and Stopajnik (2020) and van der Voordt (2017) note that the differences in definitions are also country-specific due to different historical and cultural backgrounds throughout the development of disciplines. These differences in the definition and the scope can be noticed in different scientific journals and conferences too. While academics discuss similar topics in essence both related to CREM and to FM, they are often presented under different umbrellas in different academic societies (van der Voordt, 2017). These terms are in a way becoming synonyms used interchangeably while discussing the management of buildings, facilities, and services to support the performance of an organisation. Therefore, the authors contributing to this book also use the terms from their own perspective, and we do not distinguish CREM and FM terms rigorously.

Other terms that are repeatedly used in the upcoming chapters define people, organisations or organisational units that affect or are affected by workplace management actions. The broadest terms you will encounter are 'actor' and 'stakeholder'. Actor can be understood as an individual or a team (e.g. Zhou & Hoever, 2014). Generally, an actor can be defined as a human or non-human entity that can participate in the network or system (Bencherki, 2017). The term is most often found in social studies, typically relating to actor-network theory. An actor can be referred also as an agent. The term 'agent' is common while addressing the principal-agent relationship and refers to someone who acts on behalf of the principal (e.g. Baker, 2019). The term 'stakeholder' was first used in the early 1960s by the Stanford Research Institute and referred to as "groups without whose support the organization would cease to exist" (Freeman & Reed, 1983, p. 89). It is commonly used in the strategic management field to identify who are impacted by an organisation's actions and decision-making. Key stakeholders from the FM perspective would be the customer, owner, community, society, and government (Coenen et al., 2013). Stakeholders commonly are grouped into primary (or internal) stakeholders, whose interest in a company comes from a direct relationship, and secondary (or external) stakeholders, who are somehow affected by the actions or outcomes of the company. Primary stakeholders that are often referred to in the organisational context are: shareholders of the organisation, customers, suppliers, and employees. The customer could be seen as a primary stakeholder in FM, while the owner, the community, the society, and the government are secondary stakeholders. An FM customer, however, can be separated into three sub-categories: client, customer, and end user. Client then refers to the organisation that orders the FM service, customer to the organisational (workplace management) unit that defines the order, and end user as the individual person (an employee) that receives facility services (CEN, 2007). Another way to categorise customers, used in some chapters of this book, is a division of customers into external and internal customers, stemming from the quality management and service marketing fields. External customer, then, refers to a customer who is not directly connected to the organisation (such as the one that consumes the product or service), and internal customer is the one who is directly (internally) connected to the organisation, such as the employees of an organisation (Tennant, 2001).

The term 'user' is also commonly used to discuss various stakeholders. According to the Cambridge dictionary, a user is "someone who uses a product, machine, or service" ("User", n.d.). However, the definition is not as straightforward as it might seem at first sight. For example, users of buildings have also been referred to as all the people that have an interest in the building (Lindholm & Nenonen, 2006). Tagliaro (2018) discusses the complexity of the user definition in workplace management in depth in her PhD research and points out that users can be differentiated according to their values and needs, and their roles and responsibilities. All these differences in interpretations of the terms used to define different stakeholders, or the roles those stakeholders carry out, often come from disciplinary boundaries or perspectives that are

taken by the authors. Similarly, terms are also mixed up in practice. In the chapters of this book, workplace 'user' commonly refers to the internal end user of the work environment who uses a certain physical environment to perform work (typically, an employee of a certain organisation); however, all previously mentioned terms are used.

4 Set-up and authors of the rest of the chapters

To make it easier for the reader, all theory chapters of this book follow the same set-up. First, Section 1 of each chapter briefly explains a theory's origin and its essence. In Section 2, authors discuss the theory's applicability to workplace management. Sections 3 and 4 particularly aim at researchers, introducing relevant research methodologies and possible limitations in applicability to workplace research. Section 5, on the other hand, aims at practitioners, discussing the theory's implications to workplace practice. All chapters end with some suggestions for further reading in case readers are inspired to read more about the specific theory.

Table 1.1 provides an overview of the different authors that contributed to this book. The authors represent 18 higher education institutions and one practice-based organisation in 12 different countries (mostly within Europe) and a vast amount of different disciplinary fields.

The final chapter of the book has a different structure from the rest of the chapters. It is based on an empirical concept mapping analysis of all theories in this second volume of the book series. An interdisciplinary workplace management framework is created from the basic assumptions of the individual theories. This is a first attempt at a more holistic approach towards workplace management that hopefully encourages more research on the topic.

Table 1.1 An overview of the different authors

Chapter	*Authors*	*Country*	*University/organisation*
1 Introduction	Vitalija Danivska	Finland	Aalto University
	Rianne Appel-Meulenbroek	Netherlands	Eindhoven University of Technology
2 Corporate real estate management maturity model	Jaap Wijnja	Netherlands	Hanze University Groningen
	Theo J.M. van der Voordt		Delft University of Technology
	Jan Gerard Hoendervanger		
3 Systems-thinking theory	Renuka Thakore	UK	University College of Estate Management
	Aino Kavantera		
	Graeme Whitehall		
4 St. Gallen Management Model	Annette Kämpf-Dern	Germany	RE-ER Real Estate Entrepreneurial Research
5 Socio-technical transitions theory	Jenni Poutanen	Finland	Tampere University
6 Disaster Resilience of Place (DROP) model	Keith G. Jones	UK	Anglia Ruskin University
7 Strategy-as-Practice theory	Matthew Thomas	UK	University of Birmingham

(*Continued*)

Table 1.1 (Continued)

Chapter		*Authors*	*Country*	*University/organisation*
8	Decision-making theory	Chiara Tagliaro Ying Hua	Italy USA	Politecnico di Milano Cornell University
9	Alignment theory	Monique Arkesteijn Chris Heywood	Netherlands Australia	Delft University of Technology Melbourne University
10	Principal-agent theory	Torben Bernhold Niklas Wiesweg	Germany	Münster University of Applied Sciences
11	Branding theory	Rianne Appel-Meulenbroek Abdul Jalil Omar	Netherlands Malaysia	Eindhoven University of Technology Universiti Tun Hussein Onn Malaysia
12	Value Adding Management model	Per Anker Jensen Theo J.M. van der Voordt	Denmark Netherlands	Technical University of Denmark Delft University of Technology
13	The Toyota Production System	Tuuli Jylhä	Netherlands	Delft University of Technology
14	Radical innovation theory	Marko Lahti Suvi Nenonen Erkki Sutinen Nicolas Pope	Finland	University of Turku
15	Usability theory	Lukas Windlinger Deniz Tuzcuoğlu	Switzerland Turkey	Zurich University of Applied Sciences Eindhoven University of Technology
16	User-centred design thinking	Minyoung Kwon Hilde Remøy	Netherlands	Delft University of Technology
17	Hospitality theory	Brenda H. Groen Ruth Pijls Hester van Sprang	Netherlands	Saxion University of Applied Sciences
18	Service management	Vitalija Danivska Nora Johanne Klungseth	Finland Norway	Aalto University Norwegian University of Science and Technology
19	Organisational socialisation theory	Oluwatoyin Yetunde Aderiye	UK	Sheffield Hallam University
20	An interdisciplinary workplace management framework	Vitalija Danivska Rianne Appel-Meulenbroek Susanne Colenberg	Finland Netherlands	Aalto University Eindhoven University of Technology Delft University of Technology

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2

CORPORATE REAL ESTATE MANAGEMENT MATURITY MODEL

Joroff et al. one step ahead

Jaap Wijnja, Theo J.M. van der Voordt and Jan Gerard Hoendervanger*

1 Background

In 1991, a team of the Industrial Development Research Foundation (IDRF) – the research arm of the International Development Research Council IDRC (now CoreNet Global) – started the Corporate Real Estate 2000 project, led by Michael Joroff. Its purpose was to understand how shifts in the business environment impact the need for service by corporate real estate professionals and their suppliers and partners in the industry, and to place contemporary experiences in a framework that would stimulate further learning, discussion, and change in the field. One of the main challenges was to make the value of corporate real estate management clear to higher levels of corporate management. Dewulf et al. (2000) incorporated added value as a key issue in their definition of corporate real estate management, i.e.

> the management of a corporation's real estate portfolio by aligning the portfolio and services to the needs of the core business, in order to obtain maximum added value for the business and to contribute optimally to the overall performance of the corporation.
>
> *(p. 32)*

In this definition, the real estate portfolio comprises all of a corporation's buildings and physical workplace(s), whereas 'management' refers to strategic, tactical, and operational management of all real estate assets and related facilities services. Hence, workplace management and facilities management (FM) are closely related to CREM.

The shift in thinking about the role that real estate plays for organisations was triggered by a sense of urgency, due to the crash of the real estate market in the early 1990s. Corporate executives, particularly financial officers, became aware that their enterprises had more real estate than their business required, and that many of these assets were designed for outdated purposes and processes and were in the wrong locations for the needs of the business. Calls for change

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in particular came to the fore in the many corporations that had purchased real estate for its promised return on investment.

In 1993, the CRE 2000 Phase One Research Team presented its results, including a five-stage CREM maturity model (see Figure 2.1). Like earlier maturity models that were developed in the early 1970s for Total Quality Management and to organise and manage Information Technology (IT) in a better and more integrated way (Cusick, 2019), this model provides a framework for analysing, creating, and managing a strategy for change. Maturity refers to the ability of an organisation to continuously improve its effectiveness and efficiency. The model outlines a pathway for the evolution of CREM, considering corporate real estate as 'a fifth resource of a firm', in addition to capital, people, technology, and information (Joroff et al., 1993). As such, Joroff et al. would also like to contribute to corporate real estate managers' awareness that their business is not real estate, but 'the business of the business'.

Apart from the five-stage CRE evolutionary model, the IDRF report from 1993 also discusses alignment of corporate real estate with company goals and shareholder objectives in a more flexible and productive way, designing the CRE unit, empowering management with information, and integrated workplace strategies to convene the workforce and to support corporate objectives. Remarkably, many current issues such as activity-based working, teleworking, maintaining a sense of community, cost savings, productivity, flexibility, satisfaction, and the added value of CRE were already discussed in this report. As such, the IDRF report was really a frontrunner.

The CRE 2000 report contributed to a paradigm shift in how corporation leaders understand the concept of 'workplace' and perceive the 'value' of the real estate that they own or lease (Joroff & Becker, 2016). The mind-set about today's workplace began already to be forged in the late 1980s, when people like Franklin Becker and Frank Duffy proactively examined where and how people worked. Their inquiry illuminated the critical role of alignment between the design and management of workplaces and how work gets done. This, in turn, led to an appreciation of workplace strategies and related management policies to support specific work practices defined by the nature of the task, who is involved, the tools used, and the culture of individual work groups as well as of the enterprise.

The CRE 2000 project announced a phase 2, inter alia to validate and adapt the five-stage model, to analyse the required skills, and to develop guidelines regarding how financial real

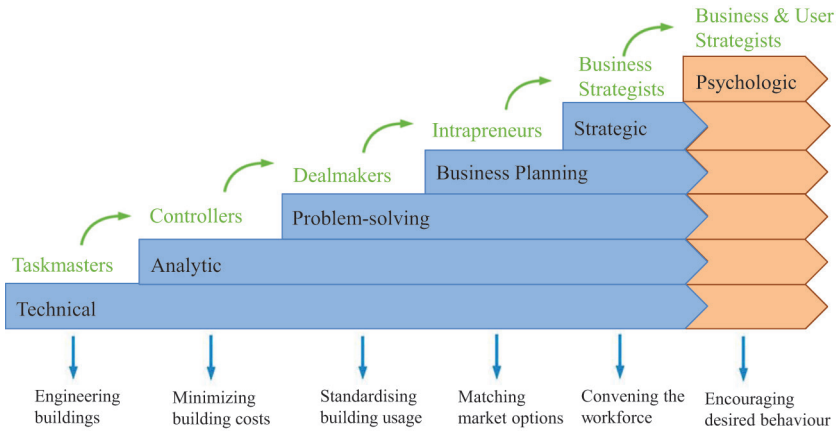

Figure 2.1 Five-stage real estate evolutionary model of Joroff et al. (1993), extended with a sixth stage by Hoendervanger et al. (2017a, 2017b)

estate strategies can better match the life-cycle position of business units. Instead, it was followed up by workplace studies and implementation of new insights in practice, focusing on data management, workplace, finance and service models, and just-in-time real estate management. Part of it was incorporated in the CRE 2010 project (Cornet Global, 2004). A key theme in this project and subsequent CoreNet Global research projects was the integration of CRE with IT, HR, and other support functions (CoreNet Global, 2004, 2012).

1.1 Main characteristics of the five stages

The IDRF report outlines an environment in which organisations are reshaping themselves into strategically linked business units, in which the bottom-line focus of every function is increasing and in which the skills of and the demands on corporate real estate professionals are expanding substantially. Michael Bell, one of the team members, identified twelve shifts in this change process: (1) from real estate orientation to a business focus; (2) from a transactional to a process orientation; (3) from control-oriented to service-oriented; (4) from reactive to proactive; (5) from decentralised to centralised; (6) from in-house expertise to collaboration; (7) from hiring experts to do a job to inviting service providers to become members of the team; (8) from automate to automation, i.e. using information technology; (9) from relationships built on personal contact to interactions supported by information flows; (10) from big to small; (11) from standardisation to customisation; and (12) from real estate skills to general management capability.

In line with these ideas, according to Joroff et al. (1993), the traditional role of a corporate real estate manager (Stage 1) as a *taskmaster* – providing physical space and technical maintenance by ad hoc interventions – has shifted towards a more strategic role, with a cumulative integration of minimising real estate costs and cost efficiency (Stage 2, *controller*), standardisation of building usage (Stage 3, *dealmaker*), matching real estate with business plans of the units and market options (Stage 4, *intrapreneur*) and a more integrated management approach, using performance indicators regarding costs and quality (Stage 5, *business strategist*); see Figure 2.1.

The fifth stage includes acting in a planned and proactive manner in cooperation with other disciplines, strategically aligning the accommodation with the vision, mission, and goals of the organisation and the external context and incorporating different stakeholders. The stages are cumulative: each subsequent stage builds on the preceding stages. The main characteristics of the five stages are summarised in Table 2.1.

Each more complicated stage adds a new role in the search for adding value through real estate. The first three stages occur principally through project-level work related to the internal needs of the corporation. Stage four adresses portfolio-wide needs, focusing outward to trends

Table 2.1 Main characteristics of the five stages according to Joroff et al. (1993)

1	Taskmaster	Supplies the corporation's need for physical space as requested
2	Controller	Satisfies senior management's need to better understand and minimise real estate costs
3	Dealmaker	Solves real estate problems in ways that create financial value for the business units
4	Intrapreneur	Operates like an internal real estate company, proposing real estate alternatives to the business units that match those of the firm's competitors
5	Business strategist	Anticipates business trends, monitors and measures their impacts, contributes to the values of the corporation as a whole by focusing on the company's mission rather than focusing only on real estate

Table 2.2 Cumulative increase of activities and services (Lambert et al., 1995)

1. Taskmaster	*2. Controller*	*3. Deal maker*	*4. Intrapreneur*	*5. Business strategist*
Renovation	Maintenance of portfolio	Acquisition space	Extension and intension	Joint BU meetings
Planning and management of equipment	Space use	Lease contracts	Strategic CRE plan	Participation in BUs and corporate strategy planning
Maintenance of indoor environment	Satisfaction	Lease negotiation	Market trends and prices	Impact analysis of capital market
Maintenance schedules	Taxation of value of assets	Sale, subletting	Sale and lease back contracts	Impact analysis of changing legislation
Building codes	Building cost analysis	Purchase	Pricing methods	Impact analysis of economic and demographic trends
		Space standards	Benchmark portfolio performance	City planning
		Management of large projects	Benchmark CRE unit performance	Masterplans
		Project management tools	Operating as a profit centre	Match BUs and providers

affecting the business units. Stage five focuses on company-wide competitiveness, involving a myriad of stakeholders outside the corporation's more traditional bounds. Furthermore, as the organisational stages evolve from taskmaster to strategist, the benefits obtained by stakeholders evolve from short to long term, with a growing user orientation and a need for continuous learning and change. Each next stage brings the real estate unit closer to the senior corporate management. All stages are focus driven, linked to a targeted mission, and closely intertwined with the real estate finance and information systems. The stages are increasingly driven by process and, therefore, by people. For an extensive discussion of all five stages, see Joroff et al. (1993).

Based on a survey among 82 CRE departments and their business units, Lambert et al. (1995, in Weatherhead, 1997, and Appel-Meulenbroek, 1999) found that each successive level incorporates new activities and services; see Table 2.2.

The transition from one stage to another is not always distinct. Besides, the five stages are not mutually exclusive. In an interview on May 6, 2020, Joroff argued that the five stages cannot be 1:1 linked to the shifts that were identified by Michael Bell but are very useful in a more narrative way in team discussions on how to manage CRE. In this sense, the five stages could incorporate similar themes but on a different level, so that characteristics may partly overlap between the different stages. In this interview, Joroff also argued that with the knowledge of today he would consider inserting a stage between deal maker and intrapreneur, called service aligner, and adding a stage called business driver, who not only supports adding value through real estate but also creates business value.

1.2 Ongoing shifts in corporate real estate management

Looking through today's eyes, Joroff and Becker (2016) argue that the evolution of corporate real estate reflects the following primary shifts in how corporate real estate and workplaces are viewed and how they can best be managed:

1 *From financial to business asset*. A mind-set that viewed corporate real estate as a passive financial asset with a high cost, changed into one that perceives the real estate portfolio as an asset integral to the conduct of the business. There is a growing focus on high use value and on proactively promoting new ways of working that, along with more flexible, informal, and open corporate management and culture and transformative information technologies, enhances business performance.
2 *Workplace as an integrated ecological system*. This system includes physical design and space, information technologies, workforce demographics, work processes, and organisational culture. The design and management of these interdependent factors aim to support different kinds of work, not only as a place that just houses people as they do assigned tasks, but also as a means of attracting and retaining the best and brightest employees and engaging and enabling their talent and energy. The 'workplace' is more and more recognised as a system of loosely linked spaces inside and outside the 'office' (the building), designed to support specific activities such as quiet work, informal communication, and client and group meetings, and that relies on cyberspace as well as physical space. For a further exploration of Joroff's ideas about how to create and manage appropriate workplaces see also Horgen et al. (1998a, 1998b), Joroff et al. (2001) and Joroff (2002).
3 *Needs vs. preferences*. Where once the modus operandi of the corporate real estate function was simply to take orders from business units for property according to what they *preferred*, and then deliver it on time and within budget, now the role is to proactively work with business units to anticipate their *needs* and to sharpen their understanding of how to best meet these needs (see Chapter 16 on user-centred design thinking) through real estate and workplace strategies.
4 *Power and opinion vs. data*. Decision-making about real estate and workplace investments is now more often underpinned by analytics and rigorous review of business context, along with data about real estate financial, individual, and team and department performance data, and how space is being used.
5 *From stable/static to agile portfolios*. At the time when the corporate real estate paradigm began to shift, enterprises were largely perceived as relatively stable, with a known culture and known tasks and processes. Corporations assumed that facilities and the processes they accommodate would have a relatively long life. However, this assumption began to disintegrate in the decades prior to the turn of the century, inter alia by the unprecedented new information technologies, mergers and acquisitions, the rise of new international powerhouses like China, and rapidly growing markets in developing countries. Today, everything is subject to change. This requires facilities and arrangements for corporate tenancy that are flexible, in which space can be rapidly acquired and just as rapidly abandoned almost anywhere in the world.

1.3 Extension with a sixth stage

Currently, organisations and their corporate real estate are going through further major changes. Workplace managers need to respond more emphatically to the needs and preferences of users, particularly knowledge workers, due to three simultaneous developments.

Firstly, predictions from the 1990s (e.g., Joroff et al., 1993; Duffy & Powel, 1997) with regard to IT-enabled time- and location-independent working now have become a daily reality for knowledge workers. As part of the shift towards workplaces as integrated ecological systems, cited previously from Joroff and Becker (2016), new work practices like blended working (Van Yperen & Wörtler, 2017) and activity-based working (Van Meel, 2019) rapidly seem to have

become the new normal worldwide. Workers are increasingly enabled and allowed or encouraged to use different locations (e.g. corporate offices, client or partner offices, home office, coworking spaces, on the go) and different work settings within the office (e.g. open and enclosed workstations, phone booths, lounge areas, project rooms). Along with the expanding range of choice, individual workers and teams are discovering and adopting their own preferred ways of working. The COVID-19 pandemic may work as a catalyst in this process (Kniffin et al., 2020).

Secondly, organisational behaviour has become more central in implementing corporate strategy. Particularly for knowledge-based organisations, desired outcomes are highly dependent upon behavioural patterns in the workplace (e.g. how workers collaborate, learn, concentrate, and recuperate). Hence, we see many corporate programs focusing on behavioural change, which is frequently linked to workplace change. For instance, the potential of 'nudging' desired behaviour through workspace design is gaining attention in practice and research (Thaler & Sunstein, 2008). An important topic is the promotion of healthy behaviours in the workplace (e.g. physical movement, relaxation, social contact, nutrition), which receives growing attention in relation to sick leave, burnout, and sustainable employability (Colenberg et al., 2020; Jensen and van der Voordt, 2020; Forooraghi et al., 2020). In practice, particularly health insurance companies like Medibank in Australia and VGZ in the Netherlands are frontrunners in implementing healthy workplaces and promoting healthy behaviour.

Thirdly, the global 'war for talent' (Beechler & Woodward, 2009) is empowering knowledge workers in expressing and following their preferences with regard to workplaces and work practices. In this context, employers can no longer force employees to work in unattractive environments or at unattractive locations (see also Chapter 11 on branding theory). 'Convening the workforce' (Joroff et al., 1993) has become a necessity rather than an ambition. This is reflected inter alia by the rapid growth of Leesman, who have now measured satisfaction with work environments of more than 550,000 workers in almost 4,000 buildings. Optimising the 'workplace experience' has become a key topic in CREM (Leesman, 2019). It should be noted that the user-centred approach seems to be shifting from a focus on optimising user satisfaction towards a more goal-oriented focus on specific user needs and behaviours that are important for organisational effectiveness. According to Van Eersel (interview on May 20, 2020), Google's Real Estate and Workplace Services team changed its motto from "We create environments that make Googlers excel" into "We create environments that make Google excel"; and at Netflix, his team's mission is "to deliver workplace experiences to move Netflix forward".

Given these developments, Hoendervanger et al. (2017a, 2017b) introduced a sixth stage as an extension of the CREM maturity model; see Figure 2.1. Where the fifth stage is focused on creating added value in relation to corporate strategy, the sixth stage adds a user-centred approach. Being both a business & user strategist, a CRE manager creates work environments that support work practices and enhances behavioural change, in alignment with both corporate goals and employee needs and preferences. In addition to the skills that are needed in stage 1–5, psychological knowledge is required to analyse, facilitate, and stimulate workers' differing and changing needs and behaviours. This is reflected in the adoption of a person–environment fit approach in workplace research (Appel-Meulenbroek et al., 2020).

The introduction of a sixth stage in CREM resonates with a recent shift in the related discipline of facility management (FM). Taking into account the needs of both the business and the end user is reflected in the current definition of FM as "an organisational function which integrates people, place and process within the built environment with the purpose of improving the quality of life of people and the productivity of the core business" (ISO 41011, 2017). Quality of life is people oriented, whereas the former EN15221–1 definition focused only on "services which support and improve the effectiveness of its primary activities" (CEN, 2006).

In an online interview on May 6, 2020, Joroff supported this extension of the original model, at the same time emphasising that a user-centred focus should be part of all previous stages as well. Workplace strategists who operate as work practice and business enhancers need to collaborate with business unit leaders and the workers themselves, to identify and co-develop effective work practices and then to design and maintain agile places and IT supports. In line with an earlier proposal to add Corporate Infrastructure Resource Management (CIRM) as a sixth stage to the CREM maturity model (Van Eldonk, 1998), it is expected that the collaboration between CREM, FM, HRM, and IT will be further extended in the sixth stage. This may lead to the involvement of other disciplines as well, such as labour psychologists, occupational health specialists, neurologists, data specialists, and artists.

2 Applicability to workplace studies

Although the CRE framework has mainly been developed with CRE portfolios in mind, the underlying ideas are also well applicable at the workplace level. The design and management of workplaces may range from a taskmaster's, i.e. caretaker's, perspective, responding to demand for space and technical maintenance, to a strategic approach. The latter incorporates the needs and preferences of all stakeholders and facilitates a flexible and smart workforce including new generations with changing work patterns and changing time-space preferences. A strategic approach also focuses on adding value to the organisation, customers and end users, and society as a whole (see also Chapter 9 about alignment theory, and Chapter 12 on value adding workplace management).

In order to enable health care organisations in using the five-stage framework to professionalise their CREM function, Moesker (2010) conducted additional literature research and expert interviews to further operationalise each stage regarding different levels of communication and information, competencies, governance, stakeholder involvement and added value; see Table 2.3. The sixth stage would add the use of sensors and other devices to collect and analyse workplace data (e.g. its occupancy rate), psychological knowledge and skills, shared responsibility of management and end users, end-user participation in design and management processes, and adding value by increased employee satisfaction, health and wellbeing, creativity and innovation, and productivity.

3 Limitations

The five-stage model has been developed over 25 years ago and may need an upgrade by testing it in practice. The report was based on insights of hundreds of people and steered by the experiences of a limited number of large firms that were on the innovative edge of practice. It is not clear what it means to small and medium enterprises and not-for-profit organisations. The report is also less clear about which phase is optimal and why, depending for instance on the maturity of the involved organisation, its mission, vision and scope, the economic context, and market circumstances. The report suggests that each next stage is on a higher level of professionalisation and integration and is more strategic. This may result in the risk that CRE staff strive for a higher stage than is either necessary or suitable in relation to the aforementioned contextual factors.

In the 1993 report, the five stages are not clearly operationalised in a tool that organisations can use to see where they stand and where they should go. In practice, it turns out that organisations find it difficult to allocate their CREM policy to one of the stages (Kerkhof et al., 2011). The researchers themselves positioned four out of ten assessed organisations in stage 5, three in stage 4–5, one in stage 4, one in stage 2–3, and one as a mix of stage 2 and stage 5 as defined

Table 2.3 Characteristics of the five stages according to Moesker (2010)

	1. Taskmaster	*2. Controller*	*3. Deal maker*	*4. Intrapreneur*	*5. Business strategist*
Communication and information	Information stored in different places; professionals directly approached for requests	Basic inventory and cost control structures in place; financial results communicated to top management	Benchmarking on cost and quality and performance measures in place	Insight in business unit plans and documented market information	Communication and information alliances with all business units; continuous improvement based on lessons learned
Competencies	Technical abilities, reactive approach	Analytical skills, reactive but structured approach	Negotiation and problem-solving capabilities, proactive approach	Real estate management skills, proactive approach	Strategic management skills, proactive approach
Governance	Laissez-faire response of top management	Decisions are financially driven and directed by top management	Incidentally direct attitude of top management, scope dictated by department itself	Business unit plans included in real estate strategy	Real estate is responsibility of top management and integral aspect of organisational policy
Stakeholder involvement	Low functional cooperation, meeting interests of technical managers	Focus on meeting interests of controller	Interests of users are met and measured by surveys	High functional cooperation; meeting interests of technical manager, controller, and users	Stakeholders in and outside the corporation become regular and trusted advisors and partners
Added value	Value neutral	Cost reduction, mapping of risks	Increasing value of real estate	Stimulation of innovation	CRE contribution to image and identity

by Joroff et al. (1993). According to Mattousch (2010), it should be more clear which activities should be incorporated in each stage. He also advocates a distinction between deepening knowledge within the same stage (*evolution*) and moving to a next stage by extending knowledge, skills, activities, and services (*revolution*).

So far, to the best of our knowledge, the model has not been empirically tested on its validity or adapted to new trends and developments. The sixth stage has been added recently and needs greater operationalisation and testing on validity as well, by desk research, interviews with practitioners, and case studies.

4 Theory relevance to practice

Notwithstanding the limitations mentioned previously, the six-stage CREM maturity model can be used as a tool for continuous improvement (from 'ist' to 'soll') of CREM and strategic alignment of CRE to organisational strategies and end users' needs and preferences. It enables qualitative assessment of people/culture, processes/structures, strategies, and required skills of involved staff. As such, it can be used as a guiding framework for step-by-step improvement and evaluation of the CRE function in a given organisation. The model can help to assess the current state of CREM, by comparing characteristics of the CRE function with the descriptions of the stages in the maturity model. Furthermore, the model can guide a discussion among CRE team members and with CRE stakeholders about the desired state of CREM and necessary steps to get there. The comprehensive nature of the model and its original description in the CRE 2000 report can make it difficult to assess which stage applies to the current or desired state. For this purpose, a further operationalisation of the model, like the matrix developed by Moesker (2010), can be helpful.

An example of application of the CREM maturity model in practice is Enexis Groep, a regional grid operator from the Netherlands. About three million customers are connected to their dynamic energy grid in order to receive electricity or gas and, increasingly, to feed renewable energy back into it. Enexis Groep also supports consumers, businesses and municipalities in how to make sustainable energy choices. They have been using the CREM maturity model since 2006, first to assess the current state of Enexis corporate real estate, and since then as inspiration while working on future plans such as Enexis' FM strategy plan 2025. Quite recently, the sixth step as described in Section 2 has been added. Their increased employee focus is reflected by the in-house development and implementation of 'personas', i.e. defining user needs in connection to different types of persons (e.g., extravert versus introvert, emotional versus rational, individualistic versus group oriented) and job characteristics.

In line with Mattousch (2010), Enexis uses the CREM maturity model in combination with the value propositions of Treacy and Wiersema (1993), linking operational excellence to the first three stages, customer intimacy to stages three and four, and product leadership from stage four on. Between 2009 and 2020, Enexis' real estate reduced from approximately 93,000 m^2 to about 72,500 m^2 rentable space across the Netherlands, a reduction of 22%, whereas the number of employees increased by 18% during the same period. By adopting a user-centred approach, the amount of rentable space needed per fulltime equivalent reduced by 37%.

Another example is the British Broadcasting Company (BBC), who used the model to develop a 'Framework for BBC Property' (Kane & Anastassiou, 2020). In 1998, the BBC announced its BBC 2020 property vision. This vision aimed to address significant shortcomings in its real estate and to prepare the BBC for a period of tumultuous change, driven by new

technology, increased competition, and budget constraints. Five key themes underpinned the 2020 vision (Kane, 2013):

1 *Flexibility:* the property must not restrict the BBC's freedom to evolve its operations.
2 *Technology:* all BBC space must support future technological requirements without incurring costly reconstruction.
3 *Talent:* BBC buildings must be showcase sites of technology and innovation in order to attract and retain the best talent.
4 *Audience:* the BBC must demonstrate value by engaging local communities with opportunities to experience the BBC in action through live broadcasts and open access to buildings.
5 *Cost:* BBC Property's role is to help the corporation save money rather than spend it.

To achieve these aims, the CREM maturity model was used as inspiration to look at the real estate/FM function and adapt it to incorporate BBC's property vision; see Figure 2.2. This scheme visualises how the process of transition added value to the organisation and how the CRE department moved from 'order taker' to a much more strategic role (Kane, 2020). It was also imperative that old-fashioned organisational silos were broken down. Different professionals had to learn to think and work out of their particular specialist boxes. The manifesto of BBC's Workplace team was to deliver business and public value in partnership with HR and IT at minimum cost and at maximum effectiveness (Kane, 2020).

Between 2004 and 2013, the BBC's real estate reduced from over 500 properties and approximately 696,000 m² to about 207 properties and 571,000 m² of space across the UK. The Property/Workplace teams moved over 11,000 people to meet their objectives (Kane, 2013): 40% reduction in real estate footprint by 2017 (28% achieved in 2013); £47 million annual savings in property expenditure by 2016–17; and 60% of the estate refreshed.

Besides applications focusing on one specific organisation, the CRE maturity model may also be used as a framework for benchmark research. The CRE function of different organisations (e.g., similar firms across a specific industry) can be compared with regard to their

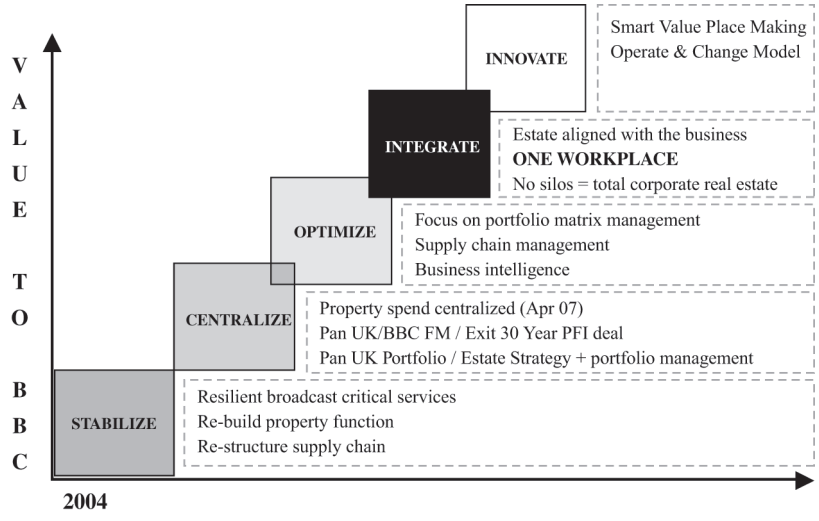

Figure 2.2 Framework for BBC Property 2004 (Kane & Anastassiou, 2020)

positions according to the model, and differences with regard to skills, tools, organisational position, and focus. An example is a CREM benchmark study that Suyker conducted across the international banking industry.

The CREM maturity model can also be useful for educational purposes. It can help students in corporate real estate and facilities management to understand how CREM can evolve in an organisation, and why CREM can be at different stages in different organisations. Furthermore, it shows which skills students should develop to prepare for a career in CREM.

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3

SYSTEMS-THINKING THEORY

Decision-making for sustainable workplace transformations

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1 Background

The idea of 'systems' has been discussed in almost all disciplines since its origin in the 17th century including physics, biology and chemistry, and was eventually used for explanations in ecology, engineering, economics, anthropology, geography, sociology, cybernetics and so on. It has emerged as a meta-discipline and as a meta-language (Checkland & Scholes, 1999). Using the idea of systems, Checkland (1981 to date) provides the seminal work on 'systems-thinking'. 'Systems-thinking' is about consciously organised thinking processes (Arnold & Wade, 2015; Checkland, 1981). Systems-thinking is a world view which allows appreciation of holistic systems, having interconnections between the elements of which systems-thinking is made of, called system-components. This includes human and non-human elements of the system, encompassing physical, natural, social, economic, cultural and cognitive attributes, established in the form of the wider, linked processes between the users (human) and technologies or structures (non-human) of the system (Clegg, 2000). These system-components contribute to properties such as drivers, outcomes and feedbacks, and can be applied to problems of multiple disciplines (Cerar, 2012; Forrester, 1994; Voinov & Farley, 2007). As a core concept, systems-thinking is an idea of the 'adaptive whole'. As a whole, a system has its own emergent properties, layered structure and processes of communication and control (Arnold & Wade, 2015; Checkland, 1981).

Systems-thinking involves several principles, which on their own are looked upon as disciplines of systems-thinking. Anderson and Johnson (1997) provide the basic principles of systems-thinking:

1 The 'Big Picture' principle demands widening one's perspective to find a more effective solution (e.g. in stressful times, one tends to focus on the immediate, most pressing problem and this perceives only the effects of changes elsewhere in the system). Therefore, one should step back to look at the bigger picture and investigate the source of the problem, which would more likely identify a more effective solution.
2 The 'Long Term, Short Term' principle suggests that the best approach to strike a balance about any decision is to consider short-term (e.g., a week, a quarter, a year) and long-term

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(e.g., strategic changes impacting on better overall performance of the business) options and to look for the course of action that encompasses both.

3 The 'Dynamic, Complex, and Interdependent' principle stresses the fact that things change all the time, life is messy, and everything is connected. Essentially, this points out that the world is dynamic, complex and interdependent. The principle also advocates that simplification, structure and linear thinking have their own limitations and thus consideration should be given to a system's relationships both within the system and with the external environment.

4 The 'Measurable vs Non-measurable Data' principle encourages organisations to value both quantitative (measurable, e.g., sales figures and costs) and qualitative (non-measurable, e.g., morale and attitudes) data and challenges the tendency to 'see' only what can be measured.

5 The 'We Are Part of the System' principle highlights that the decision makers are often the contributor to their problems (e.g. a current problem can be the result of unintended consequences of a decision made or a solution implemented previously, including decisions made based on some kinds of mental assumptions, values and beliefs).

Systems-thinking is uniquely placed to use as a language for discussing complex systemic issues. Most importantly, it emphasises that professionals look at the project as a whole, rather than deal with their own familiar confined parts of the system. This essentially brings managers and engineers, emanating from different professions with differing terminology, functions and responsibilities, together. However, the professionals coming from divergent and compartmentalised backgrounds, and comfortable in using the language of their respective subject terminology, can inhibit those involved in the project to think of the project as a system and consequently can fail to 'engineer' or 'transform' the system for improvements in performance. This illustrates a fundamental set of barriers to understanding and applying systems-thinking in a complex multidisciplinary project (Checkland & Scholes, 1999).

Previous studies on decision-making have focused on 'Complex Adaptive Systems' (CAS) framing and made significant contributions to understanding dynamics of decision-making at the organisational level (see also Chapter 8 on decision-making theory). The main properties exhibited by CAS are the 'interaction between the system-components and their environment' in addition to 'adaptive capabilities' and 'responsiveness to feedback' (Choi et al., 2001). CAS systems exhibit properties like self-organisation, emergence and adaptation demonstrating strategic importance of the CAS framework particularly applicable for analysing complex problems in the organisational context (Campbell, 1960; Rhodes, 2008). These properties are important in analysing existing relationships per se, the outcome of which can inform decision makers on how to address a problem (Boston, 2000; Chapman, 2004).

Scholarship on sustainable transformations have focused on the socio-technical systems (see also Chapter 5 on socio-technical transitions theory). The socio-technical system is comprised of three operational levels: macro-, meso- and micro-levels, corresponding to three analytical concepts: landscape, regimes and niches (Geels, 2002). This 'multi-level perspective' of the socio-technical system (Geels, 2002, 2011) provides a framework for analysing institutional (system) innovations and changes (transitions) (Kemp & Rotmans, 2005; Loorbach, 2010), consequentially actualising the potential of transition (Berkhout et al., 2004; see also Chapter 8 on decision-making theory). Equally important, the institutional innovations and changes in core values, policies and practices, occurring at both inter-organisational (landscape or macro) and organisational (regime or meso) levels, must align their context to the individual level (niche or

micro) to allow successful transition. Therefore, governance engaging with dynamic and relational changes occurring at all three levels can contribute significantly to effective sustainable transformations.

Equally important, the emerging theory of sustainability requires organisations to drive their workplace strategies based on the principle of resource efficiency and resilience, using valuable human resources effectively to the path of making a resilient organisation, requiring conservation and management (Pelling, 2010; see also Chapter 6 on resilience). The theory of sustainability also considers the balance between various contextual themes and processes, such as economic activities, ecological constraints, social behaviour and influences, organisational behaviour and growth, cultural influences and the political environment, to move towards a full and effective participation of various organisational system-components in decision-making processes (Mensah & Casadevall, 2019; United Nations, 2012). This requires a holistic approach, and therefore, systems-thinking that is adept in assessing interconnection and multiple mutual relationships between system-components can be pragmatic. However, theories of applying systems-thinking and analyses of workplace performance are not readily available. Therefore, given that both CAS and socio-technical systems can contribute to strategic and dynamic decision-making, the 'Integrated Complex Adaptive and Socio-technical Framing' (Figure 3.1), backed with sustainability science, system innovations and system-transformations, can be adopted to assess both responses at individual and collective levels, and how these collaboratively impact on sustainable transformation (Thakore, 2016). This is explained further in Section 2.

2 Applicability to workplace studies

In a 'traditional (office) workplace' environment, all employees have an assigned desk. Traditional workplace practices are unsustainable, due to cumulative environmental impact on the production process, or as a direct function of consumption levels, having detrimental impacts on the human quality of life (UNEP, 2010). For example, energy use and consumption of resources at the workplace contribute to emissions of greenhouse gases, priority air pollutants, chemical emissions, ozone-depleting emissions and radioactive emissions. These in turn have health impacts such as relatively higher temperature, higher humidity, poor indoor air quality, poor illumination and poor ventilation (Piasecki et al., 2020). Sustainable economic growth therefore depends on how technological advances, inventions and digital innovations – such as technological software, project management systems and various communication devices and channels – are adopted to make both work and workplace practices sustainable (Hansen & Hoffman, 2011; see also Chapter 14 on radical innovation). For example, technology such as connectivity and laptops allow working from anywhere, and there is no longer a need of a fixed desk for each person. Agile workplace concepts often use desk ratios and enable the team to work in the office (at site) or off-site, including at home. This impacts on the organisation's environmental impact and sustainability, importantly, reducing energy consumption per employee (Holbeche, 2015).

Over the last three decades, there have been repeated calls for increasing resource efficiency and sustainability within the development activities of the built environment – particularly in work environments (Harrison et al., 2003; Schmidt-Bleek, 1998; Weizsäcker et al., 1998). Resource efficiency and sustainability policies are promoted at various levels, globally, at the European regional level (European Commission, 2014), nationally, regionally and municipally (Giljum & Polzin, 2009). This is to sustain economic growth while improving environmental performance (Huber, 2000). Nevertheless, increased resource use remains a nascent problem.

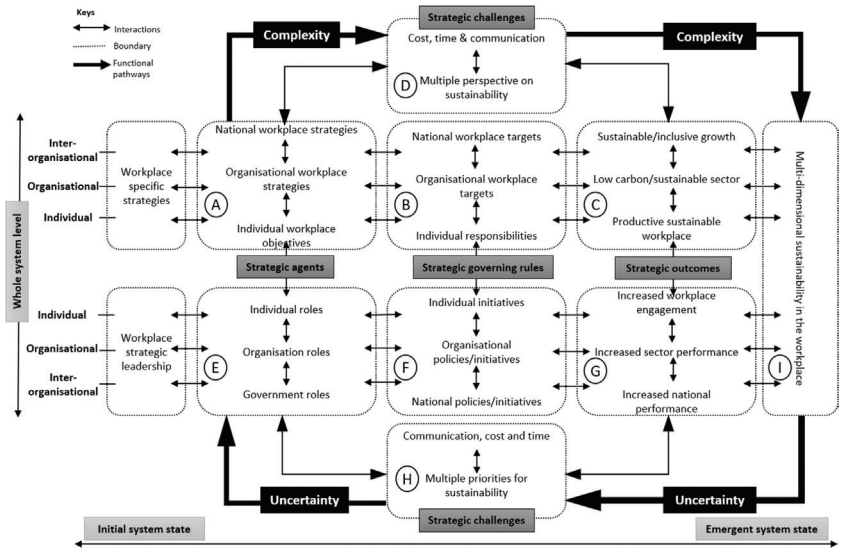

Figure 3.1 Integrated complex adaptive and socio-technical framing

Source: Thakore (2016)

Absolute reduction in resource use is essential (Giljum & Polzin, 2009; PROVIA, 2013). It is important to note however, that only achieving resource efficiency is not enough. 'Despite gains in material efficiency, the global use of materials, and the accompanying impacts of extraction, processing and disposal, continues to increase' (Urban Sustainability Directors Network, 2016). Therefore, sustainable consumption is needed (Jackson, 2016). This should be integrated with ecological consistency and achieving sufficiency in performance levels, primarily with individual action with efforts to advance at the organisational and societal levels (Alcott, 2008).

The integrated complex adaptive and socio-technical framing (see Figure 3.1) offers three main mechanisms: driving, decision-making and evaluation. Boxes A, B, C and D represent non-human elements of the system, Boxes E, F, G and H represent human elements of the system and Box I represents the results of interlinked human and non-human elements. Strategic systems-agents (Boxes A and E) are responsible for the 'driving'; the strategic governing-rules (Boxes B and F) are the basis for 'decision-making'; and other strategic processes such as interactions (double-headed arrows), feedbacks (Boxes D and H), and inputs and outputs (single headed arrows) are responsible for the 'evaluation' process. These mechanisms are interdependent in such a way that the strategic outputs depend on the effective coordination between all mechanisms whilst having every system-component operative in these mechanisms. For example, strategic systems-agents would take actions under the influence/pressure of strategic governing-rules and contribute to the strategic outputs/objectives (see also Chapter 10 on principal-agent theory).

Strategic outputs that are positive could strengthen the overall capability of the system to achieve its objectives (system-objectives) and reduce 'uncertainty' in its functional pathways. Likewise, strategic outputs that are negative could weaken the overall capability of the system to achieve system-objectives and increase 'uncertainty' within the system. These uncertainties are reported or fed back to the strategic system-agent(s) in the form of challenges (Rhodes &

MacKechnie, 2003). These challenges increase 'complexity' in the functional pathways. This situation may require evaluating governing-rules and transforming them for the system to deliver desired objectives. Therefore, iterative visits to these processes could increase capacities for dealing with challenges and increasing the knowledge of 'complexity' in the system. Principally, this framework captures characteristics of systems-thinking and highlights that multi-level system-components need to work in coordination in a long timeframe in order to deliver multi-dimensional sustainability (McCormick et al., 2013).

Box A and Box E represent a range of workplace-related strategies and roles respectively, especially related to improving organisational productivity (performance), energy efficiency and sustainability at all three levels: the objectives of organisational performance associated with the best practices at inter-organisational level (international level or sectoral association level) such as enabling competitiveness and market, attracting talent and conveying brand values (see also Chapter 11 on branding), and associated personal objectives of the employees, such as involvement, satisfaction and wellness. Boxes B and F represent a range of strategic governing-rules that define strategic interventions to achieve strategic outcomes. Strategic governing-rules direct strategic systems-agents to take actions and deliver on productivity (performance), energy efficiency and sustainability. Emerging governing-rules could be both top-down and bottom-up as against the traditional top-down nature of governing-rules. For example, at organisational and individual levels, agile workplace strategies could involve working from home. This can be associated with diverting the time and energy spent in travel and space occupancy to implement more productivity, social and well-being measures, especially beneficial for those struggling with multiple duties of work and home at the same time. At the individual level, it can attract young talent, and better wellness, without having employers invest in extra spaces (Harris, 2015; Skogland, 2017).

Boxes C and G represent strategic outcomes resulting from the interactions between systems-agents and the governing-rules. The outcomes are evident through the change in organisational performance levels including productivity, health and well-being, energy use, and energy security. Boxes D and H represent strategic challenges that constrain the delivery of strategic outcomes – for example, 'cost' could be the most important strategic challenge. Other strategic challenges could include communication, funds/grants and priority. These challenges bring uncertainties at each level. These must be addressed through consultation, awareness and training and eventually embedded into the culture. The role of a workplace strategic leader is very important. Workplace strategies are more likely to succeed with the strategic leadership of senior management (Brunia et al., 2016), yet the senior colleagues can sometimes be resistant to such change (Kavantera et al., 2020). Every effort should be made not only to hit targets, but also to make sure that principles of workplace strategies, organisational productivity, employees' health and well-being, energy efficiency and sustainability are adopted to create a hospitable workplace experience for employees (see also Chapter 17 on hospitality).

Kavantera et al. (2020) analysed Hong Kong workplace practices using systems-thinking theory. This exploratory research investigated the corporate drivers and individual preferences associated with the agile workplace. The study assessed workplace competence and individual and collective outcomes of the agile workplace. It revealed that the changing nature of work, productivity and employee wellness were some of the key drivers for implementation of agile workplace strategies at a corporate level. The preferences at the individual level, on the other hand, were found to be positively associated with an individual's exposure level to agile workplaces (Kavantera et al., 2020). This introductory research provided an early exploration of workplace practices, behaviours and patterns in Asian cities such as Hong Kong, while highlighting the need to carry out further research to study these topics in closer detail.

3 Methodology/research approach

Workplaces involve employees, those holding dignity (meaning) for the work (Hodson, 2001) and significance of the workplace (Eraut & Hirsh, 2010). Therefore, it is important to capture employees' perspectives (Campbell, 2000; O'Connell et al., 2004). A qualitative research technique can be used to uncover the realities lying in participants' experiences – and individual agency. Different patterns of human behaviour are observed in different times and places. The participant's experiences are expressed to the researcher who interprets these experiences based on his/her abilities and perceptions (Merriam & Tisdell, 2015). Adopted by constructivist and interpretivists, this technique helps gain holistic knowledge (Candy, 1991), understanding of the phenomenon in its 'natural settings' (Denzin, 2001) and of the 'native' viewpoints of the research participants, applying a wide- and deep-angle lens (Guba & Lincoln, 1994).

The qualitative research technique applies inductive reasoning for deeper understanding of the context (Tolley et al., 2016) and attempts to answer 'how', 'why' and 'what' questions while conceptualising complex processes contributing to theories (Gray, 2019). Qualitative analysis is used to improve understanding of individual agency, mutual interactions and influences, and to explicate realities based on a reliable database and convincing arguments (Guba & Lincoln, 1994). Qualitative data collection techniques include interviews, observations, documents, focus group discussion, themes and concepts, etc. The purposive sampling technique has the potential to collect a rich information data set and provide a valuable outcome (Patton, 2014). The data analysis includes extraction of important data (data reduction), organisation of data for meaningful constructs (data display) and constructing sensible outcomes (data findings) (Huberman & Miles, 2002).

The workplace can have unique features, such as progressive work practices, productive workplace or appreciated workplace, that promote greater employee involvement in the organisation of work. Training, incentivised reward systems and workplace innovation have all been invoked as potential levers for pursuing high-level organisational policy objectives. The workplace can be a place for private experiences such as job enrichment, participation, empowerment, transformational leadership and many more positive initiatives/practices to expand the employee role. While qualitative research provides a basis for generating theories and concepts belonging to the workplace processes, structures and strategies, objective evidence is needed to support the constructs.

The quantitative research techniques use deductive reasoning to identify social reality and integrate objectivism (Tolley et al., 2016). Commonly based on statistical probability and applying cause-and-effect principles, general patterns of human behaviour are identified (Marczyk & DeMatteo, 2005). Surveys, questionnaires and experiments are used to collect large numerical data which normally measure relationships between two or more variables (van Alphen et al., 1994). The use of Likert scales (Likert, 1932) satisfies the requirement of the scientific reasoning and allows interpretation of the results in a specific context for qualitative researchers (Göb et al., 2007). Further, a range of statistical analytic approaches can be employed in analysing numerical data; for example, descriptive analysis and multivariate analysis (Ngai et al., 2009). These could be useful in making connections between different stakeholders' priorities and perspectives working within the same workplace environment.

Given the complex nature of workplace research, there is a need to incorporate multiple perspectives (individual and collective) to understand workplace processes, challenges of sustainable transformation and multidimensional sustainability, in addition to general organisational functions. An explicit mixed-method design (focal literature review, online survey, interviews) can be used for research to maximise engagement and participation of all relevant stakeholders

as demonstrated by Kavantera et al. (2020). Moreover, a 'grounded theory' approach can be employed to capture the essence of the outcome, evaluate multiple perspectives and contribute to interpretive theories for emergent properties in the workplace.

Workplaces are complicated and dynamic environments. Therefore, they are required to have pragmatic approaches to achieve collective and individual engagement and success. In contemporary workplaces, the workplace leaders are required to have close coordination between internal stakeholders such as employees and external stakeholders, clients and regulators. Everyone engaged needs to be in the same plane of understanding to deliver the organisational (i.e. system's) objectives. This highlights that workplaces are complex, and each component is interrelated and represents a structure that can be investigated applying systems-thinking.

Systems-thinking is a pragmatic approach to deal with problems of societal systems – problems which cannot be solved without considering complexity and interdependence (da Costa Junior et al., 2019). Therefore, integrated research methods such as interdisciplinary and transdisciplinary methods that facilitate transcendence to a new common understanding, whilst considering diverse perspectives and integrating them based on commonality, could be useful for future systems-thinking research (Clarke, 2012; Repko & Szostak, 2020). However, the challenges of integrated research design include ensuring a balance between (a) the participants (elite and ordinary) taking part in the research process; (b) consensus building between different perspectives of participants for a given set of values; and (c) objectivity and subjectivity. These challenges can be addressed by integrating various knowledge domains, including theories, perspectives and practices (Schneider & Rist, 2014). 'Identifying the hidden collective perspective in the relationships' (for example, correlation, regressions, etc.) attached to the hypotheses can help integrate objectivity (Harding, 1992). An equally significant aspect of collective perspective in the new knowledge acquired by the participants is that it engages self-reflexivity (Azeiteiro et al., 2014), where participants reconsider their own values and opinions (Rosendahl et al., 2015).

4 Limitations

Several implications of systems-thinking for sustainable transformational processes are advantageous, such as appreciation of a holistic system or 'adaptive whole' and having interconnections between system-components. The properties of systems-thinking such as drivers, outcomes and feedbacks are applicable to problems of multiple disciplines and possess capacity to transform theoretical framing for sustainable transformations. A number of benefits for sustainable transformations in the workplace can be unveiled through systems-thinking: such as understanding multi-perspectives of the stakeholders, gaining deeper understanding of mutual interactions and influences, impacting on desired outcomes including productivity (performance) and energy efficiency, means to achieve multidimensional sustainability by aligning different levels: individual, organisational and inter-organisational levels (that do not always align; see also Chapter 9 on alignment).

The systems-thinking, however, applied in the context of workplace currently describes only an exploration and observations of workplace strategies and changes, which misses out on the advantages discussed earlier. The reason for this is that systems-thinking has not been able to capture the language/discourse in the workplace. These challenges point to the narrow world view that the managers or senior-level management team held for their workplace or organisation. For systems-thinking to have a greater impact, there is a need to look beyond the external environment and immediate concerns of the internal environment. The principles of systems-thinking must be relayed through different channels, and a common vocabulary should be developed

among the stakeholders, so that all involved in the change can easily participate and contribute to its dialogue. Employees, at the same time, should conceptualise this theory and make it feasible through their workplace objectives or organisational policies. This could be delivered through making the organisation a learning organisation and studying links between practice and learning, agency and change. External consultancy, career professional development programmes or use of master's courses underpinning systems-thinking theories, or related ways to enhance the understanding and application of systems-thinking, could be helpful. Future work can focus on providing an in-depth understanding of each emerging strategic benefit that relate to people management practices and organisational design – such as supporting a high-performance culture, providing flexibility, rapid decision-making and execution of strategic goals.

5 Theory relevance to practice

In the face of contemporary real-world problems of organisational workplaces, managers face difficulties in using traditional management or governance strategies to execute sustainable transformations. Understanding interconnections between each systems-component at every level, recognition of roles and responsibilities and long-term planning should become the central managerial tasks. Managers should take advantage of the characteristics of 'Integrated Complex Adaptive and Socio-technical Framing' (Thakore, 2016).

The 'Integrated Complex Adaptive and Socio-technical Framing' underpinning systems-thinking involves assessing interconnected system-components and multiple mutual relationships between these system-components. Thus, the key creation of this framing is the holistic approach which allows the recognition of individual and collective roles and responsibility, which in turn arise from the decision-making of each one involved. Systemic competence is dependent on stakeholders' positive practical experience, co-operative behaviour, and the rationale of systems-thinking (Harrison et al., 2003). Managers must invest heavily in systems to increase the strategic capacity that the system lacks at individual and collective levels. This could include optimisation of leadership and workplace strategies at individual and organisational levels (see also Chapter 18 on service management); and use of sustainable organisational strategies to move workplace strategic sustainability goals from 'aspirational levels' to more concrete 'implementation levels'.

With several elements such as uncertainty and ambiguities in the face of unknowability, the quality of learning from feedback enables the organisation to take actions that provide a better degree of certainty and deliver better results balancing the relationships among the systems-agents in the system. Organisational decision-making for long-term planning should consider the multi-level system-components' need to work in coordination over a long timeframe to deliver multidimensional sustainability. Managers should take initiatives to help employees by making their tasks as contextual as possible to the changing circumstances. The long-term planning with iterative cycles of assessing drivers, challenges and opportunities periodically in accordance with organisational productivity (performance), energy efficiency and sustainability, when done in conjunction with the employees' participation, allows managers to execute workplace sustainable transformations (see also Chapter 16 on user-centred design thinking).

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4

ST. GALLEN MANAGEMENT MODEL

Systemic-constructionist approach to workspace organisations and management

*Annette Kämpf-Dern**

1 Background

1.1 History and development

The St. Gallen Management Model (SGMM) is rooted in the works of Hans Ulrich and Walter Krieg (1972), setting up an integrative management theory (Ulrich, 1984). It was then Ulrich's successor at the University of St. Gallen, Knut Bleicher, who further developed the model over the next decades. Under the name 'Das Konzept Integriertes Management' (The Concept of Integrated Management: Visions – Missions – Programs), the first edition of the book was published in 1991 (Bleicher, 1991). Since then, the concept and the book belong to the management standard literature in German-speaking countries and have been so successful that now – 30 years later – its 10th edition will be published.

The "holistic understanding and integrative treatment of complex management challenges in their unique and differentiated contexts" are what the concept has been all about (Rüegg-Stürm & Grand, 2019, preface). Instead of isolated sub-disciplines of business administration – e.g. production, marketing, accounting – the St. Gallen approach is a systems-oriented framework for the core tasks of managers and their overall business responsibility.

Regrettably, until recently, the vast majority of economic and social science publications of German-speaking researchers have been in German only, which has greatly hindered the broad dissemination of many ideas and findings. This also applies to the bulk of publications addressing integrative management issues from German-speaking countries and the SGMM. However, a groundbreaking English-language article by Bleicher (1994) found its way into the international research world. It has been and still is cited as a basis of works regarding values, business ethics, and governance, stakeholder management, competitive advantage, innovation management, supply chain management, change management, sustainability management, and performance management. Quoting examples that show the broad applicability are e.g. Hermel and Ramis-Pujol (2003), Schnetzler et al. (2007), Edwards (2010), Edwards (2014), Wieland (2014), Breuer and Lüdeke-Freund (2017), Breuer and Lüdeke-Freund (2019), Hofmann (2019),

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Seiler et al. (2020), Velter et al. (2020) – and uncounted further ones that refer to the concept based on the German books or that are already tacit knowledge. This is especially true for the management-level pyramid introduced by Bleicher that distinguishes and explains normative, strategic, and operative management processes (e.g. Breuer & Lüdeke-Freund, 2015).

Main ideas of the concept of integrative management even found their way into the International Organization for Standardization (ISO) and build the base of the Management System Standards (MSS). MSS are a series of norms for which the most prominent examples are the ISO families 9000 (Quality), 14000 (Environment), or 26000 (Social Responsibility). Even more workspace-related are e.g. the ISO MSS families 20000 (IT), 30400 (HR), 41000 (Facility Management), 45000 (Occupational Health & Safety), or 55000 (Asset Management). According to ISO, some of the benefits of well-defined management systems are higher efficiency, improved performance, improved protection of people and environment, and especially "increased capability to deliver consistent and improved services and products, thereby increasing value to customers and all other stakeholders" (ISO, 2020). As the MSS follow a common 'High Level Structure', they can form an integrated management system.

1.2 Purpose

Bleicher (1994) stated in the abstract:

> The growing complexity of the business environment and the increased speed of change in systems, technologies and markets raise the question of whether human beings will be able to control the forces at work in the 1990s. The question is relevant for our ecological and social environment, and also for our institutions. Systems seem to be approaching the limits of their controllability. Thus a change of paradigm in the management of organisations seems to be underway which seeks new approaches to solving management problems in turbulent times.

The purpose of his article and the ideas constituting the foundation of the SGMM were to "discuss how, in view of a rapidly changing environment, the ability of systems for survival and development can be ensured and enhanced" (Bleicher, 1994, p. 136).

The SGMM as a systemic-constructionist approach to integrative management mainly supports a holistic description about and thus reflection on complex organisations, their environments, stakeholders, value generation, processes, management, and the interplay of all parts. Based on this, and enabling a collaborative exchange of perspectives, purposeful development can be initiated and implemented. As a result, instead of solely optimising isolated cause-and-effect relations, a larger and better result will be achieved. (SGMM, 2020a)

The SGMM does not give any specific advice on how to do things. As a framework it rather supports modelling an applied or intended business concept with its fundamental procedures in order to generate the intended output. It is important to note that normative and strategic as well as operational and dynamic aspects are considered. The result, the specific model, is a simplified representation of the value creation processes, functions, and interactions. These help create customer value, secure competitive advantage, and generate revenue (Doleski, 2015).

Such a model facilitates a holistic description, analysis, and further development, especially if – as the SGMM suggests – all relevant environments and expectations (political and legal, economic, socio-cultural, technological, and ecological) are included. Including them makes complexity transparent, which is a prerequisite to managing it. An integrated model alongside

the dimensions of the SGMM thus "ensures that all factors critical to success are considered in full, with clearly defined, structured components" (Doleski, 2015, p. 5).

A good and visualised description of the value-creating elements and their interplay furthermore enables a collaborative reflection, design, and development of the organisation-specific management practices. Due to "the multifaceted nature of management and its manifold prerequisites" (Rüegg-Stürm & Grand, 2019, pos. 470 ff.), enabling collaboration is another success factor for responsibly dealing with complexity as the numerous interrelated and dynamic topics require various specialists and generalists. Those usually speak in different disciplinary languages, as do the multitude of further stakeholders to be considered. A mutual terminology and understanding of organisational, process, and management aspects significantly facilitates communication between and collaboration of all these actors.

1.3 Essentials of the model

The SGMM is a system-oriented management reference framework that addresses the constant design and development of relationships between the following:

- An organisation (enterprise, public, governmental, or pluralistic organisation, NPO/NGO, or parts of it)
- Its specific, interacting environment (according to Rüegg-Stürm & Grand, 2019, pos. 409, "the space of possibilities and expectations specifically relevant to an organisation")
- The resulting value creation[1] as management focus.

In the system-oriented view, any organisation is seen as a complex system that creates specific value in a specific environment. As a system, the organisation is an independent entity that "delimits itself from an environment and consists of diverse elements" (Erk, 2016, according to Rüegg-Stürm & Grand, 2019, pos. 590)[2] (see also Chapter 3 on systems theory). Depending on the view, the organisation is a social, an economic, a technical, a legal, and a human system at the same time. It includes respective elements such as actions/decisions/relationships, resources/prices/incentives, rights/obligations/regulations, or skills/knowledge/emotions (to name only a few). Those elements interact in certain patterns which can – because of their complex relationships and interdependencies within and to its environment/context – not be fully understood. They can therefore not be predicted but only influenced by 'structuring forces' and through different 'development modes'.

Accordingly, the SGMM consists of the following elements, here named 'model categories' (Rüegg-Stürm & Grand, 2019, pos. 679ff.) that concern the basic task and design fields of management practice (see Figure 4.1):

1 Environmental Spheres
2 Stakeholders
3 Interaction Issues
4 Processes
5 Structuring Forces
6 Development Modes

Categories 1–3 relate predominantly to the social, economic, and ecological 'outside' of the organisation, while categories 4–6 are the inside view.

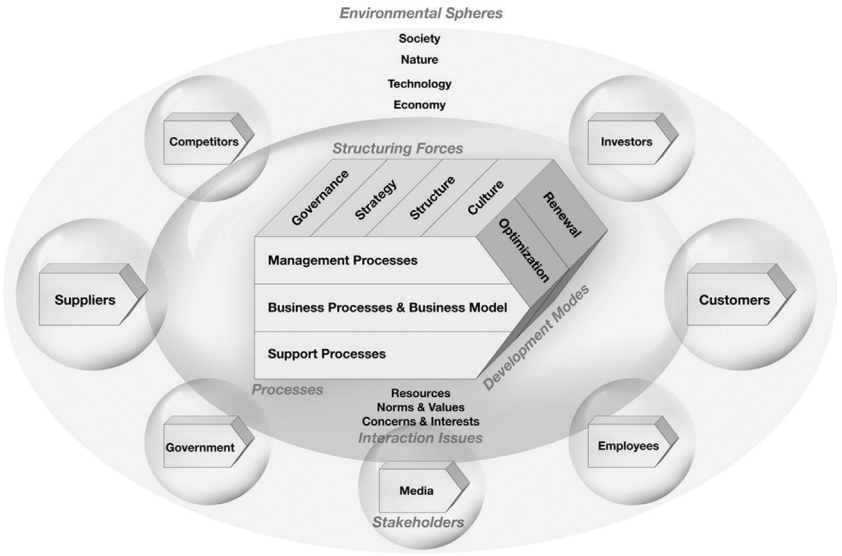

Figure 4.1 The New St. Gallen Management Model (Rüegg-Stürm & Grand, 2019)

1 'Environmental Spheres' are the relevant contexts of the organisation, the key fields of reference for organisational value creation, with which the organisation is in constant interaction. Societal circumstances are the most comprehensive, but nature, technology, and economy and their relevant changes need to be watched closely and analysed as well regarding status, changes, and trends.

While in the past it was often assumed that an organisation can hardly influence its environment, more and more examples (e.g. Apple, Facebook, Google) show that organisations and their relevant environmental spheres are 'co-evolutionary'. This reflective interaction needs to be considered by management.[3]

2 'Stakeholders' are individuals, communities, or organisations affected by and/or influencing organisations. The purpose of any organisation is value creation for at least some of its stakeholders. According to a term coined by Ulrich et al. (1984), 'management as a social function' replaces leadership responsible only to the owner. Bleicher (1994, p. 138) titles it "From Ownership Management to Stakeholder Management" and thus recognised an important change early on.[4]

As stakeholders' needs, interests, and preferences – a bundle of objectives instead of a straightforward goal hierarchy – are often very diverse and even conflicting, the perceived value creation for stakeholder groups differs considerably, and management normatively needs to define guidelines and methods for prioritisation.

3 'Interaction Issues' are the relevant points and topics of communication between an organisation and its stakeholders. At first glance, discussions are primarily about resources/tradeable goods and their allocation, but often the really important issues are values and norms, concerns, and interests – 'thematic points of reference' – that need clarification and adjustment.

In the first version of the SGMM, instead of norms and values being part of 'interaction issues', those were referred to in the 'Management Philosophy' as the 'Integrating Power'.

Management philosophy is about the thinking and behaviour of a company's executives. Those are influenced by the executives' basic attitudes, convictions and values which stem from ethical or religious convictions or previous experiences. Bleicher (1994) therefore saw the greatest challenge of adapting an organisation to a dynamic environment in balancing a reassuring management philosophy against openness to innovation.

4 Different kinds of 'Processes',[5] their functions, and how they are related are at the heart of the SGMM (and what many know best regarding the SGMM). A specific organisation is characterised by its specific 'system of processes' with processes being the organisation's routine procedures that shape every day's work. Organisational success fundamentally depends on owning and using effective and efficient processes – of all kinds and on all levels.

The model differentiates 'business processes', 'support processes' and 'management processes' (Figure 4.2).

The *business processes* are in the centre, as those are the processes that are directly connected with the market/customers/clients and the organisational value creation. Therefore, they are often called the 'primary activities' (Porter, 1985) or 'core' processes. These include customer acquisition and retention, branding, production and delivery, and innovation/R&D (see also Chapter 11 on branding theory).

The *support processes* (often called 'secondary' processes) enable the business processes, as only with the support of (internal or external) services, e.g. procurement, HR, legal advice) and infrastructure (e.g. ICT, real estate and facilities), business processes can be performed effectively, efficiently, and thus value creating (see also Chapter 18 on service management theory).

Value creation commonly demands division of labour and specialisation, which requires communication, cooperation, and coordination in order to achieve defined objectives. Business and support processes thus need management processes, analysing, designing, aligning, and organising, steering, controlling, and developing the organisation and its processes.[6] Because of their very different roles, management processes are divided into 'normative', 'strategic', and 'operational' management levels. The normative level gives orientation; the strategic level identifies potential and develops the organisation, its people,

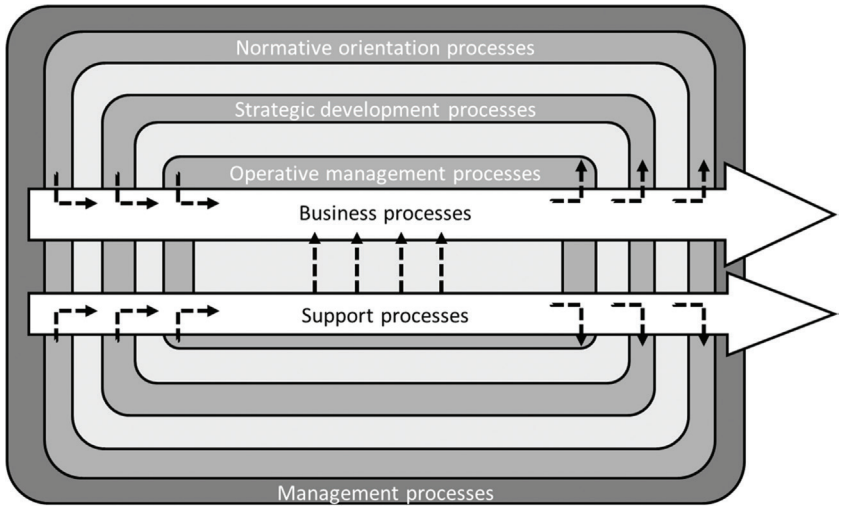

Figure 4.2 Process categories and architecture (Rüegg-Stürm, 2005, p. 54)

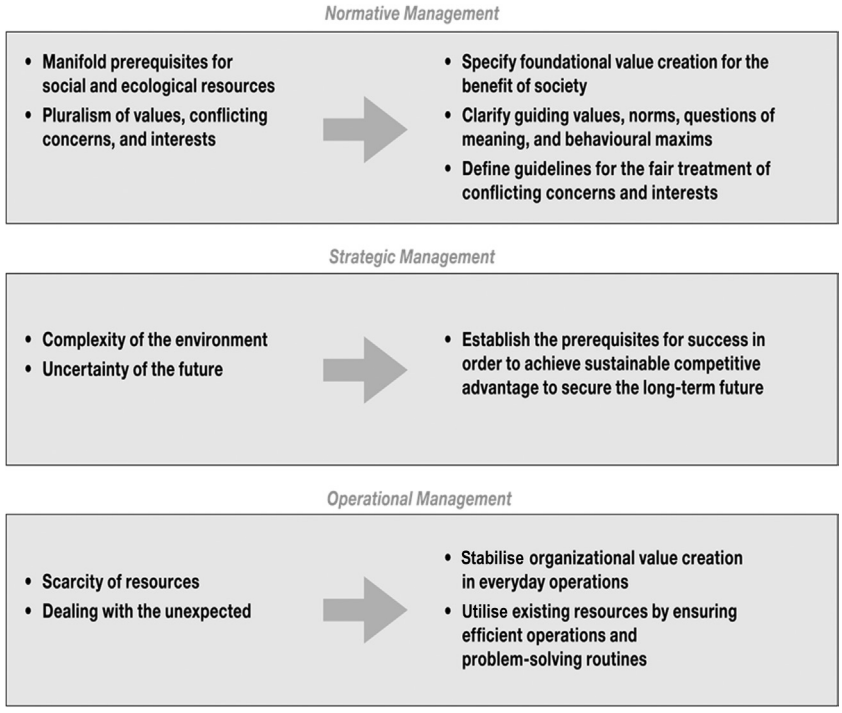

Figure 4.3 Process categories and architecture (Rüegg-Stürm & Grand, 2019, p. 64)

and processes; the operative level manages the individual people and processes on a daily basis, including their finance and quality issues. (Figure 4.3)

- "Normative management addresses general business objectives and defines the constitutive values, principles, standards and rules that shape an organisation's identity and establish the creative framework for business actions" (Doleski, 2015, p. 10). It thus indicates the direction. All organisations' activities and members' behaviour need to be justified and legitimised in that way – to both internal and external stakeholders.
- Strategic management's task is to identify ways and develop and steer the organisation to achieve strategic advantage and the overall goals while adhering to set norms, values, and rules. This is to be achieved through projects and initiatives regarding the fundamental shape and focus of organisational structures and management systems, and through staff's problem-solving capabilities and behaviour shaped by learning and corporate culture (Bleicher, 2003, p. 162).
- Operational management's domains are practical implementation of normative and strategic tasks and individual people management. Operational management implements the actions required by the two superordinate dimensions into operational processes of performance, finances, and information (Doleski, 2015, p. 10).

Process design, alignment, and integration are accordingly the essential and creative work of managers to achieve a coherent, value-generating organisation (Rüegg-Stürm & Grand, 2019, pos. 703f.).

Table 4.1 Four terms as described by Rüegg-Stürm and Grand (2019)

Term/Concept	*Description (Rüegg-Stürm & Grand, 2019, pos. 695 ff.)*
Governance	[S]erves to define and structure an organisation's purpose, identity, vision, mission, and normative orientation with basic regulations, each defining the roles, rights, and duties of managers.
Strategy	[A]rticulates an organisation's competitive positioning, differentiation, and long-term development direction.
Structure	[E]mbodies the . . . organisational configuration.
Culture	[E]xpresses an organisation's basic behavioural assumptions, beliefs, rules, values, norms, and attitudes.

5 'Structuring Forces' are supposed to shape the organisation in a way that its elements function as coherently towards intended value creation as possible, meaning that the desired impacts of processes are achieved. 'Governance', 'Strategy', 'Structure', and 'Culture' each are exerting orienting, structuring, and motivating forces (Table 4.1).[7]

Yet, they cannot guarantee that results are reached as intended, due to the individual configuration as well as the complex interactions and dependencies of the various social-system elements. This is why management – defining and establishing the structuring forces – is called a 'practice' (see Chapter 7 on Strategy-as-Practice), an 'art' or 'craft' rather than a science: Depending on the context and the configuration, the same measures can have wildly different results. Therefore, whether the effects match the expectations often is a question of experience, observations, and reflections.

Also to be considered is the circular connection between processes and structuring forces. While structuring forces develop and form all processes, processes and/or their results, on the other hand, can influence and lead to change of structuring forces – e.g. process optimisations initiate changes of organisational structure.

6 'Development Modes' "describe basic patterns of how organisations can evolve in a dynamic environment" (Rüegg-Stürm & Grand, 2019, pos. 717f.). Development can reach from incremental steps at few issues ('optimisation') to radical, disruptive changes at fundamental characteristics of the organisation ('renewal'). What is best in which situation depends on many parameters, but it always needs to be balanced carefully to ensure that the organisation moves into the desired direction while not descending into chaos.

Moreover, changes should not only be looked at on a factual level. Factual changes regularly impact social relationships and emotions. Therefore, balancing organisational development always implies to consider both aspects.

As of today, the development to the SGMM and its areas can be described as follows:

> [T]he first-generation SGMM by Hans Ulrich and Walter Krieg (1972) was characterised by a systems-theory and entrepreneurial orientation. The second generation (Bleicher, 1991) deepened the explicit differentiation of management into operative, strategic, and normative aspects. The third generation (Rüegg-Stürm, 2002) illustrated how organisational value creation for a dynamic environment needs to be understood as a complex interplay of value-creation processes. The fourth generation (Rüegg-Stürm &

Grand, 2017) emphasizes the communicative and reflective function of management, and accordingly reconceives management as a reflective design practice.

(SGMM, 2020b)

2 Applicability to workplace studies

Groups/units/entities providing healthy and productive workspaces and workplaces can be regarded as complex organisations, within a larger organisation or as a stand-alone service. The application of the SGMM can help managers of such entities to develop, design, and operate workplace-related core, management, and support processes in order to optimise value generation for their many stakeholders. Workplace studies can apply the SGMM in various ways:

1 *As an agreed-upon terminology for important dimensions, characteristics, and terms for workplace organisations and management to get a holistic, integrative representation:*

An adequate terminology and structure improve transparency and clarity, communication, and insight. Just as the SGMM specifies the general system theory in relation to organisations that achieve added value through targeted division of labour, the elements and relationships of the SGMM must be specified and concretised in relation to work environments in order to enable and promote communication. This includes typical workspace stakeholders, their goals and objectives, potential strategies and structures for workplace provision, workspace-providing core, support and management processes, and cultural impacts of workspace change as well as development and change options.

Comprehensive and structured descriptions of workspace situations or problems are possible only on the basis of such a specified and agreed-upon terminology. A workspace-related organisational terminology also facilitates the identification and consideration of connections, interfaces, and influencing factors. Moreover, potentially missing or contradicting aspects are easier to locate this way. These advantages are realised even if only a single case is investigated.

2 *To identify workspace-relevant performance metrics*.

With the systematic specification of workspace-relevant stakeholders and their respective interests, norms, and values, researchers can identify the respectively relevant performance metrics. The term 'respectively relevant' is used, as an organisation's interests and values are configuration-specific (e.g. industry-, size-, region-, task-related). Accordingly, it can be assumed that the importance of particular workspace performance metrics varies – corresponding integrated research is yet rare.

3 *As a comprehensive base for identifying context-configurational-design patterns and effective performance-enhancing actions/processes*.

As each work environment is a unique case with a multitude of parameters to consider in research, the comprehensive SGMM – together with other management research insights – can guide and support the identification of relevant configurational parameters for workspace issues. For those parameters, research can then discover principles as well as patterns and relationships and their correlation with value-enhancing processes.

4 *For systematic testing and development.*

It is expected that research of work environments will develop in a way similar to that of practice and research in medicine: on the one hand, towards a strong specialisation, on the other hand towards the (re)discovery of holistic approaches. For the latter, the SGMM – when concretised for workspace issues – offers an excellent basis to develop and test recommendations, identify general principles, or even establish holistic workspace management theories.

5 *As a common ground and shared know-how with other disciplines, here management, work sociology, and work psychology.*

An integrated management model facilitates the exchange between workspace researchers, not only in terms of general communication, but also regarding research methodologies, tools, and even insights. Workspace researchers can locate their field of study within its organisational context within the SGMM, and thereby more easily discover potential research fellows, methodologies, and/or insights for their research.

All these applications will support developing and operating the core, support, and management processes of work environment provision and operation. They thereby increase the probability that the intended value generation for the various stakeholders and specific contexts materialise as planned (see also Chapter 12 on value-added management).

As illustrated to this point, and thanks to the possibility of 'zooming-in' to and 'zooming-out'[8] of the SGMM, the model can be applied to a multitude of questions and areas of the workplace. Following are a few examples from own research.[9]

2.1 Specified common terminology: management levels, processes, perspectives, and organisational configurations in (corporate) real estate

Real estate and facilities management are rather young disciplines and have been lacking adequate terminologies for a long time. Central ideas from the SGMM were therefore translated into (corporate) real estate and its management in the works of Kämpf-Dern and Pfnür (2009) and Kämpf-Dern (2009, 2010). This applies especially to the dimension 'processes' with its differentiation in management and business processes, and the management levels, explicating normative, strategic, and operative real estate management. Furthermore, the dimensions 'stakeholders' and 'environmental spheres' in real estate were addressed.

Figure 4.4 show parts of these terminological 'definitions' that were necessary as a foundation for further real estate management and workplace studies. According to the St. Gallen management concept, management processes with various functional tasks have been differentiated, yet adapted to the language used in real estate. The normative management level is the real estate investment management level (REIM). The strategic management level regarding real estate portfolios is the real estate portfolio management (REPM), and regarding individual assets the real estate asset management (REAM). The operational management level is the Property Management (PrM) for investment real estate and Operative Real Estate Facility Management (OREFM) for corporates/publics. RE management processes plan, organise, steer, and control RE business respectively RE support processes (here called real estate services = RES) over all RE life cycle phases. Not shown here are further details and translations of existing RE management and services specifications to the SGMM model dimensions.

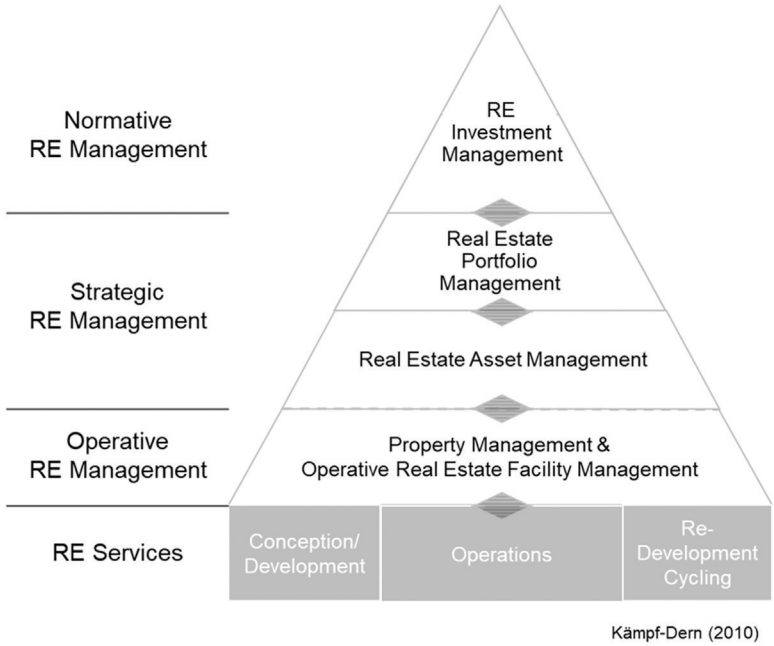

Figure 4.4 Real estate management and core processes (translated and adapted based on Kämpf-Dern, 2010)

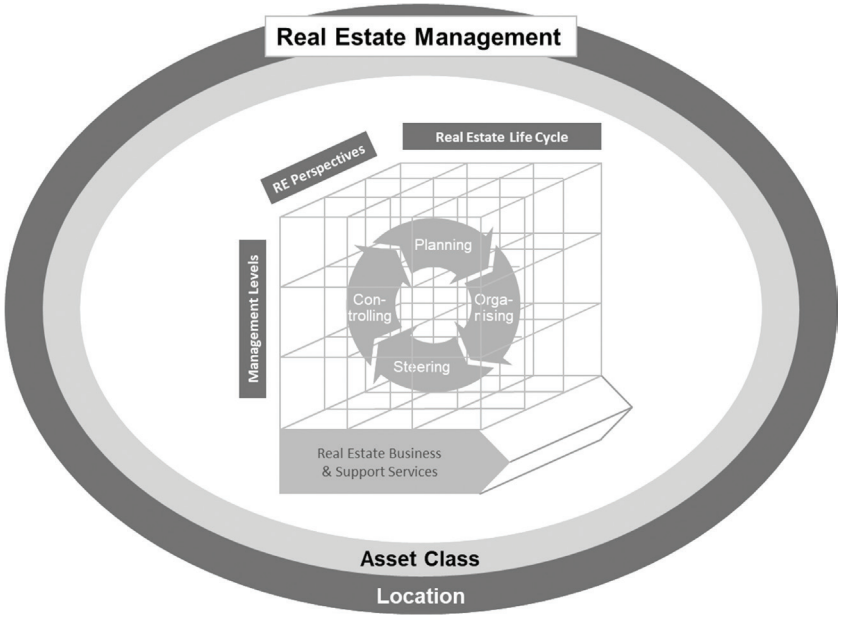

Figure 4.5 Real estate management basic concept (translated and adapted based on Kämpf-Dern & Pfnür, 2009)

Figure 4.5 adds further categories: Instead of 'development modes', 'perspectives' (investor, user, producer) were added to the core organisation, representing most relevant stakeholders including their interests and objectives. Directly impacting 'environmental spheres' in real estate are asset classes (e.g. whether the real estate belongs to Office or Logistics) and the location (micro and macro location/region/country).

Based on this comprehensive representation, with the possibility to achieve 'zoom in and out', clarity was brought into the communication of real estate management tasks, and the vast majority of real estate research could be located within this real estate adapted, integrative management concept.

2.2 Identification of common patterns and working configurations: 'Best Practice? Best Model? Best Fit!'

Larger companies with a portfolio of sites are faced with the question of how to structure their CREM&FM activities and the related organisational units. In essence, the overarching problem to be solved is the business model for their infrastructure provision.

The 'CREM-Map', described in the paper 'Best Practice? Best Model? Best Fit!', transfers large parts of the SGMM to the CREM&FM world (see e.g. Figure 4.6).

Here, the focus was on the alignment of the CREM entity with the corporate entity as well as on the alignment with corporate goals and context (context-system-fit). Furthermore, the research detailed and investigated the CREM-related 'structural forces', here corporate governance, goals strategy, and culture, together with CREM objectives, strategy, and structure. The coherence of structuring forces with CREM processes (inter-system, respectively, intra-system fit) was another area of analysis. The SGMM set the stage for structured interviews with international corporates to identify CREM best practices but – not surprisingly – neither best practices nor best models could be identified. Instead, some 'principles' crystallised, and the configurational 'fit', the alignment between the elements and the management philosophy, proved to be most important for perceived value-generation.

2.3 Joint reflection on holistic models for value creation: 'Performance-oriented office environments – framework'

The SGMM as a holistic, interdisciplinary, systems-oriented framework regarding the interactions and interdependencies of organisation and environment including stakeholders, and its

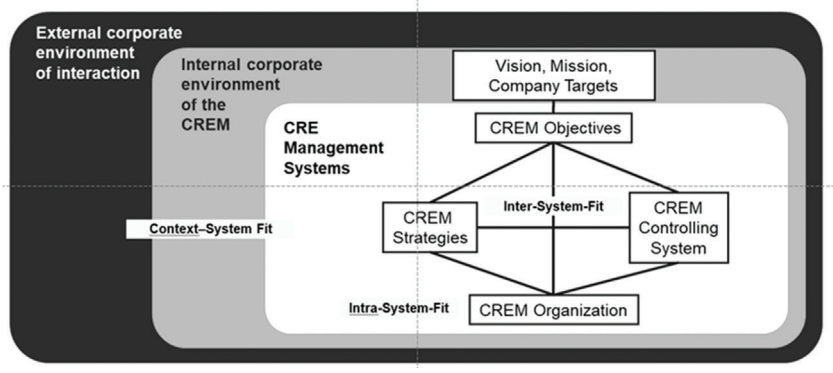

Figure 4.6 The CREM Map (Kämpf-Dern & Pfnür, 2014, simplified)

value creation as focus of management, inspired the enhancement of the office ecology model to a 'performance-oriented office environments framework' (Kämpf-Dern & Konkol, 2017). The framework supports joint reflections and development of coherent and therefore performing office environments and how to include change aspects ('development modes').

Stakeholders are at the same time in the centre of the model ('People') and actors ('Management', 'User Representatives', other support functions) who design and develop their workplaces. 'Management Processes' as well as 'Structuring Forces' make up the 'Leadership/Management Subsystem'. Business Processes are represented by 'Work processes/activities'. They are supposed to be enabled and supported by the surrounding 'Physical Workspace', 'Workspace Technology', and 'Workspace Services' which are explained in detail in this conceptual paper, including a broad workspace aspects literature review. The purpose is to give an overview of the up-to-date insights and principles of workspace design and implementation. As being stated in the SGMM, 'Development Modes' and 'Corporate Culture', the social aspects of management are just as important as strategy and structure of a business. Only if the change process is designed and implemented as professionally as the workspace design, the intended performance metrics (outcomes) will be reached. This is also shown and addressed in this piece of work (Figure 4.7).

2.4 Identifying context-configurational-design patterns and effective performance-enhancing actions/processes

Current research work covers a very different approach to context-configurational-design pattern identification regarding workplace. It attempts to acquire and analyse big data through a gamified survey app named SIM-OFFICE. A system approach allows for investigation not of isolated cause-and-effect-structures, but of distinct categories with assumed strong relationships. The categories are a combination of soft and hard factors related to workspace. The research looks for configurational clusters of personality, task, values, and workplace parameters, which then can be further researched. These clusters are deducted from the performance-oriented office ecology model: personality, job design, leadership, physical workspace, workspace technology, and workspace services.

The assumption to be checked is that there are configurational patters of personality traits and job design with specific preference structures regarding the latter four categorical elements that – when fulfilled – result in higher performance metrics.

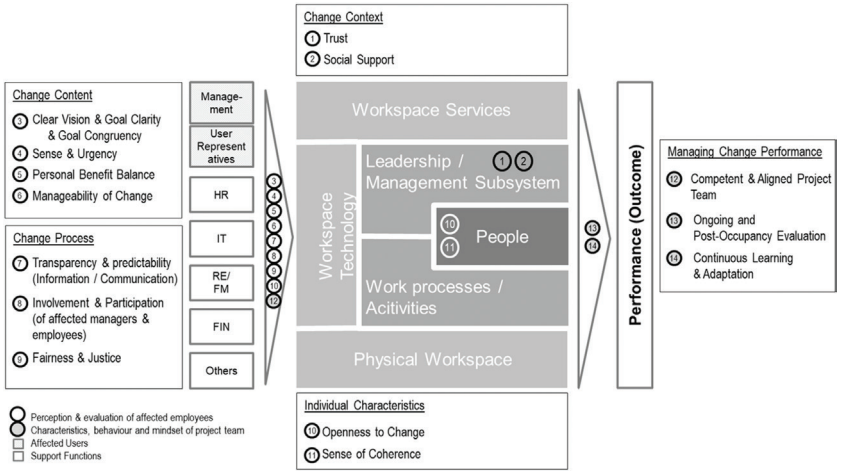

Figure 4.7 Performance-oriented office ecology model (Kämpf-Dern & Konkol, 2017)

2.5 Sharing and collaborating with other disciplines

The named research examples were and are possible only with transdisciplinary knowledge and respective collaboration with researchers that come from management, real estate, architecture and engineering, ICT, and sociology/psychology. According to Bleicher (1994, p. 138), "Stakeholder management necessitates a higher frequency of border-crossing relationships to other systems which have so far been kept separate . . . [a] cross-border co-operation in networks". This can be confirmed when applying the SGMM as an integrated management concept to workspace issues. It can also be seen in the positive development of an association like the TWR Network that enables and promotes such border-crossing co-operations.

3 Methodology/research approach

The challenge of research related to complex – integrated and interdisciplinary – socio-economic institutions (e.g. CRE&FM departments) or process systems (e.g. workplace provision, operation, and management) lies in the almost infinite number of configurations that are possible due to the multitude of dimensions and parameters which characterise them (for the consequences see e.g. Straub, 2013).

Especially social science researchers are facing this challenge. Common research approaches are case studies (e.g. Yin, 2017) and mixed-method approaches (e.g. Creswell, 2014) that combine socio-empirical qualitative and quantitative methods, e.g. documents and interviews (e.g. Witzel, 2000), and qualitative data analysis methods (e.g. Flick, 2013), combined with mixed qualitative and quantitative surveys.

The grounded theory methodology (Glaser & Strauss, 1967; Strauss & Corbin, 1990; Dougherty, 2002) can be useful to construct hypotheses and theories and generate ideas and concepts in areas where little is known yet, like in the field of workspace management. This methodological approach has been used for investigating real estate asset management as a professional service (Kämpf-Dern, 2010). While the results are not statistically significant, they build a good foundation for further research.

However, purely quantitative research methods can rarely be used for integrative management questions. Those methods – up to now – either could cover only a limited number of relationships, and thus not adequately reflect the complex configurations under investigation, or would need an enormous number of data points and very large sample sizes. The latter conditions are often neither available nor affordable.

Management research, therefore, often works in stages. Following an overall understanding of certain patterns through grounded theory and mixed methods, the research then 'zooms-in' to more specific parts and questions. These can then be investigated more quantitatively under 'ceteris-paribus-conditions'.

However, the situation could change with the new technical possibilities of data collection and analysis (keywords: Artificial Intelligence and Big Data). These may further open up the field for complex and system-oriented research – good prospects for integrative management research.

4 Limitations

Systemic approaches to a complex field like workplace management require a lot of pre-work and a broad set of methods, and then they provide 'only' complicated, context-dependent

answers. In any case, they are "excessively descriptive" (Geissler & Krys, 2013, p. 33) and need huge samples before being able to identify patterns that lead to fact-based insights and solid recommendations. Collecting these samples in turn requires large funds, take some time, and are less specific. For that reason, companies hire consultants to solve their individual and specific problems with conventional wisdom and knowledge from consultants' experience, rather than commissioning management research projects that advance general insights and promote the discipline but do not instantly 'pay back'.

Moreover, due to the context dependency and interaction, generalisations will always be difficult to be made in this field of system-analysis – within the organisation and regarding environmental spheres as well as regarding stakeholders. Easy-to-understand solutions like 'best practices' or 'best models' can therefore not be made, which makes these kinds of approaches less attractive. However, pattern recognition is possible and very effective. A workspace-specified SGMM can provide a good framework for this as starting point.

5 Theory relevance to practice

The advantage and differentiation force of the SGMM is that it sees an organisation as a whole, within its context, and including the social interactions. It considers not only isolated parts of the organisation or the individual unit but also its environment, including stakeholders outside the organisation and their reflexive interdependencies and interactions. Depending on the problems and questions to be solved, the model allows to 'zoom' in and out, changing the focus and nevertheless keeping its integrated, holistic, and interdisciplinary view – extremely practical in a globalised, connected, and fast-moving world.

Obstacles of the model have been named under Limitations: It is excessively comprehensive, which requires – in addition to a lot of managerial general knowledge to understand and follow up on the various aspects – a vast amount of documentation and specifications. However, this is necessary because complex questions will not be solved with simple answers (Geissler & Krys, 2013), even though anybody, practitioners as well as researchers, would prefer a simple over a systemic approach.

Despite the limitations, which seem to make the application of the SGMM to workplace research less attractive for practitioners, the SGMM has had much greater impact in the industry than in science. Virtually thousands of business managers have been educated with this model and apply its essentials in their daily work. For workplace managers who are mostly not trained in business, getting to know the model can therefore also be very fruitful.

Furthermore, the following workspace management research gaps could be filled through applying the SGMM and would be interesting for practice:

- Review and further development of a management terminology specified for work environments
- Interests, norms, and values of workspace stakeholder groups in different environments, resulting management philosophies, and value generation metrics
- Organisational set-up of workspace entities in different environments (company size, industry, culture) including competence requirements
- Workspace strategy development processes and alignment with corporate strategy and corporate culture
- Integration of workspace topics in corporate sustainability and innovation management processes

- Process maps of workspace core, support, and management processes
- Use of new technologies and digitalisation to increase the quality and efficiency of workspace core processes (e.g. workspace design, facility service provision)
- Inclusion of broader groups of workspace stakeholders into workspace-related management processes.

Last, but not least, the roots of the model – while going back more than thirty years – could hardly be more recent. The 'VUCA'[10] environment has reached the workplaces, especially since the outbreak of COVID-19. Accordingly, managing workplace and other organisational infrastructure as if they were solid, reliable, and stable is no longer possible. Professional workplace management to master complexity and support organisational value creation through adequate provision and operation of workplaces has become a necessity. Understanding and applying the SGMM in its fourth generation and transferring insights from its general usage to workplace questions offers practitioners great potential. This can be magnified when corporations and researchers cooperate to extend the usage of the SGMM from helping with describing and structuring workplaces to identifying patterns, and thus being able to give fact-based (instead of only experience-based and plausible) recommendations.

Notes

1 In this work and most settings that require management, 'value-creation' denotes that "an organisation or a network of organisations creates value through division of labor". The outcome of value-creation are "products or services (or effects in general), from which value creation addressees (e.g., customers) can derive a specific benefit" (Rüegg-Stürm & Grand, 2019, pos. 341–342, 352).

2 According to Erk (2016), dimensions of a system are oneness/entirety, elements/components, environment, connections/relations, complexity, structure, and – in the centre – purposefulness.

3 In the management literature, the reflective dependencies are described under the headlines of 'market-based' versus 'resource-based' views of the firm. (Porter, 1979; Barney, 1991)

4 Until the end of the last century, the predominant and accepted belief was that companies should be guided solely by owner/shareholder interests. Only in the course of the sustainability and CSR considerations of the last twenty years the position grew that value creation is higher if more stakeholder groups agree with the actions of a company and if as many interests as possible are aligned – also for those with a primarily monetary interest in the organisation (e.g. Hillman & Keim, 2001; Gimpel et al., 2019).

5 "Processes are sequential activity patterns that are systematically interrelated and characterizable in terms of their factual and temporal logic" (Rüegg-Stürm & Grand, 2019).

6 'Management' "primarily means mastering complexity" (Rüegg-Stürm, 2005) "when designing, steering, and developing purpose-oriented social institutions" (Ulrich, 1984). It "always concerns organisational value creation" (Rüegg-Stürm & Grand, 2019, pos. 327).

7 'Structuring forces' in this text are not to be confused with the concept of Porter's Five Forces (Porter, 2008). While the latter is a framework to analyse the competitive intensity and the environmental attractiveness of an industry in which a business model is or shall be established, the 'structuring forces' of the SGMM are those with which managers can influence – design and develop – processes within the organisation.

8 What it means to 'zoom' in and out, and why this is an important capability for managers, is well explained in Kanter (2011).

9 The international dissemination of the SGMM was severely limited by the focus of teaching and research on the German-speaking regions and the German language. Conversely, there have been very few researchers in the field of workspace management in German-speaking countries. Accordingly, the author is not aware of any further research that would have explicitly applied the SGMM to work environments.

10 VUCA = Volatile, uncertain, complex, ambiguous

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5

SOCIO-TECHNICAL TRANSITIONS THEORY

A multi-level and change-oriented perspective on organisational space

*Jenni Poutanen**

1 Background

This section will introduce the theory of socio-technical transitions (STT) that is interpreted as an extension of the socio-technical system theory (STS; see also Chapter 3 on systems thinking). Applied to organisations, STS is based on two basic assumptions. Firstly, organisations are systems where changes in a part lead to changes in another part (Katz & Kahn, 1978, as cited in Gustafsson, 2006). Secondly, organisations are "in an interrelationship with their surroundings, affecting and being affected in a constant state of flux", and thus are open to influences in their environments (p. 231). The STT theory follows similar thinking but expands on inspecting how socio-technical systems significantly transition from one system to another, thereby fulfilling changing societal functions, such as housing (Geels, 2002). The background of the STT is in the sociology of technology, institutional theory, evolutionary economics, niche management, and technological transitions (Geels, 2002; Geels & Kemp, 2007; Geels & Schot, 2007). In the STT, technology itself has no power, but it fulfils its function only with human agency, social structures, and organisations (Geels, 2002, p. 1257). Thus, technological transitions also involve user practices, regulation, industrial networks, infrastructure, and symbolic meaning. To study the systemic transitions, the multi-level perspective (MLP) was developed by, e.g., Geels (2002) and Rip and Kemp (1998). In the MLP, the socio-technical transitions are inspected through three levels: the landscape, regime, and niche innovations, each differing in scale and stability (Geels, 2002; Geels & Kemp, 2007; Geels & Schot, 2007). Hence, the transitions are "outcomes of alignments between developments" with varying tempo and nature of interactions between these levels (Geels & Schot, 2007, p. 399).

According to Geels and Schot (2007, p. 404) "the three levels are structures that differently influence local practices, where actors (inter)act". The levels are in the nested hierarchy to each other (Geels, 2002) (see Figure 5.1). The highest, *landscape level*, is on the macro-scale and creates an exogenous environment that consists of deep structural trends and heterogeneous factors, such as macro-economic or deep cultural patterns (Geels, 2002; Geels & Schot, 2007). Thus, it refers to a wider external structure or context for the interactions of actors. The landscape level

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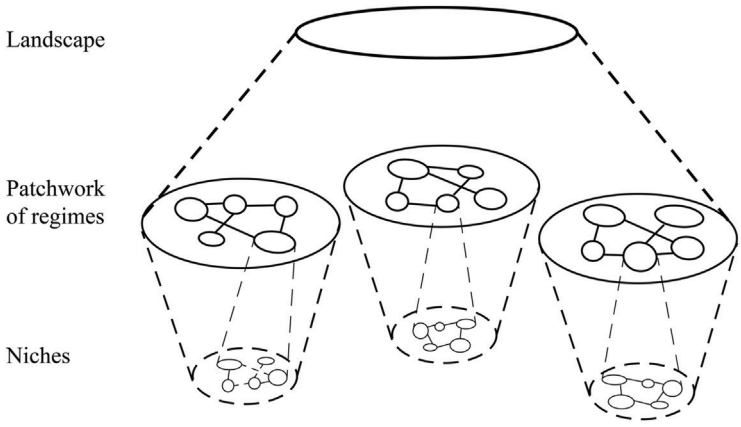

Figure 5.1 "Multiple levels as a nested hierarchy" (Geels, 2002, p. 1261) interpreted

does change, but the tempo is slow, usually in the course of decades. Whereas, Geels (2002) and Geels and Schot (2007) define the *regime level* at meso-scale and accommodating the community of social groups, such as policymakers, users, scientists, and their activities. The socio-technical regimes consist of the rules that enable or constrain activities within communities. The level stabilises developments in various ways through, e.g., regulations and standards, and investments in the built environment, but this internal stability is simultaneously dynamic. Innovations happen within the regime, but the nature of the innovations is incremental. Then again, according to Geels (2002) and Geels and Schot (2007), radical innovations take place in the *niche* in the micro-scale phenomenon (see also Chapter 14 on radical innovation theory). Niches are important as they work as incubators for innovations. They create an environment for learning processes as well as for the building of social networks between dedicated actors. Initially, the novelties created at the niche level are unstable socio-technical systems with low performance, and where the tempo of changes is fast (see also Chapter 4 on the St. Gallen Management Model).

In the transition process, all levels interact because the landscape developments create pressure on the regime, and if regime actors fail to respond to the pressure, it allows niche-level innovations to break through, thus replacing the existing system (see Figure 5.2) (Geels & Kemp, 2007; Nieminen et al., 2011; Rytkönen, 2016). Furthermore, Geels and Schot (2007) have defined different transition pathways according to the timing and nature of multi-level interactions. In the *transformation* pathway, the landscape creates only moderate pressure on the regime at a moment when niche-innovations are not yet developed enough to alter the regime, and regime actors respond with modifications. In the *de-alignment and re-alignment* path, the landscape change is like an avalanche, large and sudden, and the regime comes under much pressure leading to internal problems and collapse. In this path, multiple niche-innovations co-exist but are not yet sufficiently developed by the time of the landscape pressure. Niche-innovations compete for dominance, eventually leading one to win and re-align the regime. On the contrary, the pathway of *technological substitution* differs from the previous so that the niche-innovations are sufficiently developed, but the dominance of the regime has prevented them from breaking through it. Then, in the case of strong landscape pressure, radical innovations are able to replace the regime. Geels and Schot (2007) continue that in the *reconfiguration* pathway, a sequence of multiple innovations takes place and a new regime grows out of the old

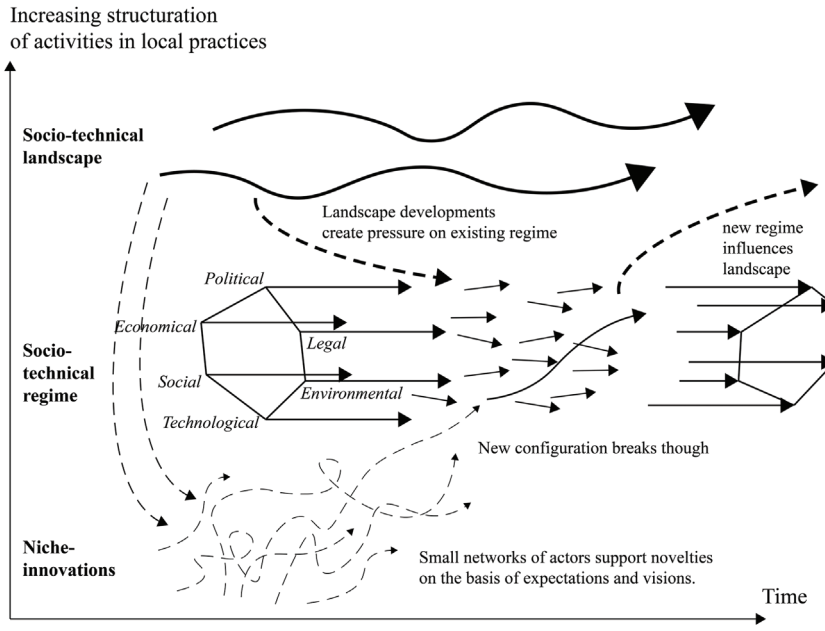

Figure 5.2 "Multi-level perspective on transitions" (Geels & Schot, 2007) adapted with built environment aspects by Schmidt III and Austin (2016)

when symbiotic niche-innovations are "initially adopted in the regime to solve local problems" (p. 411). Moreover, if the landscape creates a disruptive change, *a sequence of transition pathways* can take place. According to Geels and Schot (2007), this leads first in slow speed to transformation with moderate changes, then to the reconfiguration of the regime, followed by substitution or de- and re-alignment of it.

2 Applicability to workplace studies

Firstly, in the context of workplaces, STT provides a framework to structure interlinked knowledge on *nested levels*, thus revealing connections in the multi-level perspective. Secondly, it places focus on the *interactions between*, and the *stability* of each level. In other words, the STT theory places the focus on the *internal and external changes* of the workplace, but especially the changes deriving from the niche level that may transform the status quo of the office. Thirdly, the *tempo* of the changes varies within and between each level. As *time* is conceptually central in the design of the workplace, therefore, the adaptable architecture is brought into the discussion.

The "complex, unit-crossing, change-connected" office design and relocation work would benefit from an integrated perspective (Gustafsson, 2006, p. 222). In the STT/MLP, the different levels are analytical and heuristic concepts, and the interconnected aspects are inspected not only in terms of each scale but also in terms of their interaction, dynamics, and impact (Geels, 2002). Through the analysis of organisation, it is possible to understand the different but interconnected scales (Dale & Burrell, 2008). Organisations are made by humans and are embodied by humans and artefacts, thereby, existing within a physical setting; but the organisations are also

able to span the boundaries of different scales from the personal to global (Gustafsson, 2006). Hence, workplace design is discussed in the light of organisational spaces.

2.1 Workplace as an object of analysis

As stated previously, the theory of socio-technical transitions was developed to study the organisational fields such as the land transport system (Geels & Schot, 2007). On the other hand, the workplace is a system that is much smaller in scale. According to Geels and Schot (2007), and in order to apply the framework, researchers need first to define the empirical level of the object of analysis. The following organisational levels are distinguished in institutional theories: individual, organisational subsystem, organisation, organisational population, organisational field, society, and world system. In workplaces, organisation, space, and architecture are intertwined and affect the daily lives of people, regardless of how aware people are of this (Dale & Burrell, 2008) (Figure 5.3). Many organisational space studies are founded in Lefebvre's (1991) three notions of conceived space, perceived space, and lived space (Kingma et al., 2018; Weinfurtner & Seidl, 2018) that can be interpreted as the formal representations of space, spatial practices, and experiences and interpretations of space (Peltonen, 2011). Hence, organisational space is not only material but also social, experienced as well as digital (e.g. Dale & Burrell, 2008; Nenonen, 2005; Weinfurtner & Seidl, 2018) (Figure 5.4). Thus, space can be seen as a process that is produced not only through planning but also through organisational members inhabiting, occupying, and imagining it (Stephenson et al., 2020). Therefore, the social-spatial environment of the workplace is a complex socio-technical system.

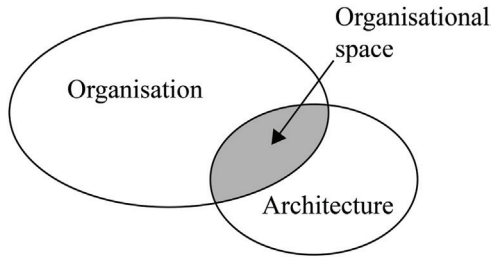

Figure 5.3 Workplace as a system of organisation, space, and architecture

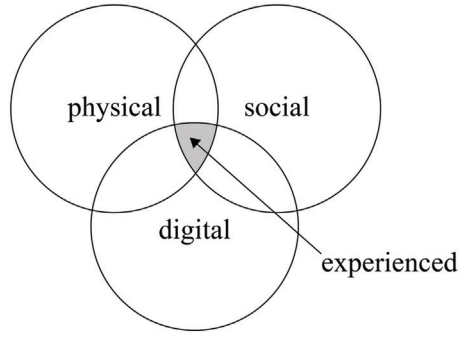

Figure 5.4 Organisational space aspects: the interlinks of physical, social, digital, and experienced environments

According to Lefebvre (1991), there are also different levels of social production and reproduction of space that are interconnected between global and local levels. In other words, between the 'abstract space' of the macro-scale (e.g. globalisation) and 'lived space' of everyday lives in micro-scale, placing the macro-scale of 'space' in contrast with the micro-scale of 'place' (Dale & Burrell, 2008). Hence, as Dale and Burrell (2008) argue, organisation can also be seen as the mediator between scales in the construction of social-spatial practices. Thus, formulating a meso-scale in the regime level that is more stable and permanent (Geels & Schot, 2007) and where organisational space is a factor both contributing to and changing the organisation (Dale & Burrell, 2008), but the embedded practices of organisations also "transform spatial relations beyond the entity of the organisation itself" (Kingma et al., 2018, p. 8).

To apply the STT to the research of the organisational space and especially its design, they are viewed as an *organisational sub-system*, as defined by Geels and Schot (2007). However, it is noteworthy, that in the STT theory, all three levels are similar kinds of *structures* that differ only in scale and permanency (Geels & Schot, 2007). In other words, if a regime is studied in the system of an organisation, then niche-level innovations should be studied in that system as well. Hence, the concept of scale in the STT poses difficulty in relation to the scales of the built environment. The different sizes of the levels are not directly relatable to, e.g., the room, building, and site (e.g. van der Voordt et al., 1997), nor are they directly relatable to individual and organisational levels (Dale & Burrell, 2008; Weinfurtner & Seidl, 2018). Also, the viewpoint of organisational space as a process challenges the notion of scale as a nested and predefined hierarchy and focuses on dynamic qualities of space, for example, activities that scale up and down (Stephenson et al., 2020).

2.2 Levels and impact

Applying the framework to the research of workplaces, one of the well-known *landscape-level* changes is the development of mobile and digital technologies. Their impact on the design and management of workplaces and organisational spaces have been tremendous, but the transition has taken two decades, most likely also due to the longevity of the built environment as naturally prone to stability (Geels & Kemp, 2007, and as later discussed). However, the tempo of the landscape-level transitions differs (Geels & Schot, 2007). For example, the COVID-19 pandemic changed work practices to remote working almost overnight and was enabled by the decade(s)-long continuous change in mobile infrastructure.

In terms of workplaces, the *regime level* consists of policy, laws, and regulations (related to workplace design), as well as dominant conditions and practices (Geels, 2002) that define the workplace's physical, social, and digital environments (Nenonen, 2005). In STT, in a central role are the actors, i.e. both the producers and the users of the workplace, and their dynamic and complex interplay with the structure and active role as creators of new rules and functions (Geels, 2002; Nieminen et al., 2011; see also Chapter 10 on principal-agent theory). Schmidt III and Austin (2016) emphasise that buildings are not just mere systems of components, but "systems of representations outlined in composition and experienced in perception". A building should be defined not only by its performance (what a building does), but by the human experiences (use) and perception (aesthetics) it creates that are always bound in the evolving context. However, due to conventions, "architecture continues to be defined in response to a brief, defining each space for a particular sub-function or activity" (p. 48).

Thus, *regime*, and buildings, can be seen consisting of Lefebvre's *representations of space* and *spatial practices*. The first is characterised as conceived spaces that are designed by scientists, architects, and planners as deliberate constructions of space to address, e.g., functionality and control

in material form (Lefebvre, 1991, as cited in Dale & Burrell, 2008, p. 7; Weinfurtner & Seidl, 2018) and which create the physical boundaries. Whereas spatial practices are empirically perceived spaces that are day-to-day, taken for granted, experienced spaces (Dale & Burrell, 2008, p. 7; Weinfurtner & Seidl, 2018) which are created in the interaction between people and place (Peltonen, 2011). Hence, 'spatial practice' can be interpreted as the boundaries of administrated space, allowing, for example, whether the user can alter the space or not (Peltonen, 2011).

As stated, the *regime level* creates boundaries where niche-level innovations can or may take place. Architecture creates the (social-spatial) boundaries and connections, separations and integrations, and the amount of hierarchy between spaces (Dale & Burrell, 2008; Weinfurtner & Seidl, 2018). In other words, spatial configuration strongly supports the development and maintenance of social relations in organisations, where the factors fundamentally contributing are patterns of circulation, copresence, co-awareness, and encounters (Wineman et al., 2009). For example, university campuses are traditionally "dominated by faculty-specific buildings that incorporate outdated, formal designs and support individual knowledge practices" (Rytkönen, 2016, p. 26). Thereby, the regime in the built environment is challenged by cross-organisational buildings and informal campus spaces that enhance communal sharing of knowledge and thus supporting social networks that are essential for innovations (Rytkönen, 2016; Geels & Kemp, 2007).

The *spatial practices* are present in the lowest level as well. *Niche-level innovations* happen constantly in the interaction between people, spaces, and technology that may, or may not, change the regime level of the workplace. In other words, the scale of an individual (micro-) is not equal to niche level, but an individual is a part of the organisational sub-system and an actor in it as each of the levels consist of interlinked factors. However, the niche level can be interpreted as consisting also of Lefebvre's (1991) representational space that is 'lived space' fusing the material and cultural aspects (Dale & Burrell, 2008; Weinfurtner & Seidl, 2018) and consisting of user experiences and interpretations (Peltonen, 2011) that happen only in the mind of an individual (Figure 5.4).

In terms of workplaces and organisational spaces, e.g., societal changes create novel ways of using spaces, and in turn, spaces create possibilities or hindrances for novel uses. Therefore, niche-level innovations can, for example, be various novel practices to differentiate locally and be able to compete globally (Rytkönen, 2016) as well as novel ways of using spaces or the changes of uses, and appropriations of existing spaces to novel use. They can also be (small-scale) spatial experiments or retrofits (e.g. Peltoniemi et al., 2017). Organisations can create temporary experimental spaces, where novel practices are protected and shared (Bucher & Langley, 2016; Reinecke, 2018, as cited in Stephenson et al., 2020). Moreover, niche-innovations may also raise novel ways of producing spaces in a collaborative manner, and so forth, which all, in turn, alter design guidelines or the workplace culture. For example, in the context of university organisations, the niche-innovations level consists of the approaches and experiments attempting to respond to the needs of contemporary university communities (Rytkönen, 2016).

2.3 Examples of interlinked aspects

As stated, the STT provides a framework to combine the interlinked aspects at different levels together. For example, how behavioural studies from the niche level correspond to design solutions and spatial configurations, and how those in turn correspond with the rules and regulations, and so forth. For example, according to Weinfurtner and Seidl (2018), the organisational space consists of boundaries, distance, and movement. These notions are further defined by distribution in space, isolation of space, differentiation of spaces, and intersections of spaces

(Weinfurtner & Seidl, 2018). From the viewpoint of workplace design, these relate to how the spaces are arranged in relation to each other, i.e. the spatial organisation, and to the quality and the materiality of the boundary and the adjacencies. For example, the material of the boundary of the space, such as the transparency of the wall, allows for visual connection, hence contributing to the closeness-openness of the space and creating different experiences according to the user. The physical boundaries are alone a separate aspect but significant in relation to, for example, the adjacencies. The material of the boundary also contributes to the look and thereby the image the organisational space creates. And, in turn, the material choices are limited with regulations.

2.4 Tempo of the changes in built environment

Applying STT to the *design and research of the workplace*, the *tempo* of the transitions needs to be further addressed, as the built environment is prone to slow changes, and it also contributes to the stability of the regime (Geels & Kemp, 2007, p. 443). Moreover, in the design industry, buildings and architecture are often seen as static end-products intended for first use (Pelsmakers et al., 2020; Schmidt III & Austin, 2016). On the contrary, time should be seen as a fundamental design variable and accept that buildings and architecture change over time to sustain. The interlinked spatio-functional features and socio-cultural goals and values (van der Voordt et al., 1997) have different time spans depending on the permanency of the building layer (Schmidt III & Austin, 2016). Buildings can be seen as vessels that carry "the evolving assemblages of administrative intentions, material artefacts and human groups whose design is crucial for the emerging forms of the collectives shaped in the ongoing flux of organising" (Peltonen, 2011, p. 819).

Thus, the built environment of a workplace is in constant flux, but the tempo of the changes varies depending on cyclical (day/night, weekly, seasonal) and linear (short- and long-term) timeframes (Pelsmakers et al., 2020). According to Schmidt III and Austin (2016, p. 45), the cyclical and linear timeframes will reflect the relations of political, economic, social, technological, environmental, and legal aspects in particular situations (Figure 5.5). Moreover, recognising time as embedded in social, spatial, and embodied experience signifies that time also creates multiple experiences and that architecture expresses ideas of particular time bound to the material environment (Dale & Burrell, 2008), but the legitimacy of these ideas may change over time, and design and redesign of space responds to an individual organisation's needs but also to changes in institutional conditions (de Vaujany & Vaast, 2014). Yet, buildings are always contextual entities, with a myriad of stakeholders, each interested in different aspects, that add to the complexity and uniqueness of the task (Schmidt III & Austin, 2016).

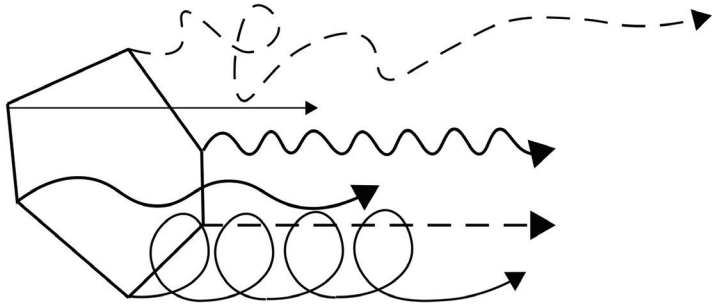

Figure 5.5 Change drivers affect built environment in both cyclical and linear timeframes

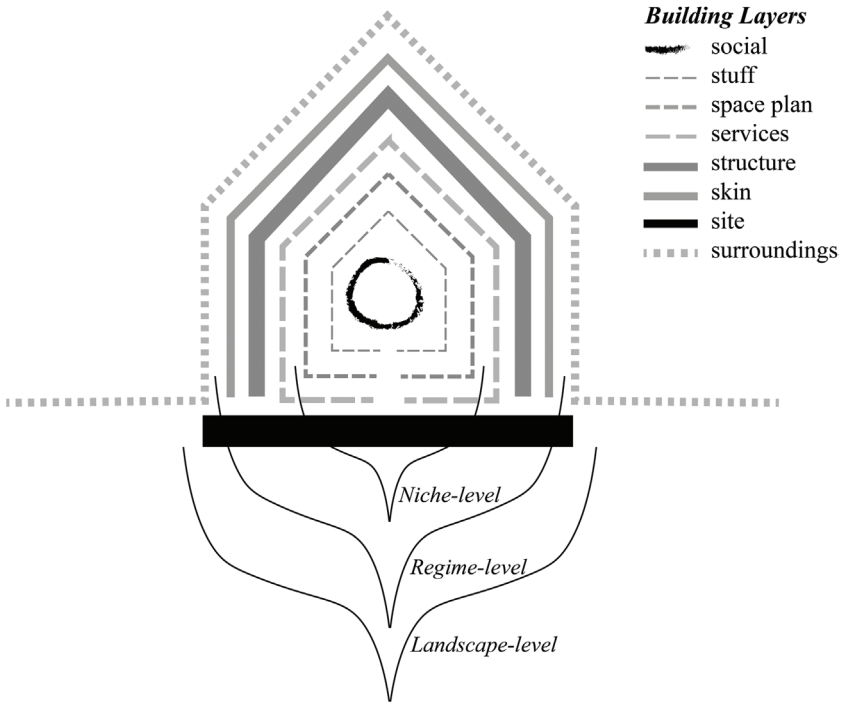

Figure 5.6 "Buildings as layers" with socio-technical transition levels. According to Brand (1994) the layer timespans are, stuff: 1 day to 1 month, space plan: 3–30 years, services: 7–15 years, skin: 20 years, structure: 30–300 years, site: eternal (Schmidt III & Austin, 2016)

Schmidt III and Austin (2016) have accumulated from the literature the following change drivers that affect the buildings and thus the built environment of a workplace: (a) *physical* changes are related to, e.g., weathering; (b) *economic* changes to financial issues, such as market fluctuation in real estate; (c) *functional* changes to, e.g., user needs (see also Chapter 16 on user-centred design thinking) but also issues related to landscape-level changes such as type of work (ways of working); (d) *technological* changes include, e.g., landscape-level information technology change, but also, e.g., product life cycles; whereas (e) *social* entails all from landscape-level lifestyle and demographic changes to the regime and niche-level skills of the user; and (f) *legal* changes incorporate, e.g., regime-level safety regulations and government incentives (p. 48; see Figure 5.2).

These change drivers can be seen on the other hand deriving from but also affecting on different levels, depending on the interpretation of scale and viewpoint. As the change drivers alone are a myriad, the key concepts in responding to changes in the built environment are adaptability and flexibility. In terms of permanency, dynamic building types, such as offices, healthcare, and schools, are more prone to changes than stable building types (museums, government) (Schmidt III & Austin, 2016). For the purpose of this chapter, the concept of 'buildings as layers' allows applying the levels of STT in the built environment of workplaces and inspecting the tempo of changes within and between levels.

The 'buildings as layers' model, originally developed by Brand (1994), separates and categorises a building into a set of interdependent layers that change in different timeframes, and the more the layers are connected, the greater the difficulty and cost of adaptation (Brand, 1994, as cited in Schmidt III & Austin, 2016, p. 55). The extended model by Schmidt III and Austin

(2016) is based on eight layers: *social*, *stuff*, *space plan*, *services*, *structure*, *skin*, *site*, and *surrounding* (Figure 5.6). Social layers entail everything from individual, work group, department, branch, and organisation (p. 55). Thus, the changes to the social layer happen in all three levels, niche, regime, and landscape. The niche level can be interpreted to consist of the layer of 'stuff', in other words of the components and objects that are located inside a space, and also of the layer of the 'space plan', i.e. the components that define the spaces the users inhabit. The components of these layers have the shortest lifespan, and they are also the most independent of the other layers that would allow for user-driven changes in a faster tempo. In a building, the longest lifespan is naturally on the *structure* layer, according to Brand (1994, as cited in Schmidt III & Austin, 2016), 30 to 300 years, and the most dependent layer is the *services* layer, thus hindering changes (Schmidt III & Austin, 2016); both add to the stability of the built environment.

The whole building, with all its layers, can be seen as the regime, where the niche-level innovations emerge in the core layers (Figure 5.6). In the layer of 'stuff', the social causes of change are related to tasks or users, and their effect on the physical environment is in the form of equipment and furniture (Schmidt III & Austin, 2016, p. 155). In both the 'stuff 'and the 'space plan' layers, the social causes are in the activity and operations that affect the spatial arrangement. Whereas ownership changes, affect in the 'space plans' and on the function.

As stated, the novelties in the niche level renew the system from the bottom up, and new compositions are created in fast tempo, but they require time and a suitable environment to stabilise (Geels & Kemp, 2007). This relates to utilising experiments in developing work practices and workplace designs for enhanced individual wellbeing in work and thus adding productivity. The impact of a singular experiment may remain light, but in the course of time, a stronger impact is created through a series of experiments (Peltoniemi et al., 2017, Figure 5.7). Hence, in existing conditions, the 'stuff' and 'space plan' layers would allow experiments in the built environment that would otherwise be estimated as high risk, for example in the 'structure' layer. These are also linked to organisational change, as the continuous management of physical space is typically handled at 'low organisational level', whereas in 'high, strategic level' the larger changes are made in the organisational structure that is often strongly connected with changes in a physical setting (Gustafsson, 2006). In other words, major *transitions* are made top-down, but major transitions naturally have different timespans from minor renewals. Hence, the

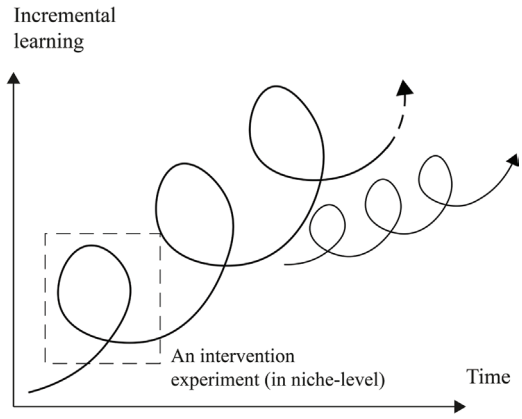

Figure 5.7 Impact on learning in relation with time: "Pop Up Development Model for Productive Knowledge Work" (Peltoniemi et al., 2017)

different timespans of building layers allow for stability of the regime, and at the niche level, there is less permanency but faster changes and innovations.

3 Methodology/research approach

This section will discuss how to operationalise the multi-level perspective on the research of the design of the spaces. The benefit of the STT is seen in the focus on the transitions within and between different levels, especially how the niche-level innovations may transition to the regime. While adaptable architecture examines how changes within a system, i.e. the building, are allowed for, the socio-technical transition theory focuses on how one system transitions into another system. Thereby the STT focuses on the underlying reasons, and especially on the examination of the effects of the internal, small-scale changes, i.e. the niche-innovations, but also on the effects of the external factors deriving from the landscape level that influence the change of the workplace. Therefore, a possible future research application could be to employ the MLP framework as a matrix. Firstly, the matrix would allow us to integrate and restructure the interdisciplinary knowledge on the organisational space and its design as well as adaptable architecture into various scales and interconnected dimensions and would also highlight the different tempos of the changes. Secondly, the matrix could be applied to study the systemic change of the workplace, but it could also be used as a development tool.

At the same time, application to empirical research depends on the object of analysis Geels and Schot (2007), as no ready-made methods or approaches to operationalise exist (Smith et al., 2010, p. 444, as cited in Nieminen et al., 2011, p. 56). For example, by linking the STT studies with organisational change management, Bögel et al. (2019) have created an integrative framework for analysing the organisational change in transition initiatives. In the multi-scale heuristic, they interpret macro-level factors as the institutionalised logics that frame organisational activity. Whereas, meso-level factors focus on the organisational level and include the design and nature of transition initiatives and intra-organisational factors. In their heuristic, the micro-level factors relate to the social psychology of individual participants. STT is widely adopted in many fields, but the scale of the systems is often far greater than that of the workplace (see e.g. Raven et al., 2012).

Workplaces are complex and constantly evolving systems. Whereas, existing phenomena and known systems are often studied through the empirical systematisations of reality and with delimited factors that inevitably narrow understanding about the phenomena (Smith et al., 2010, p. 444, as cited in Nieminen et al., 2011, p. 56; Geels, 2002; Geels & Kemp, 2007; Geels & Schot, 2007; Rytkönen, 2016). Therefore, qualitative narratives may illustrate the change more comprehensively, and indeed, STT research has employed qualitative methods primarily.

The inquiries on different levels might require different methods of material and data collection that in turn might create difficulties in the cross-comparison of the levels. However, in qualitative studies, employing the characteristic triangulation and inspecting transitions first in micro-scale (e.g. social-spatial relation in the scale of an individual) allows accumulating knowledge to the sub-system scale. Pre- and post-occupancy evaluations also capture the emergent patterns of use or the impact of experiments and spatial interventions which, together with longitudinal studies, would illustrate the effects of the series of experiments. Case study interventions and experiments, on the other hand, are also part of the action research approach. Moreover, for example, the strategic workplace changes are planned rather than emergent events. But the impact of the transition from one workplace to another can likewise be collected with pre- and post-occupancy evaluations. For example, the effects of changes in the spatial

arrangement over time can be evaluated with a combination of both quantitative and qualitative methods, such as the Space Syntax family (e.g. Sailer et al., 2012).

4 Limitations

A multi-level perspective was created to study socio-technical transitions in the level of organisational fields (e.g. Geels & Schot, 2007), which questions the applicability to workplace research and organisational space that are much smaller in scale. This raises the question of whether the theory should be employed in the system of organisational field rather than organisational subsystem, i.e. the development of workplaces in general rather than a specific workplace.

Secondly, the STT theory's relation to the scales of the built environment is ambivalent, and the application solely to the design of the workplace is partially contradictory to the idea of the theory. Therefore, to formulate a comprehensive understanding, it is essential to study the interplay between physical, social, digital, and experienced environments (e.g. Nenonen, 2005). However, the STT fails to provide ready-made methods.

Another question arises if the MLP levels bring unnecessary layers into the organisational space discussion because the different scales (from organisational to the individual), as well as interrelated factors of time and change, are all addressed in the organisational space literature (e.g. Dale & Burrell, 2008). On the other hand, the STT focuses especially on the (niche-level) transitions, and the framework could help to structure dispersed information and add a rich layer to thinking about spatial design over time.

5 Theory relevance to practice

The framework of the STT theory may help practitioners to evaluate the impact of the strategic choices on the operational level and implications on spatial design, as MLP provides analytical and heuristic concepts to structure the interlinked factors to different levels (Geels, 2002; Geels & Schot, 2007). In other words, the main issues defined at the strategic level lead to a myriad of aspects at the operational level, and using the framework would also make visible the connections between aspects related within and between each level. In turn, as the framework highlights the niche level, for example, purposefully created changes in practices, designs, and their use (see e.g. Peltoniemi et al., 2017) would shed light on how these niche-level changes can be employed in a larger scale to alter the regime, i.e. the status quo. For example, prior to the strategic workplace development, experimenting with the layout and practices of the current workplace would, on one hand, allow testing with, e.g., an activity-based environment (ABE) and, on the other hand, the niche-level changes could work as an educator with the move to the ABE. Moreover, given the STT's focus on niche-level innovations, it could highlight the user-initiated practices and changes, thus providing a structured tool to support workplace management at the micro- and niche-innovations levels.

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6

DISASTER RESILIENCE OF PLACE (DROP) MODEL

A Resilience Assessment and Improvement Framework (RAIF) for facilities managers

*Keith G. Jones**

1 Background

Disaster events, whether natural (flood, heatwave, earthquakes, pandemics etc.) or human-made (cyber-attack, terrorism etc.), have a significant impact on the performance of business organisations (private, public and not-for-profit) and on the health and well-being of the communities to which they belong. How organisations prepare for, respond to and recover from these impacts depends on their vulnerability and resilience to the disaster event. Those organisations that exhibit a low vulnerability and high resilience tend to recover quickly, using the experiences they gain to inform their preparedness and identify mitigation actions to reduce their vulnerability and/or enhance their resilience to a future event. Those organisations that exhibit a high vulnerability and low resilience tend to recover more slowly, or in many cases do not recover at all.

1.1 Resilience

The concept of resilience was introduced by Holling (1973, 1996, 2001) to describe the fluctuations in ecological systems exposed to external disturbance (disaster event) over time. Holling (1973, 1996) argued that such systems demonstrate two aspects of resilience: engineering resilience and ecological (later socio-ecological) resilience. Engineering resilience describes the system's behaviour close to its pre-existing equilibrium point, using resistance to the disturbance and speed of return to the equilibrium point as measures of the system's resilience. In essence, engineering resilience is concerned with retaining the stability of the system during and after a disaster event. Ecological resilience describes the reorganisation potential of the system to a new state of equilibrium following an external disturbance and is concerned with the magnitude of the disturbance that the system can absorb before reorganisation occurs. In essence, ecological resilience is concerned with flexibility/rigidity of the system to a disaster event. Holling (2001) extended the concept of ecological resilience to social-ecological systems, identifying the role that resilience and vulnerability play in triggering creative (desirable) reorganisation (change) or resisting destabilising (undesirable) change. In essence, social-ecological resilience is concerned

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with the inherent potential (adaptive capacity) of the system to change as a result of a disaster event. Since 2001 the various resilience concepts have been applied to help understand urban resilience at different spatial and temporal scales, population, environment, organisational, physical, lifestyle, economic and socio-cultural; (Cimellaro, 2016) as well as to the systems (infrastructure, lifelines, business, etc.) that modern society relies on for their existence and prosperity (Paton & Johnston, 2017). In this chapter, the focus will be on business resilience.

1.2 Vulnerability

Whilst resilience is primarily concerned with the ability of a system to resist, absorb, accommodate, adapt to, transform and recover from a disaster event; vulnerability is concerned with the susceptibility of a system to a specific disaster threat (Bakkensen et al., 2016). The UNDRR (2020) define vulnerability as "The conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards". However, as vulnerability, hazard and exposure are the fundamental components of disaster risk (Preventionweb, 2020), vulnerability can also be viewed as the potential losses that a system would experience as a consequence of a disaster event (Murnane et al., 2016) which is related to resilience through a focus on disaster risk reduction (Zhou et al., 2016). In essence, the more resilient a system is, the less vulnerable it is to the impacts of a disaster event.

1.3 Disaster Resilience of Place (DROP) model

Cutter et al. (2008) explored the relationship between vulnerability and resilience to disaster events in her Disaster Resilience of Place (DROP) model (Figure 6.1).

The DROP model views vulnerability and resilience as separate but linked concepts, arguing that the vulnerability/resilience of a system to a disaster event is defined by the antecedent relationships (inherent vulnerability and resilience) that exist between the interaction of natural systems, social systems and the built environment (a system of systems model). The antecedent conditions interact with the disaster event characteristics (which will vary depending on the nature of the disaster event, geographical location, etc.) and the immediate effects of the disaster

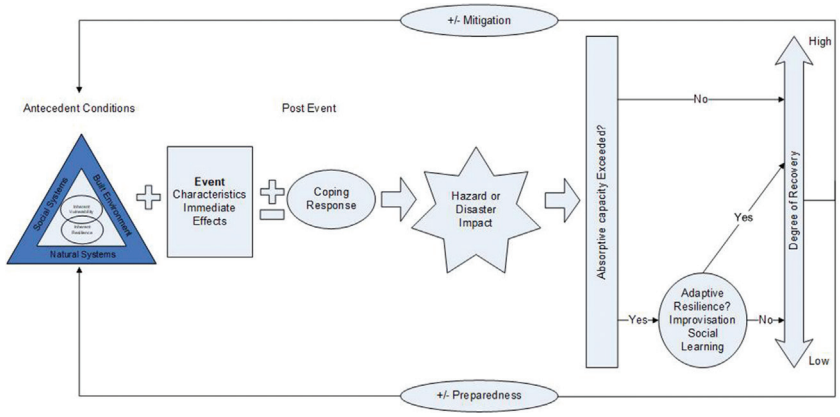

Figure 6.1 The DROP model

Source: Cutter et al. (2008)

event are realised. These effects can be reduced (or amplified) by any post-event coping measures (e.g. disaster management and resilience plans), and the full disaster impact is realised. The impact of the disaster event on a system is moderated by the absorptive capacity of the system. If the absorptive capacity is not exceeded, then recovery is relatively quick. If the absorptive capacity is exceeded, then the system either adapts, and recovery occurs relatively quickly, or doesn't adapt, and recovery is slower or in extreme cases does not occur. Finally, if mitigation and preparedness occur, then the antecedent conditions are improved ahead of the next occurrence of the disaster event.

Cutter et al. (2010) applied the DROP model to assess the resilience of communities in the south-eastern United States, developing a range of metrics to measure social, economic, institutional, infrastructure and community competence resilience factors that allowed her to identify patterns of resilience and identify mitigation strategies to improve disaster resilience. Cutter et al. (2010) confirmed the ability of the DROP model to establish a baseline measurement of the characteristics that underpin community resilience and in turn to monitor changes in resilience over time in a particular place and to compare the disaster resilience of one place to another. Jones et al. (2013) applied the DROP model to examine the impacts of climate change on community resilience to extreme weather events in South-east London (Jones & Ali, 2013). Jones et al. (2013) integrated the concepts underpinning the DROP model within a risk assessment framework to identify the vulnerability and resilience of a public housing organisation to extreme weather events (flooding and overheating). Through this work, Jones et al. (2017) demonstrated that although the DROP model was originally developed for a community scale, it could be applied at an organisational scale to identify the vulnerability and improve the resilience of a public housing organisation through the identification and integration of building adaptations into the built asset management process (Jones et al., 2017). In the LIQUEFACT project, Morga et al. (2020) extended the application of the DROP model to a wider range of organisation types, developing the Resilience Assessment and Improvement Framework (RAIF) as a conceptual model which researchers could use to develop the tools that business organisations need to assess their vulnerability, and improve their resilience, to earthquake-induced liquefaction events.[1]

2 Application to workplaces

Organisational resilience "is the ability of an organisation to anticipate, prepare for, respond and adapt to, incremental change and sudden disruptions in order to survive and prosper" (Denyer, 2017). Resilient organisations demonstrate the ability to defend their organisation through preventative control and mindful action and take advantage of disruptive opportunities through performance optimisation and adaptive innovation (Denyer, 2017). This said, understanding the impact that a disaster event has on organisational resilience is an under-researched area that has a major impact on both organisational survival (Gibson & Tarrant, 2010) and community resilience (UNDRR, 2015). The RAIF was specifically developed to provide a decision framework to help business organisations better understand their vulnerabilities and resilience to disaster events.

2.1 Understanding organisational resilience

The author would argue that business organisations, in both public and private sectors, exhibit many of the characteristics of complex adaptive systems. At the physical level, business organisations rely on physical assets (e.g. buildings, information communication technology [ICT], etc.) for the production and delivery of their primary services (Hard FM systems); whilst at the operational level, they rely on socio-economic assets (e.g. human, financial, etc.) to support

their primary services (Soft FM systems). However, business organisations also form part of the wider community ecosystem, relying for their survival on other organisations within their supply chain and on providing employment, goods and services to the wider community (business and FM strategy). Further, given that business organisations exist as part of a system of systems, to understand their inherent resilience to disaster events, and to identify mitigation actions that they can take to increase their resilience, they need to understand not only the impact that a disaster event could have on the functional performance of their organisation, but also on their organisation's relationship with its customers and the wider community. As such, business organisations (and particularly their facilities manager) need to adopt a hybrid view of resilience, where engineering resilience drives the functional performance of the organisation's physical assets, and social-ecological resilience drives the functional performance of its services and wider business and community relationships.

2.2 *Theory underpinning the RAIF*

The RAIF provides a set of tools to help facilities managers examine what mitigation and preparedness actions should be taken to reduce vulnerability and improve resilience to a disaster event; and guidance on how to integrate these actions into facilities management (FM) strategies and plans. The RAIF integrates the DROP model (Cutter et al., 2008) with the strategic built asset management model (Figure 6.2) developed by Jones and Sharp (2007).

Strategic built asset management is the process by which organisations align their built assets with the strategic needs of their organisation through maintenance and refurbishment. Strategic built asset management uses a range of key performance indicators to routinely assess the ability of the organisation's built assets to support its primary business function expressed through critical success factors. Performance toolkits measure current performance and identify any obsolescence (the difference between current performance and desired performance from a business perspective), and analysis toolkits establish the cause of any obsolescence and identify improvements in performance needed to close the obsolescence gap (Action Statement). Modelling toolkits identify potential solutions (physical, operational, organisational) against the Action Statement brief, and those that are deemed cost effective (through an Options Appraisal process) are integrated into the organisation's strategic built asset management plans (maintenance, refurbishment and estate management plans). The RAIF (Figure 6.3) integrates disaster management and business resilience planning into the strategic built asset management process.

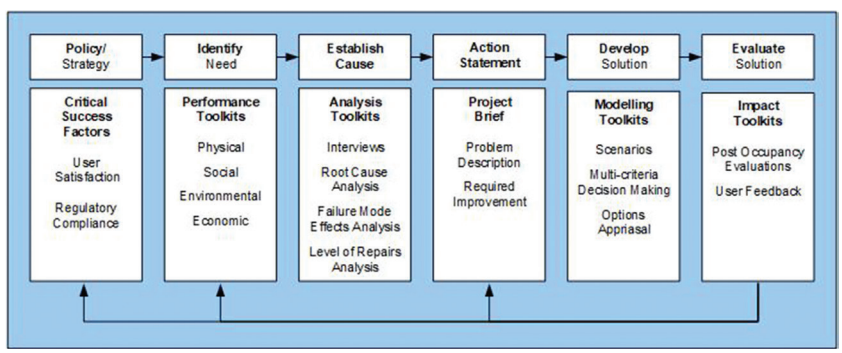

Figure 6.2 Performance-based built asset management

Source: Jones and Sharp (2007)

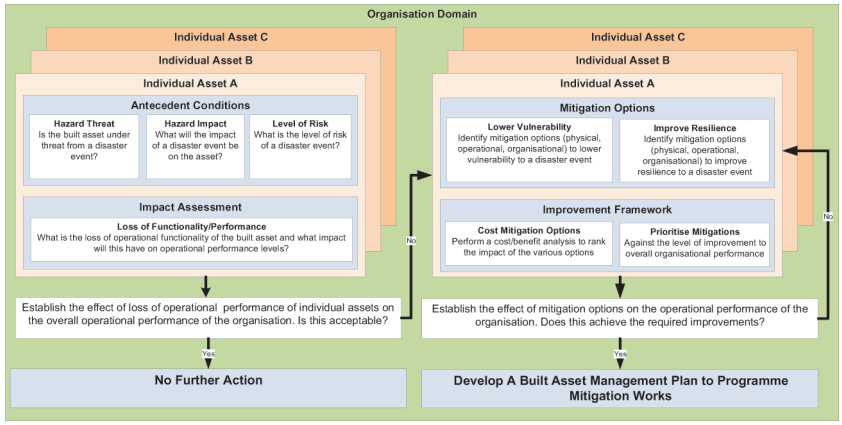

Figure 6.3 The Resilience Assessment and Improvement Framework

Source: Adapted from Morga et al. (2020)

The RAIF uses a range of performance toolkits (e.g. hazard assessments, resilience scorecards, etc.) to provide a series of key performance indicators against which the impact of different disaster scenarios (deterministic analyses) and risk models (probabilistic analyses) can be assessed. This provides the facilities manager with an assessment of the antecedent vulnerability and resilience of their organisation to a given disaster event.

Once the characteristics of the disaster event have been modelled, their effect on the functional performance of the organisation can be assessed by examining the impact that a disaster event characteristics would have on the physical (Hard FM) and operational (Soft FM) performance of the organisation. If the overall impact of the disaster event is acceptable to the organisation, then no further action is needed. If the overall impact is unacceptable (as measured against the organisation's critical success factors) then mitigation interventions (physical, operational, organisational) are needed to reduce vulnerability and/or improve resilience of the organisation to the disaster event. This step provides the facilities manager with a problem statement against which potential mitigation solutions can be evaluated.

The potential improvement in performance of different mitigation solutions can be assessed against different scenarios using multi-criteria analysis tools to assess their overall functional impact against the organisational critical success factors (individual mitigation interventions will impact a range of performance metrics). This step provides the facilities manager with a short list of potential mitigation interventions that can be explored in detail through an options appraisal process where cost-benefit analyses can identify those mitigation interventions that should be implemented as part of a disaster risk reduction improvement framework. This step provides the facilities manager with the business cases to evaluate the potential improvement in functional performance of the disaster mitigation interventions and supports the integration of the most effective (based on a cost/risk reduction basis) mitigations into the organisation's strategic built asset management plans.

2.3 Impact on community resilience

Business organisations do not exist in isolation but form part of a complex network of stakeholders (e.g. citizens, businesses, policymakers, legislators, etc.) whose collective response to a disaster event contributes significantly to a community's overall response to the disaster event. Immediately

following a disaster event, communities rely very heavily on their built assets and infrastructure systems (e.g. healthcare, power supply, transport, water supply, education, commercial, retail, etc.) to support their recovery. The UN (United Nations) Sendai Framework for Disaster Risk Reduction (UNDRR, 2015) recognises the role that these multiple stakeholders, including business organisations, play in improving community resilience to a disaster event; identifying the need for all stakeholders to better understand the risks they face and developing a range of physical and operational mitigation interventions to reduce/manage these risks through a planned and coordinated response. In particular, the Sendai Framework identifies the need for organisations to:

- understand their disaster risk in all its dimensions and integrate this knowledge into risk assessment and disaster management/resilience plans,
- strengthen disaster risk governance to manage disaster risk including collaboration and partnerships,
- invest in disaster risk reduction for resilience through structural and non-structural measures, and
- enhance disaster preparedness and response to disaster events, including to "build back better" in recovery, rehabilitation and reconstruction.

The integration of the RAIF into risk management (see the vignette in Section 5) provides a step-by-step decision support framework for facilities managers to better understand their organisation's vulnerability and resilience to disaster risk and provides the business tools to identify business mitigation actions (both Hard and Soft FM interventions) to better manage the disaster risk and support both pre-disaster preparations and post disaster response. In this way, business organisations can make a positive contribution to overall community resilience at both the operational and strategic levels.

3 Methodology/research approach

The RAIF was developed by combining the DROP model (Cutter et al., 2008) with the performance-based built asset management model (Jones & Sharp, 2007) using a mixed-method research methodology to develop a conceptual model of organisational resilience to earthquake-induced liquefaction and identify mitigation interventions that could be programmed into long-term built asset management plans. The conceptual model was developed through a series of interactive workshops with expert stakeholder groups representing both end users and researchers. The conceptual model was operationalised by six research teams who developed specific tools for each stage of the RAIF. The RAIF and its associated tools were validated against a series of hypothetical organisational scenarios, with both the conceptual model and tools being modified to reflect stakeholder feedback. Full details of the development process and associated tools can be found on the LIQUEFACT website (www.liquefact.eu).

Although the RAIF was developed against a specific hazard, it is generic in nature and could be applied by any organisation (or research project) to assess the impact that a natural hazard could have on organisational resilience. Indeed, the RAIF as described in this chapter is an extension of an earlier risk assessment framework developed to understand the impact that extreme weather events could have on the resilience of built assets (Jones et al., 2017). Further details of how to apply the RAIF to different hazard scenarios are given later in this chapter.

The RAIF does not address the socio-economic aspects of organisational resilience (e.g. size, financial health, market disruption, economic conditions) or wider community resilience implications. This latter point in particular is a clear gap in existing knowledge that needs to be

addressed by considering organisational resilience as part of a wider corporate social responsibility agenda. The integration of the RAIF into a holistic community resilience framework is an area of ongoing research that the author has started to address by considering its potential integration into the UNDRR disaster resilience scorecard for cities (UNDRR, 2017) in the LIQUEFACT and TURNkey[2] projects.

4 Limitations

Whilst the RAIF provides a conceptual model of organisational resilience to disaster events, the tools required to operationalise the model need to be developed to reflect the specific circumstances (hazard events, impact on functionality, mitigation options and attitudes to risk) that different organisations face. The time taken to translate the conceptual model into an operational model should not be underestimated. The development of the RAIF, in particular its operational tools, took many person-months, and whilst for some hazards the operational tools may already exist, for many others they do not. As such, it is probably beyond the scope of all but the largest organisations to undertake the full application of the RAIF; and it is more likely that small organisations would use the RAIF as a decision support framework to help them better understand the disaster risks that they face.

From a research perspective, it is also important to understand the complex interactions between the factors that affect an organisation's vulnerability, resilience and adaptive capacity. The RAIF adopts a built asset-centric perspective on disaster resilience to provide a framework through which facilities managers can better understand the impact that a natural disaster event has on service delivery.

Finally, whilst the RAIF provides a generic decision support framework that facilities managers can customise and apply to any disaster event, scenario facilities managers should not underestimate the time and cost resources required by an organisation to customise the RAIF for their particular context and disaster event scenario.

5 Theory relevance for practice

The RAIF was developed over two research projects to provide a practical decision support framework that facilities managers can customise against different disaster scenarios to support the development of effective built asset management, disaster management and business continuity and resilience plans. The RAIF was operationalised and validated against two disaster scenarios; earthquake induced liquefaction and extreme weather events. Through both of these scenarios, the RAIF was presented as a 10-step Facilities Management Disaster Risk Reduction framework (Figure 6.4)

The RAIF was applied to assess the resilience of a hypothetical hospital to an earthquake-induced liquefaction disaster event (EILD) as part of the EU H2020 LIQUEFACT project. Earthquake-induced liquefaction occurs when saturated granular soils lose the majority of their strength as a consequence of ground shaking, causing buildings to sink and/or overturn. The following vignette presents a simplified version of the scenario developed in the LIQUEFACT project.

Organisations are complex adaptive systems, and as such, assessing their resilience to a disaster event and for facilities managers to evaluate their organisations exposure to disaster events requires them to understand the vulnerability, resilience, and adaptive capacity of their organisation to a disaster event. In developing this understanding, facilities managers need to consider not only the impact of a disaster event on their organisation's Hard and Soft FM systems but also on their overall business continuity during and after a disaster event. To support this understanding, facilities managers need to adopt a social-ecological view of resilience where engineering resilience (stability) is combined with ecological resilience (flexibility/rigidity) to reflect the ability of

Step	*Activity*
1	Set the strategic goals and operational objectives for the plan
2	Identify the built assets that are susceptibility to a specific disaster event
3	Assess level of risk for each susceptible built asset
4	Estimate the damage profile of each susceptible built asset
5	Estimate loss of functionality / performance of each built asset
6	Estimate the effect of loss of performance on organisation and community resilience
7	Identify technical (Hard FM) and operational (Soft FM) mitigation options
8	Perform a Cost Benefit Analysis to shortlist a range of possible interventions
9	Perform an Options Appraisal to prioritise the shortlisted mitigations
10	Develop an implementation plan to programme mitigation work over the built asset life cycle

Figure 6.4 Generic 10 Facilities Management Step Disaster Risk Reduction framework

Hypothetical Primary Health Care Scenario
The facilities manager for a regional hospital was asked to assess the potential impact of an EILD event on the functioning of the hospital. The hospital is located on 2 sites across a small city. Each site contains a number of buildings that provide primary care, administrative and support services to the city community.

Antecedent Conditions
The facilities manager geolocates the hospital's built assets onto a European Liquefaction Hazard Map to identify those assets that are potentially exposed to EILD event. For each asset that is potentially exposed the facilities manager assesses the level of exposure against a medium (most probable) and high (most severe) earthquake scenario (characteristics). One of the hospital's sites is located in an earthquake zone where the generic ground conditions are prone to liquefaction. For the most probable scenario the hazard impact is low, and the level of risk is low. For the most severe scenario the hazard impact is high, and the level of risk is medium. This site was investigated further.

Impact Assessment
For the most probable scenario discussions between the facilities manager, building users and the health authorities technical consultants identify the likelihood of "minor cosmetic damage" to the buildings. For the most severe scenario discussions identify the likelihood of "moderate to severe structural damage" to the different buildings.

Functionality
For the most probable scenario the loss of functionality will be minor resulting in minimal impact on the performance of the hospital immediately following an EILD event. The hospital could be back to full performance levels once emergency clean-up operations were complete. As such the overall impact on the community will also be minor and no further investigation of this scenario is required. For the most severe scenario the loss of functionality will be major, requiring major repairs over a prolonged time resulting in the hospital services having to be diverted to other health care sector providers. Depending upon the overall impact of the earthquake on the healthcare sector (it is likely that the regional sector will have a healthcare resilience plan) the loss of functionality could have a major impact on community resilience. As such the facilities manager was been asked to identify mitigation options to reduce the risks associated with this scenario.

Figure 6.5 Healthcare sector vignette

Source: Adapted from Morga et al. (2020)

Mitigation Options
Technical mitigation to the soil were identified to reduce the risk from medium to very low for all but one of the buildings, where the risk remained medium. Operational mitigation options were identified to relocate critical healthcare services from the medium risk building to one of the very-low risk buildings, using the medium risk building for storage. Organisational mitigation options were identified as part of medium term built asset management plan to demolish the medium risk building over the next 5-10 years and replace it with a very-low risk building. Organisational mitigation options were also identified to update the hospital's risk assessments, disaster management plan (DMP), and business continuity plans (BCP) to explicitly reflect an EILD event and ensure that the hospital identified the adaptive capacity (human, economic, management) to manage any disruption to service delivery and ensure that the hospital could absorb the impacts of an EILD event and recover quickly.

Improvement Framework
Following detailed cost/benefit analyses the most cost-effective technical mitigations were programmed into a 5-year built asset management plan and detailed design solutions were commissioned. Operational mitigations to relocate services and update the risk assessment, DMP and BRPs were instigated. All the mitigations were evaluated against the required functional improvements.

Figure 6.5 Continued

the organisation to re-organise (adaptive capacity) following a disaster event. The RAIF provides the conceptual basis to help facility management researchers (and practitioners) in this task.

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Notes

1 Earthquake-induced liquefaction occurs when soil strength and stiffness decrease as a result of increased pore water pressure in saturated granular materials during seismic ground motion, causing the soil to behave like a liquid and resulting in buildings and lifelines sinking, settling or overturning.
2 https://earthquake-turnkey.eu/

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7

STRATEGY-AS-PRACTICE

The social effects of workplace design and their impact on unplanned strategic activity

*Matthew Thomas**

1 Background

Strategy-as-Practice (SaP) is a distinctive approach for studying organisation strategy with a focus on micro-level social practices (Jarzabkowski et al., 2007). Proposed by Richard Whittington (1996), SaP was developed into a full research agenda by Johnson et al. (2003) in the early 2000s. SaP scholars shifted the focus of strategy research from strategies, something organisations have, on to strategising, something organisations do. This in turn shifted the focus from organisations to strategy makers (Whittington, 1996). Linked to the broader 'practice turn' in social sciences (Knorr-Cetina et al., 2001; Whittington, 2011), SaP has its roots in practice theory (Bourdieu, 1990), an approach that before its application to strategy had been used by social scientists in other disciplines to research the practices of scientists (Pickering, 1992), accountants (Hopwood & Miller, 1994) and architects (Schön, 1991).

Before SaP, mainstream strategy research had a focus on the causal effects of deliberately formulated strategic plans on the performance outcomes of organisations (Golsorkhi et al., 2015), and statistical methods of analysis predominated strategy research at this time (Laamanen et al., 2015). The advent of SaP encouraged strategy researchers to shift their focus onto what actually takes place in strategy formulation and onto the strategy makers themselves. The shift in focus was accompanied by a change in the methodologies employed to qualitative approaches that enabled observations of the everyday actions and interactions of strategy practitioners (Whittington, 1996). This approach to strategy research has advanced our theoretical understanding of strategy making in a way that has also produced real insights for strategy practitioners (Golsorkhi et al., 2015).

An accepted definition for what constitutes the strategy of an organisation is the long-term direction realised by an organisation (Johnson et al., 2017). This definition opens the possibility that not all strategy is deliberately planned. It is tempting to think of strategy making as big decisions made by senior executives in boardrooms that intentionally alter the long-term direction of an organisation; indeed, much of the early research in the field of strategy had this focus (Whittington, 1996). However, this view of strategy was challenged in the 1980s (Mintzberg & Waters, 1985) with evidence that not all strategies realised by organisations were deliberately planned. The long-term direction actually realised by an organisation might result from

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planning but could also result from actions that were not part of the formal planning process. This is possible because the decisions and actions that affect the direction of an organisation are not just made in the boardroom but can also be influenced by actions of agents found on the periphery of an organisation (Regnér, 2003).

Not only can strategic agents be found at any level of the organisation structure but, despite their influence on organisation strategy, they are not necessarily acting strategically in a conscious way. Unintentional strategy-making occurs because many decisions and actions are made intuitively in response to everyday problems, and SaP research has also shown that these intuitive decisions can accumulate into patterns that we ultimately recognise as strategic (Chia & Holt, 2006; Garud et al., 2015).

Strategy scholars have labelled the unplanned element of realised strategy as emergent strategy (Mintzberg & Waters, 1985). Emergent strategy is evident, at least to some extent, in all organisations. It is very rare that the long-term direction an organisation actually realises in practice is entirely the result of strategic planning. Indeed, the evidence suggests that emergent strategy is more evident when the environment in which the organisation competes becomes more volatile, uncertain and complex (Mintzberg & Waters, 1985). The faster the environment changes, the more quickly that strategic plans become out of date, increasing the likelihood that the direction an organisation actually realises in practice has elements that have emerged.

The consequence of this is that we now appreciate far better the breadth of people involved in strategy-making processes, both intentionally and unintentionally, and this understanding has placed an emphasis on the social nature of strategy. Strategy is seen by SaP scholars as a social phenomenon and strategy making as a social accomplishment (Whittington, 1996).

> The world of strategy constitutes a genuinely social reality created and recreated in the interaction between various actors inside and outside the organization.
>
> *(Golsorkhi et al., 2015, p. 7)*

The understanding of strategy-making as a social accomplishment has generated an interest in social interaction as an important unit of analysis for SaP scholars (Jarzabkowski, 2005). Strategy is created through embodied social interaction (Gylfe et al., 2016; Heracleous & Jacobs, 2008; Knight et al., 2018; Paroutis et al., 2015), such that the profiles of interaction (who interacts, how often and for how long) found in organisations matter a great deal in terms of the characteristics of strategy that are realised in practice.

The majority of SaP research to date has focused on the social interactions of deliberately strategic actors, with new insights being produced in the role of strategy meetings (Jarzabkowski & Seidl, 2008) and away days (Gerry Johnson, 2008), the influence of middle managers in strategy making (Rouleau, 2005), the use of strategy tools in facilitating certain types of interaction (Jarzabkowski & Kaplan, 2014; Spee & Jarzabkowski, 2009), the role of strategy professionals in developing strategy (Angwin et al., 2009) and the role of language used in strategic interactions (Fenton & Langley, 2011).

There has been less focus on the role of interaction in emergent strategy, where there have been calls for more SaP research (Vaara & Whittington, 2012), and it is in this regard that applicability to workplace studies is considered particularly relevant.

2 Applicability to workplace studies

Bringing together the disciplines of Strategy-as-Practice and workplace design offers opportunities for both communities and the potential to produce real insights for practitioners. To

workplace researchers, SaP offers the opportunity to explore the strategic consequences of decisions made about office design. This potentially broadens the audience for the research beyond facilities managers and architects to include senior corporate executives and other strategy practitioners. To SaP researchers, workplace studies offer the potential to develop a new understanding of the effects of space and spatial configurations on strategy. There have been repeated calls in recent years to do this, and there have been some outstanding but isolated responses to these calls. However, this research is still in its infancy, and this is perhaps best illustrated by the absence of a chapter on space in any of the leading strategy textbooks used in business schools today.

The logic for working together can be described as follows. The spatial configurations that result from the design of the workplace have an impact on the patterns of social interaction that occur in organisations. Patterns of social interaction that occur in organisations have an impact on the strategies that are realised by organisations in the long run because it matters in strategic decision-making, who interacts with whom. At the intersection of these two disciplines lies a mutual interest in the antecedents of social interaction in the workplace.

Evidence that the spatial configuration of the workplace has an impact on patterns of social interaction comes primarily from research in architecture and workplace design.

> The modern office is a network of places for interaction, where people are linked by physical infrastructures. These places for interaction construct the frame in which the social infrastructure of work unfolds.
>
> *(Blakstad, 2015, p. 59)*

Research on workplace design has shown that the profiles of social interaction are influenced by the spatial configuration of the offices in which the interactions take place. Spatial configuration is defined as the position of every space in relation to all other spaces into an overall system of some kind (Hillier, 1996; Hillier & Hanson, 1984). Research has shown that offices can be configured spatially in very different ways that can be objectively measured and compared using quantitative methods (Bafna, 2003). These methods generate objective measures of a workplace's spatial configuration such as integration and segregation. Workplaces might be well integrated, where all spaces are well connected to each other, as might be the case in open-plan offices. Whereas, segregated workplaces occur where spaces are not well connected, as might be the case in offices with cellular offices. These measures of integration have been shown to have an impact on social interaction. More integrated offices tend to have more unplanned interaction and more interaction across teams (Penn et al., 1999; Sailer et al., 2012).

The profile of interaction that results depends on a number of other factors. For example, the location of people in the office is important because proximity encourages interaction (Allen & Henn, 2006). If employees are located close to their colleagues, as defined by the organisation structure, interaction within teams is encouraged and interaction across teams tends to be discouraged, leading to organisational silos (Sailer & Thomas, 2019).

However, movement within the workplace can be encouraged by attractors, defined as facilities such as kitchens that are known to amplify the naturally integrated character of space by attracting further movement. Attractors might include watercoolers, photocopiers, meeting rooms, breakout spaces or coffee machines (Sailer, 2007). The combination of proximity and movement creates 'functional zones' of social interaction within the workplace (Kabo et al., 2015).

Sailer and Thomas (2020) use quantitative methods for understanding space to investigate the relationship between the spatial configuration of the workplace and the stated objectives

of the organisation. Wineman et al. (2014) explore the interconnectedness of spatial layout and social structure in organisations and its impact on innovation. The complex relationship between an organisation's spatial layout and its social structure is further developed into a measure that can be used to objectively assess the degree to which spatial and social structures correspond (Sailer & Thomas, 2019). The authors demonstrate how socio-spatial correspondence (or non-correspondence) can have a dramatic impact on the interaction profiles that result in the organisation, concluding that spatial layout cannot be considered in isolation from social structures.

It can be seen that the spatial configurations that result from workplace design have an impact on the patterns of social interaction that occur in organisations. However, it is rare for this research to make the next step in the logic just described to make a connection between the patterns of social interaction that occur in the organisation to the strategies that are realised by those organisations. This evidence comes primarily from SaP research that consistently demonstrates the importance of space and spatial configurations in the workplace through qualitative accounts that describe how social interaction in the workplace, both planned and unplanned, have an impact on strategic outcomes.

Jarzabkowski et al. (2015) show how three types of strategic work achieved within a re-insurance broker are socially accomplished within three distinct types of space. The spaces are shown to both enable and constrain the social activities performed within them, with consequences for the strategic work done. Bouty and Gomez (2016) demonstrate how the 'spatial entanglements' of the workplace in three haute cuisine restaurants has an influence on social interactions that result in the creativity evident in those organisations. The authors "specifically show that each thread of creativity is related to specific spaces" (Bouty & Gomez, 2016, p. 237). It is partly as a result of the configuration of these spaces that the 'working on ideas' becomes socially embedded into the organisation.

This work builds on the findings of research that shows the importance of unplanned interactions to creativity and innovation. Interacting with people you did not know you needed to interact with has the potential to generate new and innovative ideas (Burt, 2004; see also Chapter 14 on radical innovation theory), and interactions that span organisations can generate real novelty (Garud et al., 2015).

Pinch also shows how the spatial configuration of the workplace can impact creativity. However, Pinch highlights the complex nature of creativity and its relationship with space by suggesting the creative act is related neither to one place nor to one person, but to the complex and often unplanned social interaction made possible by configurations of space in a spatial system of some sort. The configuration of space in ways that make unplanned interaction possible means that "new sorts of social actions arise" (Pinch, 2016, p. 153).

Bucher and Langley (2016) use the methods of routine dynamics (described in Section 3) to show how spaces with different characteristics, that the authors name 'reflective and experimental', create the conditions for social interaction that enables strategic change. The configuration and interplay between these spaces encourages social interaction that spans groups that facilitates change. By contrast, Siebert et al. (2017) show that spatial configurations that restrict interaction to pre-determined groups can have the effect of resisting strategic change.

In summary, SaP research has demonstrated the impact of social interaction on strategy. Indeed, the evidence is that in times of great uncertainty it is every day, unintentionally strategic, social interaction that has the greatest impact on the strategies that are ultimately realised by organisations. As workplace research has demonstrated how the spatial design of the workplace influences social interaction, it follows that as corporate environments become ever more uncertain, workplace design should become more central to an organisation's strategic

thinking. As a result, the methods of SaP theory have the potential to place corporate real estate management (CREM), facilities management (FM) and workplace design on the desks of organisational leaders.

3 Methodology/research approach

Despite the clear contributions of research in both workplace design and SaP, there remain gaps in the predominant methodologies of both disciplines that constrain further progress in developing a better understanding of the influence of workplace design on strategy. This section describes methodological contributions and gaps in both disciplines in order to understand how the influence of workplace design on strategy might be better understood.

Strategy-as-Practice primarily uses qualitative methods (Laamanen et al., 2015) to identify and study strategic work. A particular challenge to the SaP community has been how to identify strategic work that is not deliberately strategic in nature that leads to the emergence of long-term directions realised by the organisation. Three methods have been utilised and developed by the SaP research community that enhance the ability of researchers to identify and examine both deliberate and emergent strategic work.

The first employs ethnographic methodologies that involve the immersion of the researcher into the everyday environment 'lived' by strategists over a sustained period of time (Rasche & Chia, 2009). SaP researchers have focused on the micro-foundations of strategy and the everyday, seemingly mundane, work of strategy makers by using ethnographic methods. This has made it possible to incorporate analysis of the embodied character of strategy practices (Heracleous & Jacobs, 2008; Paroutis et al., 2015).

The second method employs the study of routines, and this has enhanced our ability to identify patterns of action and interaction that contribute to an organisation's strategy. Routines are defined as "repetitive, recognizable patterns of interdependent actions carried out by multiple actors" (Feldman & Pentland, 2003). These routines might be "effortful" (Pentland & Rueter, 1994) but can equally be emergent in nature (Feldman, 2000). Studying organisational routines has helped SaP scholars identify actions and interactions that consciously and unconsciously contribute to the long-term direction realised by the organisation.

The third method employs critical discourse analysis. This stream of research identifies strategy work through the analysis of narratives and other discourse forms in organisations (Vaara, 2015). It has been suggested that this methodological approach is considered particularly useful in identifying the fleeting moments of strategy making that contribute to emergent strategy (Cooren et al., 2015).

Each of these methodologies has enhanced the ability of the SaP researcher to identify both deliberate and emergent strategy in practice which in the context of this chapter provides the opportunity for the researcher to observe and analyse both the nature of social interaction and the physical environment in which these strategic practices take place.

These methodologies potentially fill gaps in the methods typically used by workplace researchers in understanding the impact of workplace design on strategy. However, the benefits do not flow in just one direction, because the qualitative methods that predominate in SaP research (Laamanen et al., 2015) tend to be context specific, which leads to an analysis of space and spatial configuration that has remained largely descriptive. This makes objective comparisons of space across businesses more difficult.

In addition, the focus on the micro activities of strategy makers makes it more difficult to recognise macro trends or patterns that potentially emerge, which makes it harder to draw broader, more generalisable conclusions (Edmondson & McManus, 2007). These critiques mean that

SaP would benefit from an accepted method for analysing spatial systems in more systematic and repeatable ways. Qualitative methods potentially overcome the problems of comparison and generalisability, and for these reasons there have been calls to include more quantitative analysis in SaP research (Laamanen et al., 2015). Workplace researchers have developed quantitative methods to analyse space and spatial systems, most notably in the methods developed within the Space Syntax community.

Space Syntax is a social theory of space developed at University College London in the late 1970s and now used as a method for quantifying the characteristics of spatial systems in universities and architectural practices around the world. Importantly, Space Syntax is a socio-spatial theory, making it compatible with the understanding of strategy as a social accomplishment proposed by SaP scholars. Space syntax is a theoretical model of human space that describes how space is structured, how it works, how it is understood and how it is a part of the thing we call society. The method of Space Syntax establishes a mathematical relationship between every space with every other space in a spatial system and uses graph theory to characterise the spatial system with measures such as the degree of integration or segregation, as described earlier.

In summary, an understanding of the influence that workplace design has on the strategies realised by organisations might be realised through the integration of the theories and methods used by Strategy-as-Practice scholars into workplace studies. This is a prize worth working for, as it would place workplace design and management firmly on boardroom agendas.

4 Limitations

One of the fundamental limitations of SaP research is the problem of identifying strategic activity in real time. As strategy is defined as patterns of action realised by an organisation in the long term, it is only with hindsight that specific agential activity (see also Chapter 10 on principal-agent theory) or specific social interactions can be recognised as being strategic in nature. As Tsoukas (2015) highlights, just because a board of directors attend long strategy workshops is no guarantee that their decisions will translate into realised patterns of action for the organisation in the long run. Equally, unintentionally strategic actors can have an impact on realised long-term patterns of action through their responses to everyday problems (Chia & Holt, 2006; Chia & MacKay, 2007; Tsoukas, 2015). This means that the attribution of the word 'strategic' to any decision or social interaction can only be retrospective.

The problem of retrospective attribution is a significant one for the SaP community that has the explicit aim of understanding how practitioners 'do strategy' in their everyday actions and interactions (Whittington, 1996). The implication of this limitation is that social interaction profiles of potentially strategic actors can be studied in real time, but researchers will understand whether the interactions studied were actually strategic only retrospectively. This problem is not restricted to strategy research but is recognised as the "constant and unfinished task for social theory" (Lynch, 2001, p. 146).

The sort of cross-disciplinary approach proposed in this chapter will not solve this problem. However, it does have the potential to lead to fresh new perspectives that move us closer to understanding the everyday nature of unplanned strategic activity. For example, SaP research has shown us that organisations with different profiles of social interaction have distinct strategic characteristics. Investigating a relationship between the workplace and the profiles of interaction found might mean that the spatial configuration of the workplace is a real-time proxy for the complex web of interactions that ultimately influence the long-term strategy of the organisation.

5 Theory relevance to practice

From the outset, one of the key objectives of the SaP research agenda was to produce insights strategy practitioners could benefit from (Whittington, 1996). SaP is considered an alternative to mainstream strategy research (Golsorkhi et al., 2015) precisely because it has an emphasis on the everyday practices of strategy makers. As has already been described, this has resulted in research of considerable practical relevance on the role in strategy making of middle managers, the use of strategy tools, the role of meetings, the role of strategy professionals and strategy consultants and the role played by language in the strategy making process.

This chapter has argued for an addition to this list of research insights with practical relevance to include the role of space in strategy making, particularly with regard to emergent strategy. It has been argued that SaP is particularly well placed to rise to this challenge because its methods are well suited and sensitive to emergent strategy as a phenomenon (Vaara & Whittington, 2012). However, this chapter has also argued that SaP needs the support of the workplace studies community of researchers for their abilities to understand and analyse the effects of space and spatial configuration.

The practical relevance of such a research agenda could be significant as it could produce insights into how decisions on workplace design might impact the long-term direction realised by the organisation. This is something that managers already understand intuitively because it is understood that the layout of offices affects who interacts with whom, and how often, and that this affects outcomes that are fundamentally strategic in nature. For example, it is common practice for high-tech companies to build vast open-plan offices that claim to be 'cathedrals to innovation' (Waber et al., 2014). The architects of these are explicit that the impact of the office layout on social interaction is making the difference.

Gehry said of the offices he designed for Facebook: "He (Zuckerberg) did not want it overly designed. It also had to be flexible to respond to the ever-changing nature of his business – one that facilitated collaboration and one that did not impose itself on their open and transparent culture" (Frearson, 2015). Similarly, Norman Foster said of the design for the Apple Inc. HQ in Cuppertino, California: "This open plan layout used in much of the building – with most employees situated around [a] large table instead of separated into individual offices – is intended to promote collaboration" (Moore, 2018).

Of course, the impact of these large open-plan workplaces is disputed. Sailer and Thomas (2020) have argued that there is a paradox of perception and reality with regard to open-plan offices. Contrary to the claims of some of the world's leading architects and the CEO's they work for, those that actually work in those offices appear to actively dislike working in them.

Research to date is far from clear-cut, with one-third of studies on organisations moving to open-plan offices reporting positive results, one-third a decrease in levels of communication and the other third inconclusive (Sailer & Penn, 2009).

These results suggest that new theoretical underpinnings are required to the relationship between the workplace and organisation strategy, and that these would be of great practical relevance.

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8

DECISION-MAKING THEORY

How a multiple perspective approach can generate workplace strategies

Chiara Tagliaro and Ying Hua*

1 Background

The term 'decision-making' comes from the public administration domain and was transferred into the business world in the mid-20th century (Buchanan & O'Connell, 2006). Decision-making has been studied in multiple disciplines, including mathematics, sociology, psychology, biology, economics and political science. The disciplines that are particularly relevant to workplace are business management and organisational behaviour.

In managerial decision-making, there are predominantly two opposing views that can be also referred to as generations. The first generation assumes that humans are gifted with perfect rationality and thus develop normative methods of judgement (Simon, 1977, 1979; Lindblom, 1959) based on quantitative values and utilities (Steele & Stefánsson, 2016; Turpin & Marais, 2004). Although these approaches started with the idea of perfect rationality, soon they embraced also the concept of bounded rationality (Simon, 1955), meaning that there are a number of cognitive agents that influence one's decisions, including access to information, computational capacity and other environmental conditions. The second, by contrast, recognises the role of individuals' emotions in any decision process (March, 1988; Pfeffer, 1981; Cohen et al., 1972; Keen and Scott Morton, 1978; Klein, 1998). This latter view proposes descriptive models of judgement, namely qualitative processes of problem-solving and mediation between solutions, that are influenced by the style, background, personality and previous experience of decision makers (Turpin & Marais, 2004). These generations can respectively be considered as hard systems approaches and soft system approaches (see Arkesteijn, 2019 for an in-depth analysis of these concepts and the related rationality).

The multiple perspective approach (MPA) can be considered a major overhaul or an alternative paradigm to conventional views of decision-making (Courtney, 2001). MPA attempts to 'sweep in' under an 'unbounded system thinking' (Mitroff & Linstone, 1993; Churchman, 1971) all possible perspectives on a problem that can be classified into: technical (T), organisational or societal (O) and personal or individual (P) (Linstone, 1989). This approach suggests that multiple 'technical' views of a system should be put together by data collection and scrutiny with analytical models. In addition, the 'organisational' and 'individual' perspectives should be

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gathered by the involvement of as many stakeholders as possible, and through as many sources as possible. MPA pays special attention to the interdependencies and reciprocal impact of perspectives (Courtney, 2001). Even though MPA is not a univocally codified method, it has been defined as holistic and comprehensive (Turpin et al., 2009), and especially suitable as a general analysis framework for use on 'messy' (Checkland, 1984) problems that are characterised by uncertainty and disagreement. This approach defines a set of broad principles, which can serve as a malleable knowledge base and can be translated to different contexts from where such an approach was initially developed.

This chapter describes how MPA would benefit workplace decisions starting from the key principles of Strategic Decision Making (SDM), Stakeholder Approach and Multiple Criteria Decision Analysis (MCDA) applied in managerial contexts, within which MPA is rooted.

1.1 Strategic Decision Making, stakeholder approach and multiple criteria decision analysis

SDM refers to the process of how choices, leading to significant long-term impacts through the commitment of significant resources, are actually effected (Papadakis et al., 1998). SDM offers applicable tools to deliver more accurate long-term decisions, even if they are based only on a series of general assumptions, as the future is somewhat unpredictable. By its general nature, SDM allocates resources – mainly financial – in the present in order to prepare for future returns. SDM considers time frames that are longer than operational or tactical decision-making (see also Chapter 4 on the St. Gallen Management Model). When applied in the built environment context, SDM seems more related to real estate decisions, considering the long-term investments in the building, rather than to the workplace scale where changes happen more frequently (e.g. fit-out, churn, etc.). Also, the criteria based on which to make a choice are often more numerous than value maximisation in financial terms. The existence of various conflicting criteria in different decision-making settings is acknowledged by Multiple Criteria Decision Making or Analysis (MCDM or MCDA), which identifies the decision alternatives, generates and selects solutions, and evaluates the tools designed to support decisions (Fandel & Spronk, 1985) – involving either one or several decision makers. Nevertheless, MCDA seems to be used more as an evaluation method than as a design method, and it often misses proper identification and involvement of stakeholders (Arkesteijn, 2019).

The stakeholder approach, as proposed by Freeman (1984), would overcome these limitations, though not without criticism (Laplume et al., 2008). Stakeholder theory recognises the existence of multiple constituencies but still often regards their interests only in economic-financial terms (Arkesteijn, 2019). Also, stakeholder theory per se does not define principled criteria for decision-making, which means that it lacks the function of creating a single-valued objective as a synthesis for effective decision-making (Jensen, 2010).

These three approaches are combined and advanced in the Multiple Perspective Strategic Decision Making theory that the authors of this chapter propose for application in workplace-related decision contexts.

1.2 Multiple Perspective Strategic Decision Making: key principles and challenges

Multiple Perspective Strategic Decision Making (MPSDM) can be considered as one of the various streams under the general SDM approach. The multiple perspective approach was elaborated between the late 1970s and the 1980s to help system practitioners (see also Chapter 3

on systems thinking) and operation researchers bridge the gap between theoretical analysis and action in the real world (Linstone, 1989). The United States led its first applications in military system decisions, regional development, healthcare planning, education planning, energy forecasting and assessment, and corporate policy decisions.

The use of multiple perspectives, namely the aforementioned T, O and P, is grounded on the fundamental assumptions that: (1) each perspective adds unique insights to the others; and (2) the O and P perspectives help bridge the gap between analysis and action, which are the stages of a decision process that are based mainly on T (Linstone, 1989).

By integrating T, O and P, this approach presents a specific three-dimensional view to address common challenges that are encountered in real-world systems requiring decision-making. While there is no scientific validation of this theory, nor established procedures or formulas, it can be supported by guidelines assisting in the concept's application (Figure 8.1), such as those re-elaborated by Wainfan (2010) for the RAND Corporation – based on Linstone's work – under the definition of Multiple Perspective Strategic Decision Making (MPSDM), as follows:

1 Characterising the problem, namely by (a) framing the strategic problem, through appropriate scorecards; and (b) addressing multiple perspectives in the analysis, through the exploration in parallel of objective and 'perspective'/subjective parameters;
2 Simplifying the problem at hand, by attributing dimensionality to uncertainties and perspectives in order to create a set of alternatives to be compared and integrated; and
3 Formulating strategy from thorough analysis, which encompasses communication and implementation through briefing, by taking into consideration also criteria of flexibility for future adaptations.

As such, MPSDM is based on a number of principles. First, it invites to systematise a vast spectrum of stakes. It is based on the premise that decision makers may never agree on (1) values, or what individuals deem important; (2) beliefs, or the individual mental schemes that explain how the world works; and (3) expectations, or individual's vision about how the future will unfold (Wainfan, 2010). However, it proposes several methods to characterise different stakeholders, consider their perspectives and find an agreed point of contact among them.

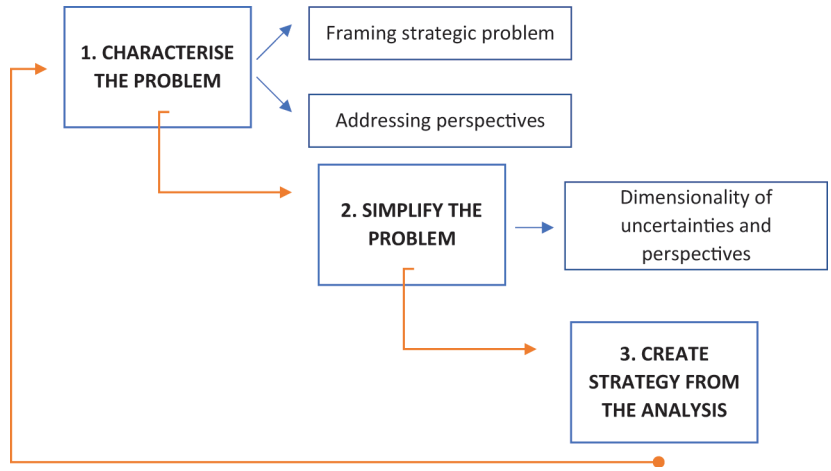

Figure 8.1 MPSDM approach (elaboration of the authors from Linstone [1989]) and Wainfan [2010])

Second, this model clearly supports a multidisciplinary and multi-method approach to problem-solving. In fact, the considered Technical (T), Organisational (O) and Personal (P) perspectives rely on different disciplinary areas and inquiring modes in the so called T-O-P Balance (Linstone, 1989). T reflects the rational approach to problem-solving typically applied in science and engineering, where data is analysed in a quantitative way. O and P represent the subjective views of people, namely the individuals or groups (both formal and informal) taking part in the decisions, where information is gathered, for example, through interviews, surveys or other qualitative methods. Ethical and Aesthetic perspectives have been included in further elaborations of the model but have not yet been defined in detail (Turpin et al., 2009).

Third, the approach is iterative and proposes repetitive analysis and group discussion, once some factors have been understood to drive the choice of options (Wainfan, 2010).

Finally, in creating strategy from analysis, this approach demonstrates that strategy does not correspond exclusively to choosing an option, but also to creating paths forward (Wainfan, 2010).

Thanks to these strong conceptual foundations, the multi-perspective strategic decision-making approach appears as a useful support for both workplace management practice and research, as the next section will explain in greater depth. Especially, its emphasis on the different perspectives characterising the actors involved can offer new insights on workplace processes.

2 Applicability to workplace studies

Applying MPSDM's overarching tenets to workplace-related processes is coherent with a general movement that encourages facility management to holistic approaches in performance assessment, added value, workplace change and management (e.g. Bahr et al., 2016; Fleming, 2004; Lavy et al., 2014; Riratanaphong & van Der Voordt, 2015). In effect, the invite is not recent for determining workplace effectiveness, not only in terms of costs per person and financial measures, but also by including user perceptions (Becker, 1990; Tucker & Smith, 2008; Lindholm, 2008; Lindholm & Leväinen, 2006). This recalls the idea of a shift from conceiving organisations as machines to be controlled to thinking of them as communities where people learn from each other (Addleson, 1996).

The need for projecting actions taken in the workplace into more forward-looking strategies is well recognised in the corporate real estate (CRE) and facilities management (FM) literature, and is stated in the European Standard series (RICS, 2013).

In architecture at a building and area level, preference-based design methodologies have been developed to reflect multiple decision makers' preferences (Binnekamp, 2010). Schemes supporting corporate and public real estate decisions have been proposed, for instance for portfolio management (Arkesteijn & Binnekamp, 2014). However, the existing approaches have a strong focus on the development of mathematical models and algorithms and, although attentive in the involvement of stakeholders throughout the whole process, they do not clarify how they selected stakeholders and whether there would potentially be additional groups or individuals to include – they simplify them to very few categories (two to four). Moreover, these approaches are supposed to be applied in the final decision stage and on an established range of choices (either portfolio compositions or design solutions) rather than to generate shared objectives and create plausible alternatives at a more strategic level.

MPSDM can function well as an umbrella framework for workplace strategy creation, as a complementary theoretical and methodological structure besides the strategic planning process for CRE alignment that Appel-Meulenbroek and Haynes (2014) outlined in situational analysis steps.

2.1 MPSDM for workplace management

Workplace management makes key decisions on interventions for physical work environments to produce added value for organisations (Jensen & van der Voordt, 2017). This task has the potential to maximise value creation, especially if it is grounded in 'evidence-based' decision-making. The importance of basing decisions in the built environment on evidence has its roots in Post-Occupancy Evaluation literature and practice (Preiser et al., 1988). However, a few issues still affect workplace decision processes, where MPSDM could come at hand.

1 Stakeholders in the workplace are numerous and diverse (Heywood & Kenley, 2013; Niemi & Lindholm, 2010); however, who usually takes decisions is a restricted group of only a few executives. Involving all the stakes at play is exactly what is needed in workplace decision processes (Coenen et al., 2012), especially when office arrangements call for radical change. MPSDM, both theoretically and practically, suggests different methods to engage multiple viewpoints (i.e. T, O and P) represented by actors in distinct roles.
2 Research on CRE alignment and FM Value Add attribute to value a comprehensive meaning, including exchange and use value (Appel-Meulenbroek & Haynes, 2014). While the exchange value is relatively easy to measure because it is more quantifiable, measurement of the use value is challenging. A large quantity of data is available to inform workplace management, but indicators, tools and techniques to this purpose are still underutilised and underdeveloped (Alker et al., 2014; Becker, 1990; van Der Voordt & Jensen, 2018). The implementation of MPSDM would allow to frame the workplaces' multiple impacts that can be distinguished as economic, physical and social (Becker, 1990; Varcoe, 1996; Alker et al., 2014; Kämpf-Dern & Konkol, 2017), resembling general organisational decisions (Courtney, 2001) and the three main perspectives of this decision-making theory, respectively: organisational, technical and individual.
3 Workplace management, as real estate management more generally, is highly complex and often driven by criteria of urgency and immediate business need (Appel-Meulenbroek & Haynes, 2014), rather than through careful analysis and systematic processes (Apgar, 1995), namely dominated by strategy. Even though some pilot studies (e.g. Arkesteijn et al., 2017) confirm that stakeholders appreciate decisions that are not taken on a gut feeling or determined by power relations, theories and methods need to be advanced to evaluate the current situation in the physical work environment against alternative solutions, while considering multiple needs.

The MPSDM scheme helps to address these three main issues through the systematic application of multiple available methods to be chosen based on the specific situation under examination. In effect, a few methods are already applied to some extent in workplace-related decisions. These can be favourably combined in a general methodology to address multiple perspectives into workplace decision-making (Table 8.1). Some of the most common ones are briefly described in the following sections.

2.1.1 Characterise workplace problems

A problem can be defined as 'a situation of subjective discomfort of a stakeholder mixed with a desire to do something about it' (De Leeuw, 2002, p. 36). In order to figure out the main problems to be solved through appropriate strategies, MPSDM recommends taking into account all relevant stakeholders as people both who have the power to influence the outcome of that

Table 8.1 Available strategies/methods based on MPSDM challenges to address WPM issues

WPM issues	*MPSDM challenges*	*Available strategies/methods*
Numerous and diverse **stakeholders**	Characterise the problem	*Stakeholder analysis* Participatory and non-participatory methods e.g. Influence & interest matrix, Social Network Analysis, PESTEL and *SWOT analysis*
Focus on economic-financial **returns**	Simplify the problem	Scorecard frameworks e.g. Cognitive mapping, *balanced scorecards, cost-benefit analyses*
Lack of analysis and systematic **processes**	Create strategy from analysis	Value-focused thinking e.g. Value trees, *scenario planning, multi-attribute value functions*

Note: The methods in italics are those that are described in the following sections.

decision or action, and who are affected by a decision or action (Freeman, 1984). In the workplace realm, the concept of 'user' is often affected by a simplistic approach (Olsson et al., 2010). On the contrary, as studies by Den Heijer (2011) demonstrate, every CREM project team needs representatives of all stakeholder viewpoints – at least reflecting four perspectives: policy makers the strategic view, controllers the financial view, technical managers the physical view and users the functional view. Building up on this model, numerous types of workplace stakeholders may emerge both on the supply side (such as company owners and building operation/facilities management teams) and on the demand side (including all categories of employees, managers and other temporary users). Potentially, also external stakeholders such as the citizens, are affected by some corporate real estate decisions and could be interested in partaking in the decision processes. As it is not simple to identify all relevant workplace stakeholders, possibly some remain unrecognised, and their values, beliefs and expectations are disregarded. By referring to the MPSDM, multiple methods can be used to identify them and engage them all in the definition of strategic objectives. Following is a brief description of two possible strategies.

STAKEHOLDER ANALYSIS

Stakeholder analysis stems from business management, policy research and political science (Reed et al., 2009) but has been applied in different contexts including urban design and regeneration projects (Berta et al., 2018).

Stakeholder analysis (SA) consists of methods for: (1) identifying stakeholders; (2) differentiating between and categorising stakeholders; and (3) investigating relationships between stakeholders (Reed et al., 2009). Focus groups, interviews and snowball sampling support stakeholders' identification. A noteworthy method for categorising workplace stakeholders can be the power/interest matrix (Ferretti, 2016), where two main questions are investigated:

- How interested is each stakeholder in impressing its expectations on project decisions?
- Do these stakeholders have enough influence in the process to do so?

Social Network Analysis, along with knowledge mapping, could be favourably adopted with the aim to interpret the network of stakeholders, by measuring their ties and respective knowledge regarding the situation where the problem arises (Reed et al., 2009).

STRENGTHS–WEAKNESSES–OPPORTUNITIES–THREATS (SWOT) ANALYSES

The SWOT analysis tool focuses on the organisation's current performance (strengths and weaknesses) and the organisation's future (opportunities and threats) (see also Chapter 9 on alignment theory) (Chermack & Kasshanna, 2007). First developed to analyse case studies (Learned et al., 1965), SWOT represents a consolidated approach in many fields, including territorial planning and environmental decision-making. Recent elaborations in a 'spatial' context by Ferretti (2019) suggest that SWOT analysis can be used in the generation of objectives for a strategic decision. As such, key variables that SWOT analyses would consider when the motivation and goals of a workplace change need to be set are:

- endogenous factors, i.e. both positive and negative aspects that are part of the system and that can be directly controlled and modified by the organisation, and
- exogenous factor, i.e. variables that are external to the system but that can still influence it; these variables are not under the company's control and thus cannot be directly modified, but it is important to identify them in order to take advantage of the positive aspects and prevent negative consequences (Mintzberg, 1990).

2.1.2 Simplify the problem

MPSDM invites to frame the expected outcomes and performance of a strategy or project through the elaboration of strong scorecards. This is especially important in the context of workplace strategies, where it happens frequently that multiple alternatives are presented and need to be carefully compared. The identification of key variables to decompose the workplace problem at hand can help evaluate distinct options based on separate simple elements of judgement and even track the performance of the chosen solution afterwards. Two approaches to do so are proposed here.

COST-BENEFIT ANALYSIS (CBA)

Cost-benefit analysis (CBA) is a method by which one can analyse the economic impact of decisions, systems, projects or investments, where costs and benefits are usually valued in monetary terms (Mishan, 1971). The method calls for execution of the following steps: (1) identify benefits of the subject matter; (2) identify and measure costs; and then (3) compare and contrast the identified benefits to the costs. This method is adopted from environmental analysis and policy decisions and applied in corporate real estate and facility management decisions. Nevertheless, in the workplace this necessarily requires to account for non-monetary costs and benefits (van der Voordt, 2004). It would be interesting to see CBA elaborated by different workplace stakeholders, as a means to figure out their respective values, beliefs and expectations, similarly to what Arkesteijn (2019) elaborated in a framework of decision variables with four different stakeholder categories.

BALANCED-SCORECARD (BSC) AND KEY PERFORMANCE INDICATORS (KPIS)

The identification of Key Performance Indicators (KPIs) to assess and keep track of performances is quite common in facility management (Hinks & McNay, 1999). However, KPI systems are still lacking potential correlations among indicators that specifically affect workplace performances.

A decisive milestone in the approach to performance indicators happened when Kaplan and Norton (1996) proposed a Balanced Scorecard (BSC), considering four perspectives, namely: client, finance, internal business processes and learning and growth. Nevertheless, the BSC per se is a business management tool and neglects the physical environment where the business takes place (Meng & Minogue, 2011). Some attempts to overcome this deficiency can be found in the so-called Service Balanced Scorecard (SBS; Brackertz & Kenley, 2002), based on four perspectives: services, community, building and financial. Based on the BSC approach, van der Voordt (2004) proposed an integrated framework specific to workplace performance. A multicriteria scorecard framework representing risk, return and costs (including upside potential) of specific alternatives, as it is applied in MPSDM (Davis & Dreyer, 2009), could enrich this approach. For instance, each KPI could be considered as a criterion against which to assess the effectiveness of alternative projects.

2.1.3 Create workplace strategy from analysis

Finally, after analysis of the most meaningful criteria upon which to deliberate about the effectiveness of potential solutions to the workplace problem, specific methods can again be inspired to MPSDM for outlining a strategy. The strategy needs to evaluate several alternatives and to take into consideration all the relevant needs of the involved stakeholders, based on their values, beliefs and expectations as they have emerged in the previous phases. The formulation of the final strategy should include clear expression of the expected value added by its implementation. In this scope, two methods are suggested in this section.

SCENARIO PLANNING

Over 50% of Fortune 500 companies have used Scenario Planning technique in their planning already in the 1980s (Schoemaker, 1993). The method entails the production of 'future-now' narratives, which helps deal with complexity and see problems in a concrete manner. This method aims not to forecast the future, but to rehearse the future (Schwartz, 1991). In the real estate and workplace fields, this process has been experimented (Saurin et al., 2008) into consequential stages, including: formulation of a well-defined and specific strategic question to guide the following strategic conversations; definition of the driving forces of future change (for the workplace these can be, for instance, demography, economy, governance, environment, society and technology); description of pivotal uncertainties and issues; and creation of different scenarios that should demonstrate to be plausible, robust, divergent, challenging, useful and memorable.

Scenario planning can contribute to the design of multiple alternative workplace strategies and design solutions as it promotes creativity in the generation of options (Ferretti, 2016), helps identify major trends by levels of impact and degrees of certainty (Appel-Meulenbroek & Haynes, 2014), encourages to conceive all actions leading to different possible futures (Godet, 1991) and generates insights about the potential consequences of strategies in the long term (Dewulf & van Der Schaaf, 2004).

MULTI-ATTRIBUTE VALUE THEORY (MAVT)

This theory belongs to the broad category of multi-criteria analysis techniques and is considered a relatively simple and understandable approach for addressing decision-making problems (Ülengin et al., 2010). MAVT takes advantage of the axiom of rational choice, which makes

the resulting decisions justifiable and defendable in different contexts. This theory entails (Ferretti, 2016):

- selection of relevant values and objectives to perform the evaluation of a large number of alternatives following Value Focused Thinking (VFT) methods, and
- ranking of the different alternatives, to be evaluated through both qualitative and quantitative parameters through a set of weighted attributes (Keeney, 1992), which allows for recommendations in the implementation of the options.

Here values are conceived as principles to decide about the desirability of each alternative and the related consequences, whereas alternatives are means to achieve values (Keeney, 1994). This is important, especially in the conviction that workplace management should be driven by value adding propositions (Jensen & van der Voordt, 2017) (see also Chapter 12 on the Value Adding Management model).

VFT consists of different categories of questions that can be asked to help different stakeholders identify decision objectives, including: a wish list; problems and shortcomings; consequences; goals, constraints and guidelines; and more. The related questions should be tailored to the problem at hand and can vary depending on the individual or group being interviewed/facilitated, or on the survey being designed (Parnell et al., 2013).

Even though MAVT has been criticised because it shows poor mathematical foundations (Barzilai, 2010) and scarce applicability as a learning tool to test whether decision makers' intuition is objective or right (Binnekamp, 2010), it still seems appropriate to critically analyse and weight the criteria defined through CBA and BSC, which indeed contain qualitative and quantitative measures. Moreover, MAVT and VFT are ideal to represent different perspectives on a problem, as in work environments where stakeholders are rather diverse and can support meaningful communication among stakeholders (Keeney, 1994).

2.2 Adaptation of MPSDM to workplace management

In conclusion, the adoption of a systematic multiple-perspective model for strategic decision-making in workplace management is highly recommendable as it can:

1 Broaden the group of stakeholders to include numerous and diverse perspectives;
2 Guide workplace strategy creation though a structured set of values, which can include economic, environmental, and social aspects through quantitative and qualitative criteria; and
3 Coordinate the decision process upon a workplace strategy following an orderly methodology that relies on analysis of multiple scenarios and needs.

The theory framed in this chapter composes of three main methodological phases (Figure 8.2).

The elaboration of this theory advances previous studies and propositions on MCDA and CRE alignment models as it stresses the strong connection between the analytical phase and the implementation phase, through the continuous involvement of stakeholders. At the same time, this theory complements traditional stakeholder approaches, as it overcomes their mere identification and definition to involve them in the creation of a workplace strategy. This theory can be associated to the Preference-based Accommodation Strategy (PAS) elaborated by Arkesteijn (2019). PAS applies at the CREM level with the goal to align portfolio to the general corporate strategy, while this MPSDM digs into the workplace dimension to support workplace strategy creation.

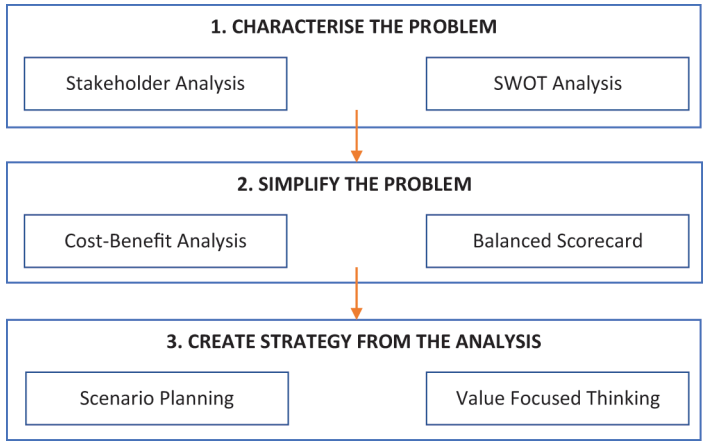

Figure 8.2 Three strategic phases of workplace decisions

3 Methodology/research approach

The validity of the proposed MPSDM theory applied to workplace strategies should be first proved as that of other conceptual models. Then, Tan et al. (2014), for instance, use a questionnaire to confirm four dimensions or variables of RE/FM alignment. Based on a five-point Likert scale, senior professionals in the area of FM and real estate/property, mostly working at strategic levels and representing multiple countries, would indicate the degree of relevance, completeness, robustness and soundness of the concept.

The applicability of this theory should be tested in further investigations, according to design decision methods to answer the question 'how to develop, form and make' (Arkesteijn, 2019, p. 147) a workplace strategy based on an MPSDM approach. Methods that academics have used to study the topic in the field of decision-making and/or when using adaptations of the MPSDM model in different contexts are usually empirical (e.g. Hall & Davis, 2007). For instance, pilot studies have been developed to test Preference-based Accommodation Strategy (PAS) design in a university campus by involving four main stakeholder categories (based on Den Heijer, 2011), such as in Arkesteijn et al. (2017), as well as to measuring facility performance in local government by involving four stakeholder groups, such as in Brackertz and Kenley (2002). Overall, it is recommended to use a multiple-case study in order to reach more valuable results than from applying a pilot to only one case, which risks showing context-dependent results.

Moreover, the applicability of this approach needs to be verified through the opinion of the stakeholders who in the end are the beneficiaries of the theory and related application. In this scope, interview rounds and ethnographic methods (e.g. observations) have been carried out by Arkesteijn (2019), following again on soft operations research methods (in particular, Joldersma & Roelofs, 2004) which investigate: (1) experiences with the method (interviews); (2) attractiveness of the method (interviews); and effectiveness of the method through both (3) participants' observations and (4) observers' (i.e. researchers') perceptions.

Similar research approaches would be suitable as well to test the MPSDM theory as it is proposed in this chapter. Ideally, a second verification stage would be necessary to evaluate the implementation effectiveness of the resulting workplace strategy. This latter goal would be addressed by undertaking Post-Occupancy Evaluations, and by keeping track of the previously

defined KPIs throughout the application of the strategy up until the implementation of workplace design and management solutions.

The application of the proposed theory would encourage studies of the 'perspectives' that may emerge over workplace management. Research on users (see also Chapter 16 on user-centred design thinking) and stakeholders in the workplace is scattered and lacks coherent results.

First, the application of stakeholder analysis methods would promote the involvement of a larger number of stakeholders in workplace decisions, as advocated by several authors (Den Heijer, 2011; Jensen & van der Voordt, 2017). However, the selection of the people to include in these activities is not always carefully programmed, and therefore outcomes are not robust. Systematic application of MPSDM into the workplace would lead to representation of all relevant stakeholders of a workplace strategy/project.

Second, MPSDM would stimulate more refined categorisation of stakeholders. MPSDM suggests inducing stakeholders' groups by analysis of individuals, rather than identifying them by deductive classification based on assumptions and habits (e.g. organisational charts and so on). Looking at the values, beliefs and expectations of workplace stakeholders at an individual level could generate interesting insights. These paradigms can be investigated through specific questionnaires, interviews or focus groups, but even better through ethnographic and action research methods by observation and/or participation in the workplace decision-making process.

Further research on the translation of MPSDM principles into the workplace realm would help create stronger links between the decision-making process and the implementation phases following up workplace strategy creation.

4 Limitations

The models described in the decision-making literature are rarely applied in practice as they are described in theory (Turpin & Marais, 2004). These are to be considered frameworks and reference methodologies that should be adapted or transformed into bespoke tools in each company. Thus, using MPSDM to address corporate real estate and facility management decisions would require application in real workplace 'settings' to understand the extent to which it fits and positively affects actual decision-making processes.

The scheme herewith described (see Figure 8.2) also does not dig down into individual mental processes affecting stakeholder decisions. Potential expansion of the research could stem from industrial-organisational (I/O) psychology that has recently tried to apply Judgement and Decision Making (JDM) in the workplace to add knowledge about how managers decide upon a range of topics, including different 'heuristics and biases' (Kahneman et al., 1982).

Moreover, research in behavioural decision-making shows that decision makers are likely to discount or devaluate the relevance of outcomes that are delayed, compared to those that come immediately at hand (Anderson & Ones, 2001). This could explain why workplace strategies are often short-sighted and tend to be measured in terms of costs. In any case, JDM theories could reveal interesting thought patterns when applied to workplace decision-making processes.

Finally, the proposed theory does not take into account all the possible Decision Support Systems (DSS) that nowadays can be used to aid decision processes, including model management systems and knowledge-based decision support systems, which use artificial intelligence but also expert systems to expand the knowledge sources available to decision makers (Courtney, 2001). Much richer tools are needed for handling text, images, pictures, sounds and videos than are now available in DSS software (Courtney, 2001).

5 Theory relevance to practice

Strategic decision-making shares with workplace management and strategy the goal to address long time frames and to provide overarching objectives guiding tactical and operational decisions. A wide set of perspectives is involved in workplace-related decisions, and MPSDM invites to consider them all, based on the values, beliefs and expectations of the stakeholders. The regular application of such an approach in practice could prevent single-sighted workplace decisions by helping coordinate the efforts of the various professionals and disciplines toward shared visions. Support for the so-called 'softer' aspects of the decision, the organisational, personal, ethical and aesthetic perspectives, must be provided. Especially, MPSDM suggests that systematic support resources are applicable to create and evaluate options.

In all, the framework proposed in this chapter can inspire more structured processes in workplace management and bring the attention of practitioners on already formalised tools to handle decisions upon workplace strategies. Workplace managers can refer to MPSDM methods in several ways. First, MPSDM can support them in the recognition of key stakeholders and workplace objectives, as difficulties emerge in consultation and coordination among important business units such as corporate real estate, human resources, information technology, financial departments and capital and communication (Appel-Meulenbroek & Haynes, 2014). Second, workplace managers can recur to MPSDM to systematise broad sets of performance objectives for workplace strategies through scorecards, that are likely to fit a variety of organisational cultures and to combine conflicting scopes (Appel-Meulenbroek & Haynes, 2014) – e.g. chief financial officers' to minimise costs, human resources to increase employee satisfaction, etc. And third, MPSDM can assist workplace managers with specific toolsets to elaborate the final decisions and communicate the reasons of the chosen strategy to a large panel of constituents, by graphical aids or narratives. Overall, the delineation of a decision-making process constitutes a reference guideline of iterative steps that can benefit all the actors involved in workplace management, from company owners to corporate real estate and human resources managers, aiming to embrace a truly interdisciplinary strategy.

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9
ALIGNMENT THEORY
For CRE and workplace

Monique Arkesteijn and Chris Heywood*

1 Background alignment theory

Alignment, generally, brings into harmony things that differ or could differ by making them consistent or in agreement with each other (based on *Shorter Oxford Dictionary* definitions). Andolsen (2007, p. 35) refers to it as strategic alignment, defining it as "the link between an organisation's overall goals and the goals of each of the units that contribute to the success of those overall goals". Indeed, alignment theory has become a thread of strategic management thinking; for example, Alagaraja et al. (2015, p. 20) "highlight the importance of organizational alignment – or fit – between internal and external organizational factors as a common theme and distinctive focus in the management literature." They state (p. 25) that "there is a significant lack of agreement on a discrete definition of alignment" and conclude that alignment can be seen from the following three dominant perspectives that rest on a different set of agreements about how organisations learn and perform: *process*, *relational* and *strategic*. Furthermore, they distinguish five types of organisational alignment: *horizontal alignment*, *vertical alignment*, *structural alignment*, *cultural alignment*, and *environment alignment* (Alagaraja et al., 2015). In corporate real estate and workplace, *alignment* theory originates in strategic management (Mintzberg et al., 1998; Porter, 1996) and in strategic alignment theory (Kaplan & Norton, 1996; Kaplan & Norton, 2006) and organisational performance assessment. Corporate real estate and workplace, along with other organisational infrastructure functions like human resources and information technology, have all independently grappled with questions of their relationship with organisational strategy and performance (Nientker, 2017); for example, human resources (Sender, 1997) and information technology (Henderson & Venkatraman, 1999). The interrelationship between these infrastructure functions is considered in Corporate Infrastructure Resources/Integrated Resource Infrastructure Solutions (CIR/IRIS) (Ellzey et al., 2004; Materna & Parker, 1998). Common to all are questions of future organisational intentions and performance (strategy) and their role in enabling that as infrastructure or support functions. For corporate real estate and workplace, these questions relate to the organisation's physical environments and their management.

Within strategic management, in Strategy Safari, Mintzberg et al. (1998) identify multiple schools or conceptions of what strategy is and their methods. Two schools commonly

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represented in corporate real estate and workplace alignment are the Design and Positioning Schools that 'prescribe' strategy and its methods. Kaplan and Norton, and Porter, are part of these so-called prescriptive strategies. Porter is the key example of the Positioning School, and Kaplan and Norton, although not mentioned in Strategy Safari, can be added to the Design School. These *prescribing* strategies focus on the ideal processes and contents for strategies, where the strategy is the outcome of the strategy design process. Prahalad and Hamel's (1994) organisational core competencies work belongs to the Learning School as part of the *descriptive* schools of strategy. Descriptive schools consider the process of strategy formation and *describe* how a strategy is created in practice. They emphasise the continuing nature of strategy design and reject the idea that strategy is a completed and distinct product, waiting to be implemented. In this chapter, the prescribing Design and Positioning Schools are discussed.

1.1 Design School and alignment

This school originated with Selznick in 1957 with the case study teachers at Harvard as its champions (Mintzberg et al., 1998). 'SWOTed by strategy', as Mintzberg et al. (2005b) call it, aims at achieving a fit between internal Strengths (S) and Weaknesses (W) and external Opportunities (O) and Threats (T) (see also Chapter 8 on decision-making theories). This view's advantages are that it is straightforward and simple, requires little preparation, and is a way of structuring ideas; but, according to Mintzberg et al., has become a much-used but also abused ritual. The authors state that while the intended message of this school is 'fit', the realised message is 'think'. The school's keywords are congruence, distinctive competence, competitive advantage, SWOT, formulation, and implementation. The processes in this school are ordered, the leadership is dominant and judgmental, and the environment expedient. The contextual dimension in this school is delineable (into economic dimensions, technical dimensions, social dimensions, etc.) and stable. Organisational form is characterised as 'machine-like' which indicates a more centralised and somewhat formalised approach to strategy (Mintzberg et al., 1998).

The Design School also has disadvantages. There is no agreement on SWOTs, as there is no such thing as a 'general' SWOT; for example, will existing strengths and weaknesses be strengths and weaknesses for other and future activities? SWOTs overstate strengths and opportunities reinforcing the status quo. It uses different criteria in defining strengths and weaknesses, is driven by anecdote, and breaks through corporate culture, and it is difficult to verify the claims. Often the strengths are well known but the weaknesses are hidden, boundaries between organisations and environments are unclear, and the weaknesses and threats confused. Strengths and weaknesses are not connected to opportunities and threats. It is possible to improve SWOTs when seen as a general aid, when measures and criteria are made explicit, when SWOTs are prioritised, outside consultants are used, and SWOTs are specified and substantiated (Mintzberg et al., 2005a, 2005b).

Kaplan and Norton's Balanced Scorecard (BSC) (1996, 2006) is part of the Design School because it similarly emphasises evaluating external and internal situations. The BSC is based on the premise that pure financial performance measures are insufficient for effective management decisions and are backward looking. The balanced score is a set of performance targets and results with four dimensions of performance – financial, customer, internal process, and innovation. It looks at these dimensions because organisations have responsibility towards different stakeholder groups, such as employees, suppliers, customers, community, and shareholders. The dimensions are both forward and backward looking. The BSC is the managerial equivalent of stakeholder theory, with roots in strategic management as well as sociology amongst others in organisational behaviour.

In the Design School, 'alignment' takes place between strengths and weaknesses and the opportunities and treats, or between the four dimensions: financial, customer, internal process, and innovation.

1.2 Positioning School and alignment

The Positioning School treats strategy formation as an analytical problem which, therefore, requires (large amounts of) data. Porter's work, which represents this school, originated in economics' industrial organisation theory and how industries behave. By extension, for the individual firm, the question is 'How to operate, or position oneself, within that industry?' The analysis required has two aspects:

- External to the organisation and expressed as five industry forces which affect firms' activities (Porter, 1980) – buyers, suppliers, new entrants (to the industry), substitutes (which produce comparable effects to the firm's products), and rivalry between industry firms; and
- Internal to the firm in terms of value-adding activities of a firm's internal organisational functions, like logistics, marketing, and firm infrastructure (Porter, 1985).

The analyses produce three 'generic' strategies (or positions) relative to other firms in the industry that are 'defendable'. These generic strategies are: *cost* (lowest cost producer which means that goods and services can be profitably priced below competitors'); *differentiation* (brand and other intangibles offer value to customers); and *focus* (the scale of the targeted market – large or particular). These strategies produce (Sustainable) Competitive Advantage (Porter, 1980). The Positioning School assumes that strategy is senior management's task (analysing the industry and determining the generic strategy) which is then implemented at lower levels of business units and organisational functions, like CRE or workplace management. Alignment is therefore a top-down activity.

Mintzberg et al. (1998) state that while this school's intended message is 'analyse', the realised message is 'calculate'. This school's keywords are generic strategy, strategic group, competitive analysis, portfolio, and experience curve. The school's processes are analytical, systematic, and deliberate, and the leadership is responsive to the analysis. The contextual dimension here is simple, stable, and mature. While the organisational form is characterised as a large machine, preferably in commodity or mass production, this indicates a more centralised and formalised approach to strategy (Mintzberg et al., 1998).

2 Applicability to workplace studies

Alignment theory has strong relevance in workplace studies as its purpose is to, upfront at workplace project inception, produce CRE objects that work (better is assumed), i.e. are aligned with their occupying organisations, and do so for longer by being strategically robust.

Workplace alignment can be seen as part of CRE alignment because alignment occurs on different organisational levels and is nested. Alignment and nesting can also be identified when looking at 'employee-job' and 'employee-organisation' fit (Alagaraja et al., 2015), albeit done there at a micro level. The workplace and CRE portfolio can be positioned in a conceptual framework (see Figure 9.1) that started with four S's (Duffy et al., 1998) – Shell, Services, Scenery, and Settings – that disengages the long-term demands of the building shell from its services, fit out, and space management. Over time, three further S's were inserted: Site, Skin, and Systems (Worthington, 2016; see also Chapter 5 on socio-technical transitions theory). The academy as well as practitioners even state that "to perform workplace alignment well it needs to be part of Enterprise alignment" as Sargent (personal communication, April 24, 2020)

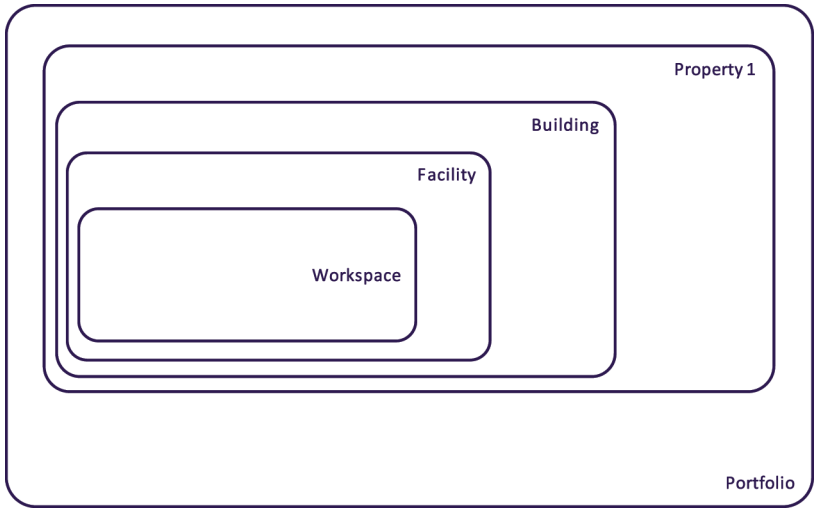


Figure 9.1 Nested portfolios, real estate, and workplace for alignment (after Duffy et al., 1998)

said. In this section, therefore, firstly an example of CRE alignment is given, followed by two examples of workplace alignment.

2.1 Corporate Real Estate alignment: a more complete picture

During the last thirty years, at least fourteen models of CRE alignment have been made. In a Corporate Real Estate alignment metastudy, Heywood and Arkesteijn (2017, 2018) systematically mapped the individual models. CRE alignment turned out to be complex and pluralistic, being several things simultaneously, and it was not possible to show CRE alignment as a singular, definitive 'thing'. Heywood and Arkesteijn (2017) studied what the models' authors meant by 'alignment', and Heywood and Arkesteijn's (2018) metatheory reconciled the CRE alignment models' observed variability to represent CRE alignment more completely as having four Building Blocks containing twelve components and feedback loops between them, with underlying alignment aspects.

Alignment was not a singular definitive 'thing' because very few authors of models specifically defined it. Some referred to the strategic alignment 'school' they belong to, but generally the authors did not brand their model as 'alignment', though it was obvious that this was meant. Without definitions three things happen: (1) reliance on dictionary definitions (as per the Background section), (2) reliance is placed on general understanding of what is meant in the field, and (3) 'alignment synonyms' are used to denote the relationship between CRE and organisational strategies. Giving a concise definition would omit something of the now-clearer understanding now available; therefore, Heywood and Arkesteijn (2017), based on the general understanding in the field, distilled it to four distinct aspects (Table 9.1).

Firstly, CRE alignment occurs between *multiple cognitive-objects* (Figure 9.2), with three on the business side (business strategies and their context, business performance, and business needs) and three on the CRE side (CRE strategies, CRE, and CRE management). Strategy-level objects (corporate and CRE) were pre-eminent primary alignment objects with other objects all needing alignment, but consequentially.

Table 9.1 Checklist of four aspects of alignment in the models

Multiple objects (need to be aligned)	**Multi-valent relationship between the objects**	**Multi-directionality (needed to achieve alignment)**	**(resulting in) Multiple forms of alignment**
Business objects Business (corporate) strategy Business performance Business needs **CRE objects** CRE strategy CRE objects CRE management	A relationship between these objects An awareness-based relationship A derivation-based relationship A consistency-based relationship A integration-based relationship A movement-based relationship A assessment-based relationship A usefulness-based relationship A strengthening-based relationship	**Internal** Vertical - top-down - bottom-up (corporate strategy informed by CRE) *Horizontal* - together with other infrastructure support functions (HR, IT etc) - across the business units for coherent portfolio approach **External**	Artefact (plan) Process State Behaviour

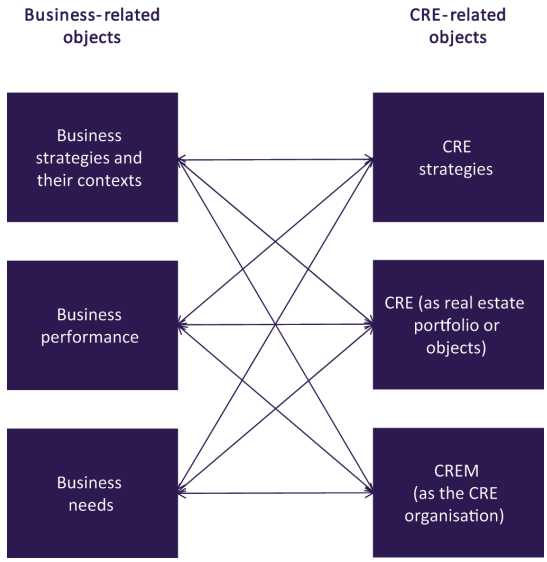


Figure 9.2 Business and CRE objects (Arkesteijn, 2019, p. 62)

Secondly, when studying the alignment synonyms, Heywood and Arkesteijn (2017) found many words used that described the relationship between these objects captured different values. This revealed a *multi-valent relationship* (that is, multi-valued or strength) with a hierarchy of significance within the relationship, suggesting that higher-value words towards the base of that column in Table 9.1 are more important in theorising and describing alignment.

Thirdly, alignment is multi-directional; that is, alignment needs to be done vertically between the organisational and functional levels, horizontally across the business units and the corporate infrastructure functions, and also between demand and supply. This supply may be available internally from the existing portfolio or sourced externally from the real estate market.

Lastly, four forms of alignment were found with three forms from the business alignment literature: (1) a state of being; (2) a strategy or plan (two noun forms); and (3) a set of actions that make up a process (a verb) (Kaplan & Norton, 2006; Labovitz & Rosansky, 1997). 'Behaviour', which is having a strategic mind-set (Joroff et al., 1993; O'Mara, 1999), was added as a fourth form. Within these four forms, two distinct combinations were present – process-based and behaviour-based.

Alignment is not just one of these four aspects; it is many or all of them, meaning that a good alignment model should conceptualise its phenomenon by:

- Using words of higher semantic value for describing the relationship,
- Being a process (most usually), but also finding behaviour in strategic mind-sets – both producing more aligned states sometimes reported in a plan,
- Aligning strategies (corporate and CRE) with other aligned cognitive objects consequential to these, and
- Including all directions.

All four aspects with their parts can be found in Table 9.1, which can be used as a checklist when working on CRE and workplace alignment.

Next to the four aspects of alignment in the models, Heywood and Arkesteijn (2018) showed a CRE alignment metatheory where twelve components modelling CRE alignment are categorised into four Building Blocks: (1) understanding corporate strategy; (2) understanding real estate performance; (3) making real estate strategy; and (4) implementing real estate strategy (see Figure 9.3). One might state that this is an overview of the process that CRE managers and their organisations go through. In this section, each Building Block and its components are briefly discussed, followed by the various feedback mechanisms which were also evident between the components.

2.1.1 Building Block 1

This block is about understanding the corporate strategy, the factors that give rise to strategies, and the strategising itself. Here, alignment is more than just knowing 'What is the business and its strategy(-ies)?' or the business 'needs'; it also requires understanding its strategic basis and its dynamics, and the organisational strategy creating process. This is very important in CREM especially because real estate buildings' service lives exceed business cycles. The components in this block are:

- *External business drivers and forces* identifies the organisation's external impacts requiring strategic responses. As the underlying external operants that affect the business, they create something like a business's operating 'force-field'.

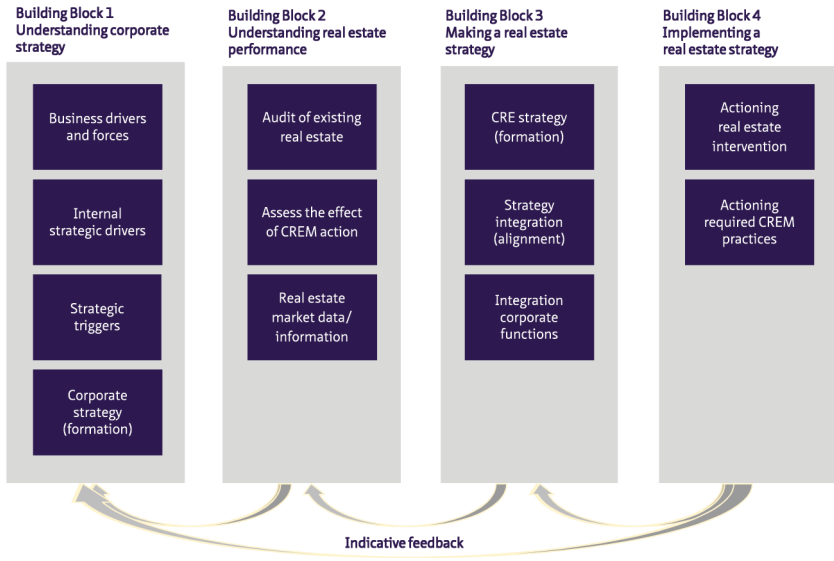


Figure 9.3 CRE alignment building blocks and components (after Heywood & Arkesteijn, 2017, p. 17)

- *Internal strategic drivers and forces* is considered in two ways. One relates to those generated through internal support functions. Second, understanding internal drivers and forces is the so-called 'soft' or 'social' management dimensions, for example, leadership styles and methods, culture, and organisational structures.
- *Strategic triggers* understands what in the organisation's operating context creates organisational change. The underlying frequency with which strategic triggers emerge matters, as does specific change in the drivers and forces – changes in magnitude and timing.
- *Corporate strategy (formation)* includes identifying the corporate strategies and how the organisation forms strategy as more than 'just' knowing what the strategy is.

2.1.2 Building Block 2

This block is about understanding the real estate objects' alignment performance. The components in the following list reference the state of the portfolio and its individual real estate objects, knowing how CREM actions change alignment states, and grounding CRE alignment decisions within real estate markets. Performance and its measurement are longstanding in CREM. The components in this block are:

- *Audit of existing real estate* assesses the portfolios' and individual properties' current state prior to alignment, benchmarking future assessments.
- *Assess the effect of CREM actions* evaluates the effect of possible CREM alignment actions. Usually post-alignment but pre-knowing the CREM actions' effects helps decide Building Block 3's CRE strategies and Building Block 4's used interventions.
- *Real estate market data/information* captures information required to evaluate a portfolio and its real estate objects. It provides a foundation for creating 'commercially viable' CRE strategies and shows real estate products' potential availability in locations and at satisfactory prices. It also locates specific real estate objects in the real estate market (aggregable to the whole portfolio).

2.1.3 Building Block 3

This block's three components represent CRE strategy making as the strategy itself and its formation. It is where the corporate and CRE strategies are actually aligned (ahead of implementation), including relationships with other corporate functions (this is also referred to as enterprise alignment). The components in this block are:

- *CRE strategy (formation)* has two related dimensions to CRE strategy: (a) listing or documenting various strategies (the models contain CRE strategies), and (b) ways of creating CRE strategy without necessarily predefining them.
- *Strategy integration* recognises that CRE and corporate strategies need bringing to an actual alignment state. Either the corporate or the CRE strategies move.
- *Integration with other corporate functions* recognises that CRE strategy is rarely enacted alone, often requiring other corporate functions, like HR and Finance, to achieve desired strategic outcomes.

2.1.4 Building Block 4

This block makes the actual changes to reach alignment in two components – the operating real estate and management decisions that are core CREM practice. The components in this block are:

- *Actioning the real estate intervention* involves changing the portfolio's individual real estate objects to actualise alignment. Decisions are required about applicable real estate interventions which are, essentially, transaction-based decisions about 'acquiring, controlling, managing, and disposing of real property interests' (Nourse & Roulac, 1993, p. 486). It is assumed that portfolio alignment states improve through more aligned real estate objects. Business dynamics raises questions whether achieving perfect alignment is possible as context and requirements change. At best, portfolio alignment might be partial, though more complete for any one object.
- *Actioning the required CREM practices* recognises that CREM practices are also required to reach alignment. These are extensive, with at least 162 being identified (Heywood & Kenley, 2008).

Feedback was another important aspect of graphically representing CRE alignment. Most models explicitly included some feedback with various approaches evident broadly categorisable as occurring between components in one Building Block and another.

Before turning to workplace alignment models, it can be concluded that all underlying fourteen models focus on a portfolio level, and most models do not explicitly mention the workplace. However, some authors like Haynes (2008) mention work environment as part of the place sphere, Scheffer et al. (2006) use work environment and workplace innovation, and Weatherhead (1997) uses flexible working as an element in her model. Others mention work environments as operational decision-making strategy, or as an example (Lindholm & Levainen, 2006; Osgood Jr, 2004). While some explicitly state that their models are usable at different levels, these models focus on portfolio level and zoom in on the workplace level (De Jonge et al., 2009; Osgood Jr, 2004).

CRE alignment (models) is based on several models that have direct connections to the Positioning or Design Schools, and so in this overarching metatheory, both schools are represented.

In the models, O'Mara (2000) specifically uses the Positioning School, while others like De Jonge et al. (2009), Den Heijer (2011), or Nourse and Roulac (1993) take a Design School approach.

2.2 Workplace alignment models

As of now, to the authors' knowledge, there is no comparative study of workplace alignment models. However, several models were developed and used by design and consultancy firms, with DEGW as a main player since 1973. DEGW has been passionate about architecture and integrated building and organisational design, using the emerging tools of space budgeting, post occupancy evaluation (POE), and participatory briefing (Worthington, 2016). Their combined design and research work developed the so-called DEGW Den model (Figure 9.4) as an early workplace alignment model. Organisations were defined by the nature of work, the predominant processes undertaken, and the physical settings required (ibid, p. 55). Duffy explained in *The New Office* (Duffy & Powell, 1997) that organisational work patterns were fundamentally altering from key trends in information technology, and flattened hierarchies – with emphasis on teamwork and cross-functional interaction, and service-led economies. This changed the logic of office layouts. Beforehand, the layout was based mainly on organisational structure and hierarchy. The focus on work processes produced two key variables that determined any organisation's work: interaction and autonomy. Combining these variables produced four basic work patterns: Hives, Cells, Dens, and Clubs.

This model belongs to the Positioning School approach because it is about 'analysing' how the work processes lead to work patterns, which in their turn change the office layout. The four basic work patterns can be seen as the equivalent of the School's *generic strategies*.

A more recent practice-developed workplace alignment model is the Human Experience Model (HX) (JLL, 2017). This research states that 'decoding', i.e. understanding, human experience for real estate is a key differentiator for how people engage with an organisation. Similar to customer experience, employee experience involves how an individual interacts with their environment (physical, virtual, and even spiritual) and their peers. This model has three

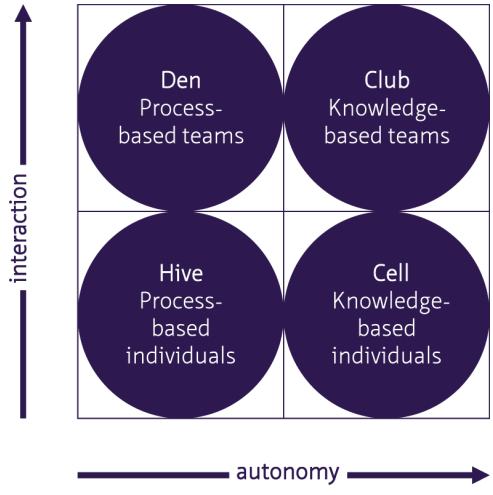


Figure 9.4 DEGW's Den model; organisational demands reflect the processes undertaken and the physical settings required (Duffy et al., 1993, colours adapted)

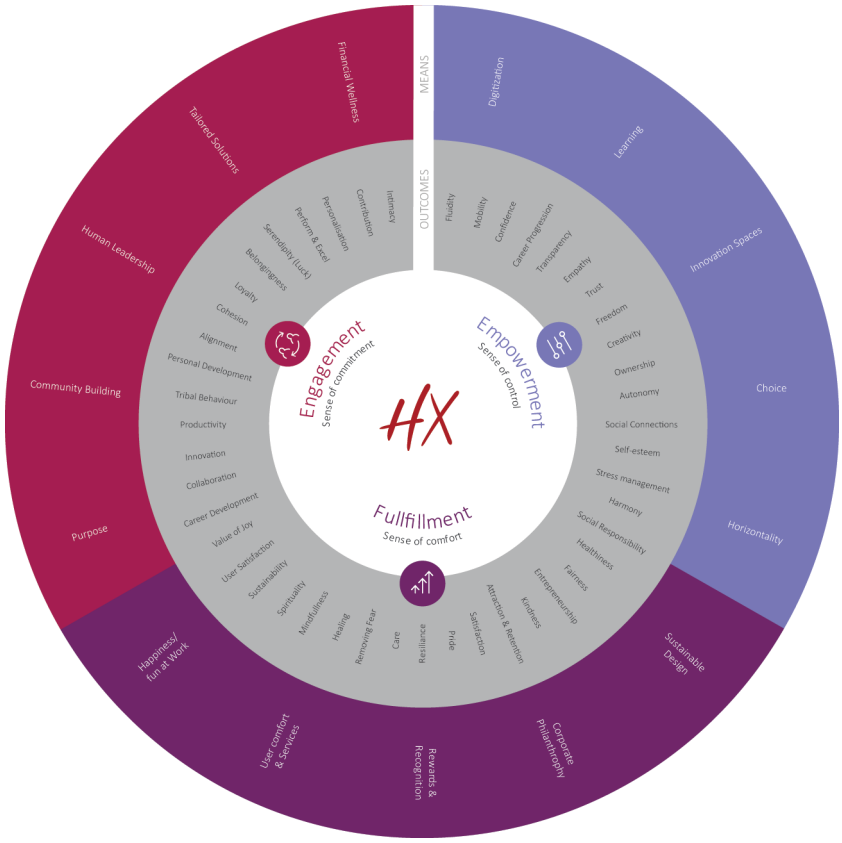


Figure 9.5 Human Experience model (JLL, 2017, p. 18)

experience pillars, also referred to as priorities: engagement, empowerment, and fulfilment (see Figure 9.5). Engagement relates to fostering a sense of commitment, which drives employees' performance and effectiveness. Empowerment gives people a sense of control in their working environment, and this can drive performance. Fulfilment makes sure work feels comfortable beyond the surface level of happiness. Each of these pillars is related to different outcomes and means (JLL, 2017).

This model belongs to the Design School, where the 'decoding' of human experience can be seen as 'analysing' human experience and then linking it back to workplace elements.

With these examples, some differences become apparent. Whereas DEGW's model focuses on different work patterns which relates to the physical environment through the chosen metaphors, the HX model focuses on means and outcomes to be taken into account when making the physical environment. These models help practitioners focus on aspects that they need to consider when aligning workplaces.

Where organisational performance is central in the CRE alignment models, not all fourteen models have the same underlying approach. Some models take a shareholder approach and focus mainly on financial value; others take a stakeholder approach and focus on different perspectives, i.e. types of values. Over the years, the focus has shifted (not necessarily specifically in this order) from efficiency, effectiveness, productivity, innovativeness, green, smart, health and

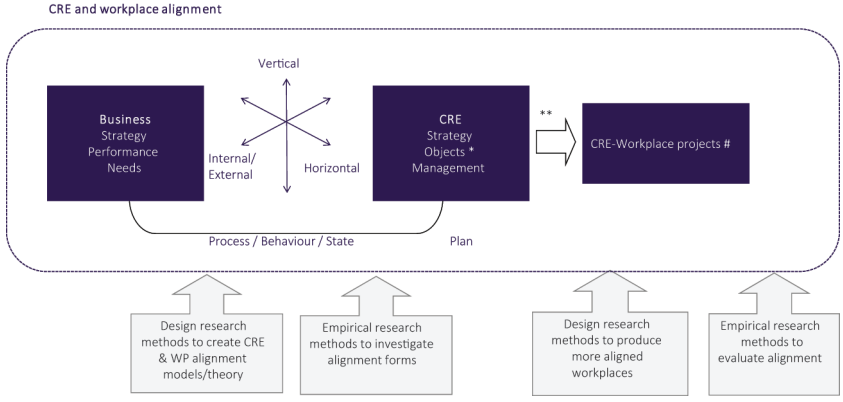
well-being, happiness to experience (De Vries et al., 2004; Den Heijer, 2011; Riratanaphong & van Der Voordt, 2012). For workplaces, the focus has shifted from productivity to engagement, and now to experience.

3 Methodology/research approach

In workplace alignment theory, there are several methodological considerations. First are the methodologies used to create CRE-Workplace alignment theory. Second are the methods to scientifically investigate alignment's forms as artefacts, processes, states, and behaviours (empirical research). Third are the methodologies to produce more aligned workplaces that are more applicable to practitioners or would show up in empirical studies of processes and behaviours (design research). Methodologies in the two latter aspects seemed to be related more to certain strategy schools identified in Section 1. It also needs to be borne in mind whether the investigation is at a less tangible level, that of Business and CRE strategy, or more tangibly, CRE objects in aligning workplaces, or in aligning workplace management practices (Figure 9.6).

3.1 Design or empirical research methods to create CRE and workplace alignment models/theory

Design research is more focused on creating solutions or in changing situations. It applies to the academy in proposing and testing methods intended for use by practitioners. Van Aken (2004, 2005) outlines design research in Management Sciences, and Hevner (Hevner, 2007; Hevner et al., 2004) does the same for Information Systems research. Hevner's (2007) framework distinguishes three elements: (1) the *environment* that accounts for the relevance cycle; (2) the *knowledge base* that accounts for the rigor cycle, which is linked by the design cycle in (3) the *design science research*, where the new models are built and evaluated. Most CRE alignment research accounts for the relevance and rigor cycles but do not justify their design cycle; instead, they use empirical research for justification. More recently this is done by Arkesteijn (2019) who



* *Workplace is a CRE object*
** Projects originate in assessments of misalignment
\# Transmission of alignment through project processes (assumption)

Figure 9.6 Methodologies and alignment

uses Ackoff and Sasinieni (1968) and Binnekamp et al. (2006) for her Preference-based Accommodation Strategy design decision method.

When using empirical research methods to create CRE alignment models/theory, several qualitative methodologies can be and have been used. These included reflections on practice, empirical research, normative statements, and validation studies (Heywood & Arkesteijn, 2017).

3.2 Empirical research methods to investigate alignment forms

Empirical research is about testing pre-existing theory. In alignment theory, this would test the theory itself, which was not always done in CRE alignment modelling or in revealing practitioner theory-in-use, given they quite readily can say whether they are aligned or not (Heywood & Arkesteijn, 2017, 2018). In investigating alignment forms, arguably, different methods may be useful for the different forms.

- Case studies would most likely be the unit of analysis, and/or multi-case studies.
- Given the absence of theory in practice, grounded theory would be most applicable to empirically investigate practitioner self-theory in what they consider to be aligned (state/plan) and how they align (process/behaviour). Heywood's unpublished 2009 study used grounded theory with a hypothetical situation but found that practitioner participants tended to theorise their own experience rather than informing him of how they would address the hypothetical in a way that revealed their theory in use.
- Action research could be used empirically in live alignment exercises (also very applicable in design research methods). Processes and behaviours would most likely be evident in the results. Also, information would likely emerge about decision and judgement methods regarding states and plans created (Design School) and relationship to others in the industry (Positioning School) via cross-case comparisons of the action research site and other cases.

3.3 Design research methods to produce more aligned workplaces

Design research, as explained earlier, is focused more on creating solutions or in changing situations. It applies not only to academics but also to practitioners, seeking more aligned workplaces. Various soft systems methods could be used; for example, those from construction project initiation activities are analogous to this chapter's alignment concerns. Examples of these include Strategic Needs Analysis (Smith, 2005) or problem structuring (Winter, 2006). Some of these presume that the strategic decisions have already been taken (Winter, 2006); others are more useful in teasing out and clarifying those decisions as a prelude to a decision to build (Smith, 2005).

3.4 Empirical research methods to evaluate (new) workplaces

Post-Occupancy Evaluation (POE) using quantitative statistical methods to empirically investigate satisfaction in workplace projects (post-completion) and extant workplaces are very common in the field. For projects, evaluations should use the originating business and CRE strategies as their evaluation baseline rather than the brief which was originally proposed for POEs (Preiser, 1995, 2002). This is important because of assumptions that the 'brief appropriately translates strategy into the brief' may not necessarily be the case due to discontinuities between project phases. For extant workplaces, it is important to understand (dis)satisfaction with them, but it should be borne in mind that the evaluated workplace may be misaligned.

Next to POEs, a range of evaluation methods are available; for example, Guba and Lincoln (1989), which is a constructivist, naturalistic methodology. Also, established workplace evaluations like POEs are available to evaluate alignment states. These were also seen as a 'feed-forward' learning methodology that would be applicable to the Learning School of strategy. A challenge in evaluating workplace (projects) is that strategic shifts can occur during projects and over their useful lives. These strategic shifts in both business and CRE strategies are almost inevitable in dynamic business environments.

3.5 Research gaps

The methods used to create CRE alignment theory can also be used to create workplace alignment theory. Many models exist that are used to do workplace alignment; however, a systematic and robust metastudy into these models is presently lacking. There is also an absence of empirical and design research studies, and where they do exist, they do not include a strategic alignment dimension using, instead, lower-level cognitive objects in their conceptualisation.

4 Limitations

Alignment theory is not without limitations. First, there are methodological issues within strategic management's Design and Positioning Schools with techniques, like SWOTs (Design School), analysis possibilities, and assumptions about business contexts like sustainability of competitive advantage, influential forces, and generic strategies (Positioning School). Second, within the Design School, a limitation of the stakeholder theory and thus also the BSC is that the approach states that organisations' managers need to define what is better and what is worse as the basis of making decisions (Jensen, 2010). Therefore, he argues that a single-valued objective function is required, which the stakeholder approach lacks. The stakeholder approach, like Kaplan and Norton's BSC, is a management tool to understand what creates value. The system therefore is best described not as a scorecard, but as a *dashboard* or instrument panel (Jensen, 2010).

Third, Porter's work, and by extension the Positioning School, is criticised on several fronts:

- The sustainability of competitive advantage only occurs in stable industries and conditions (McGrath, 2013). In dynamic conditions more like contemporary business, alternative approaches are required; for instance, transient advantage (McGrath, 2013) or innovation needs adding to ensure sustainability of generic advantages (Heywood & Kenley, 2008).
- The five forces represent a pre-digital approach, and that in a digital economy additional forces need inclusion – globalisation, deregulation, and killer apps (Downes & Mui, 1998).
- Data availability biases the application towards big firms with data availability and analytical resources (Mintzberg et al., 2009).
- Analysis can produce paralysis rather than decisive insights to go forward (Mintzberg et al., 2009).
- Strategy is not generic but instead is individual to any given firm.

Fourth, there are limitations in the level of alignment application and whether this is at the portfolio, property, workplace, or enterprise level. It is assumed that theory and methods are universally applicable to all or any level, but this is untested. Similarly, limitations exist in the selection of illustrative examples which have differing approaches to workplace and its performance. Fifth, though connectivity between alignment in infrastructure functions like CRE and human resources was noted in Section 1, there does not appear to be much cross-fertilisation

between alignment theory in each of these functions. This is a limitation in advancing theory, though there is some emerging evidence that this may not be so marked in practice.

Sixth, methodological limitations apply to researching workplace alignment including whether different methods apply to different alignment forms. Case studies as a prevalent method have limitations about generalisability which can be counteracted with careful argument about cases' representativeness and informativeness. Further methodological limitations apply to POEs where the original conception was to evaluate built outcomes against briefs (Preiser, 1995, 2002). It has been observed in current practice that, not infrequently, the evaluation is of current perceptions of requirements which may well have evolved from originally stated requirements (the brief). This shift and its consequences appear unrecognised in these evaluations.

Finally, limitations exist in the current form of alignment metatheory (Heywood & Arkesteijn, 2018) in that it assumes that model completeness equates to alignment effectiveness which is, at present, just that – an assumption. Also, potential overlaps exist between the underlying phenomenon and the metatheory's components, which require further research.

5 Theory relevance to practice

Alignment theory has strong practice relevance as its purpose is, upfront at workplace project inception, to produce CRE objects that work (better is assumed) for their occupying organisations and do so for longer by being strategically robust.

Corporate Real Estate and workplace alignment theory emerged from practitioners grappling with the task of providing CRE objects that worked for their organisations' businesses. In seeking to: (1) explain to themselves what they did or had done; and (2) help and advise fellow practitioners similarly placed, they created alignment models published, initially, most often in professional-focused magazines and books. This practitioner theorisation has since been joined by the academy (Heywood & Arkesteijn, 2017). As such, alignment theory can already be said to be deeply embedded in practice and theory. Indicative of its continuing practice relevance, Enterprise Alignment is one of four core subjects in CoreNet Global's Master of Corporate Real Estate program.

However, two things can be observed about alignment theory. One, practitioners are not familiar with the models (Arkesteijn & Heywood, 2013) despite consistently saying whether they are aligned or not (Bon, 1997). Second, alignment theory became characterised by a proliferation of theoretical models. This, in turn, suggests several things. First, that practitioners (continue to) self-theorise their efforts in attempting to provide strategically robust CRE objects which work better for their organisations. Second, that practitioners exposed to CoreNet Global's education offerings may term what they do Enterprise Alignment, as Sargent (personal communication, April 24, 2020) said. Third, that alignment theory may be rationalised and consolidated as a more robust basis for practice.

The latter commenced in Heywood and Arkesteijn (2018), building on Heywood and Arkesteijn (2017), which has been reported in part in this chapter. The four Building Blocks and the twelve components provide, in the first instance, a form of checklist for practitioners to ensure that all alignment elements (components) have been attended to in their alignment efforts. In the second instance, the Building Blocks and components provide a frame on which to locate specific tools and techniques (hereafter called techniques) that operationalise each component and in aggregate within each Building Block, the Blocks themselves. The authors' consolidation work has not yet progressed to examining the techniques, though Arkesteijn (2019) examines specific design and decision techniques. Nonetheless, it is evident that some

models contain techniques which further research would consolidate as a suite of techniques for practice. It is also likely that practitioners have a suite of techniques which they currently use when aligning without necessarily applying them as formalised theory. Where the consolidated Building Blocks and components identify gaps in those techniques, practitioners could refer to pre-existing theoretical and practical techniques or, failing that, innovate to fill these gaps.

6 Further reading

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10
PRINCIPAL-AGENT THEORY
Perspectives and practices for effective workplace solutions

Torben Bernhold and Niklas Wiesweg*

1 Background

In recent years, principal-agent theory has found extensive development and use in the field of scientific research methodology, for example in accounting, marketing, economics, political science or organizational behaviour (Eisenhardt, 1989). The fundamental question of the justification for the existence of companies goes back to Coase (1937) and is regarded as the basis and foundation of the New Institutional Economics, which deals with the economic analysis of the institutional environment and institutional arrangements (Williamson, 1991). The three main domains of transaction cost theory, principal-agent theory and property rights theory form a bundle of what is generally understood under the term New Institutional Economics (Irmer, 2001; Picot et al., 1999).

Principal-agent theory is an approach closely related to transaction cost theory. While transaction cost theory attempts to explain the economic advantageousness of forms of cooperation on the basis of transaction costs, principal-agent theory treats the examined service relationships as a client-contractor relationship (Cheon et al., 1995; Ebers & Gotsch, 2006; Picot et al., 1999). The main objective of principal-agent theory is to design contractual relationships between the principal and the agent as optimally as possible. However, the underlying assumptions need to be considered, including: (1) actors behave as benefit maximizer (Eisenhardt, 1989; Lassar & Kerr, 1996), (2) conflicting interests exist (Jensen & Meckling, 1976), (3) actors have only limited rationality (Eisenhardt, 1989; Picot et al., 1999) and (4) information asymmetries exist between principal and agent (Picot et al., 1999; Richter & Bindseil, 1995; Ross, 1973; Voigt, 2002). These information asymmetries allow the actors to use the discretionary scope for behaviours that maximize their own benefit. In order to counteract this, the principal intends to influence the agent's behaviour by suitable incentive agreements or incentive systems. The agency problems formulated within the principal-agent theory take the form of 'hidden characteristics', 'hidden action' and 'hidden information' as well as in the most challenging variant of 'hidden intention'.

1.1 Hidden characteristics

The agency problem of hidden characteristics already exists before the conclusion of the contract (ex-ante) and affects the relationship between principal and agent after signing the contract.

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The principal cannot observe the performance of the agent ex-ante and, equally, the characteristics inherent in the agent remain unknown to the principal (Ebers & Gotsch, 2006; Picot et al., 1999). Only after the contract has been signed or the service has been performed is the principal able to determine the suitability of the agent. He can only partially or not at all disclose certain information to the principal, for example, about the quality of his performance. The decision on the principal's contractual partner cannot be based on valid information, which in turn may lead to the selection of an unsuitable contractual partner (adverse selection) (Ebers & Gotsch, 2006; Eisenhardt, 1989; Picot et al., 1999; Voigt, 2002).

1.2 Hidden action and hidden information

In contrast to hidden characteristics, the agency problems hidden action and hidden information, which occur only after signing the contract (ex-post), relate to the efforts of the agent. In the first case, the principal cannot observe the efforts and activities of the agent, or can do so only at a high cost. In contrast, in the second case of hidden information, the actions of the agent can be observed but not professionally assessed by the principal (Picot et al., 1999). Regardless of the two asymmetries mentioned previously, the principal is aware of the performance result of the agent but cannot distinguish between a possible external influence that could have favoured the result and the actual performance share of the agent. Moral hazard arises when the agent opportunistically exploits this information asymmetry (Eisenhardt, 1989; Picot et al., 1999; Voigt, 2002), whereby this danger increases with the agent's scope for behaviour or control.

1.3 Hidden intention

Hidden intention describes the situation in which the intentions of the agent reveal themselves to the principal only after the conclusion of the contract. For the principal, the opportunistic behaviour of the agent is recognizable. Still, he has little or no possibility to counteract this and to force a change in the behaviour of the agent. The stronger the dependency relationship between the principal and the agent, the higher the risk for the principal of hidden intention and the resulting hold-up problem (Picot et al., 1999).

2 Applicability to workplace studies

2.1 Embedding the CREM in the corporate context

The core element of corporate real estate management (CREM) is the structuring of all property-related activities of a company whose core business is not property (Glatte, 2013, 2014). CREM is, therefore, understood as a bundle of different processes in the context of the economic procurement, management and exploitation of real estate with a focus on the corporate strategy; the properties thus serve to support the core business activities (Kämpf-Dern & Pfnür, 2014; Pfnür, 2014). In this context Pfnür (2014) differentiates between an 'investor/owner', a 'producer' as well as a 'user' perspective. It indicates that the creation of a balance between the needs of the users on the one hand and the available resources on the other hand in order to provide a valuable contribution aligned with the corporate strategy can be seen as a major challenge which requires prioritization and focus (Kämpf-Dern & Pfnür, 2014). Assuming that the CREM function ('owner-perspective') joins a contractual relationship with the business unit ('user perspective') in which services and costs as well as qualitative levels (e.g. service level agreements) are regulated, an internal principal-agent relationship can be considered. In this

case, the agency relationship between user and CREM unit as organizational unit of a company results less from hierarchical dependency than from an exchange contractual relationship (Reichert, 2005), which is primarily due to the internal division of labour and specialization; ultimately, companies are thus a network of contracts. Within this context, CREM's task is to balance these dynamics, ensuring value contribution at the same time. Hence, the business unit will be interested in maximizing the cost-benefit ratio and the CREM unit will be interested in maximizing its own value contribution to support the organization's corporate strategy. From an economic point of view, if there are no transfer prices for services, space and hybrid solutions, the maximum quantity is always demanded. In this case, a business unit, as a benefit-maximizing actor, would always demand workplaces in the best location, structure, equipment, service, etc. In other words, these systems would tend to always quantify a significantly higher demand than actually exists. And exactly this balance is a constitutive characteristic of a CREM unit, as outlined in Figure 10.1.

In this context, the CREM unit should be seen as an intermediary between core business requirements and market conditions. The question of principal and agent, however, can only be answered depending on the situation and shifts as a result of a change in perspective (multi-level principal-agent relationship). However, intra-organizational principal-agent relationships are subject to other challenges than inter-organizational relationships, e.g. between CREM and a mandated company for the provision of planning services in the process of changing workplace structures. For the functional outsourcing of service components between CREM and the market see e.g. Gibler and Black (2004).

In the past, systems of division of labour were usually based on the grouping of similar tasks that led to departments or functions in companies (Schreyögg, 2016). This, in turn, required specific IT, processes, qualification profiles, etc. In this context, CREM resources (applications and IT, information, infrastructure, and people) must be managed by CREM processes in order to implement and achieve the company's goals and requirements. In this respect, the bundling of similar tasks in one place is usually advisable. The bundling of content-related and technically related tasks can also be considered as an effective way to avoid prohibitive transaction costs. These appear when tasks are delegated, for example, to task owners who have no or only limited technical qualifications to perform them and therefore have to familiarize themselves anew with a task again and again. In this context, the CREM unit acts as an intermediary for all tasks related to the company's real estate-related activities while maintaining and observing the company's objectives. This intra-organizational principal-agent relationship, however, differs from the relationship with external market partners (e.g. with companies outside the company's boundaries; e.g. outsourced services).

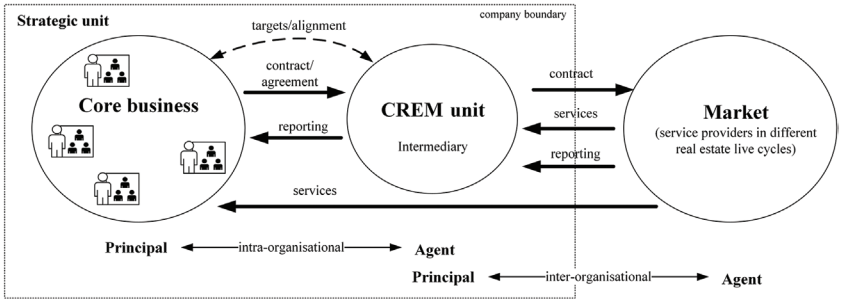

Figure 10.1 Multi-level principal-agent relationship

Within this example of an internal unit, the importance of controlling the transactional relationship via contractual structures becomes clear. And the more the existing scope of behaviour in the design and operation of workplaces is utilized by the actors, the greater the difference between the first-best and second-best solution and thus the associated agency costs. There is always unequally distributed information between principal and agent; the question is, rather, how this information can be instrumentally and therefore contractually shaped within a company with a view to ensuring a value contribution (in the understanding of a possible first best solution).

As a result of the existing information asymmetries, value-maximizing decisions are not always made, but sometimes those that best meet the expectations of the actor. Meanwhile, the question arises which contractual instruments can be used in the internal exchange of services in order to achieve the lowest possible agency costs.

2.2 Descriptive structuring of intra-organizational relationships

Considering a multi-level principal-agent relationship, a descriptive analysis of the internal (intra-organizational) area of the company is to be carried out at this point. In principle, these aspects and interactions are not to be considered solitary and separated from each other via the chain to external companies; for an initial analysis, this model-like decomposition is necessary. At this point, the possible information problems of the principal (function/core business) and the resulting possible discretionary scope of the agent (CREM) are addressed.

In contrast to the inter-organizational relationship, intra-organizational relationships (usually) do not allow the transaction partners to choose among themselves. In other words, the core business unit with its functions cannot freely select its CREM unit as an internal service provider among other possible service partners; this applies, and vice versa, and leads to an internal obligation to contract and a quasi-monopoly position to support the system of division of labour. In the given context of workplace solutions, the selection of a suitable contractual partner is therefore not necessary from the point of view of the business unit (principal) due to the existence of a central CREM-department (agent).

The omission of this agent selection can have a reinforcing effect on the agency problem: As shown earlier, in the classic case, the principal is in possession of information about his possible contractual partners, despite existing asymmetry, and he has dealt with the situation of contracting – to a certain extent he has built up specific know-how which he can draw on in the context of his decision – which is now completely omitted here. As a result of the elimination of the selection process, the business unit does not have any information on the performance and suitability of the internal CREM unit as a contractual partner. The principal cannot directly observe the actual quality characteristics of the agent – especially in comparison to possible market partners – so that a maximum quality uncertainty can be assumed. Due to a lack of market comparison, for example, the business unit cannot assess whether there would have been other and more suitable solutions with a higher surface density, better support for productivity, a better office layout and support for activity-based working environments than the solution proposed by the agent. The exposed quasi-monopoly position of the CREM further enhances this effect. In concrete terms, CREM could keep its activities in the development of workplace solutions – but also all other property-related activities – at a moderate level without being 'sanctioned' for this. The installation and implementation of suitable monitoring and control mechanisms and adequate performance incentive systems (see Table 10.1) sometimes reduce corresponding uncertainties from the principal's perspective, but also lead to (higher) organizational costs.

Table 10.1 Options for problem limitation (hidden characteristics)

Removal of information asymmetry		*Alignment of interests*
Signaling/screening	*Self-selection*	
• Description of the value contribution of the CREM • Publication of success stories about positive workplace concepts and solutions • Using the "shadow of the past" • Company-wide description of the degree of maturity (also in comparison to the market) • Integration of further, independent industry experts as neutral partners • Introduction of project advisory boards to support the change process	• Formulation of different possibilities of performance implementation by the principal and self-selection to identify the best solutions by the agent (measured by the achieved value contribution for the company)	• Description of internal, market-based clearing systems • Formulation of joint target agreements on the basis of the corporate goals • Development of incentive systems, which are linked to the success of the measures

At this point, it should not be neglected that the establishment of a CREM unit and thus the creation of a multi-level principal-agent relationship is primarily of an organizational nature and that the internal contractual partners have already cooperated with each other in the past, both positively and negatively. In this respect, the "shadow of the past" (Blumberg, 2001, p. 833) can also generate reservations at this point with regard to the systematic implementation of new working environments for the user, which, however, cannot be sufficiently resolved as a result of internal contracting. It can be assumed that the longer and more positive the experiences of the cooperation from the past are, the more trustworthy and better the exchange of information and the cooperation between the internal contract partners works. At this point, the positive experiences of internal contract partners can be used and mutually signalized (see Table 10.1).

Assuming that the provision of new workplace environments is also a form of object-related complexity (Bogaschewsky & Glock, 2008), in which the principal must provide specific information on the required solution (e.g. type and manner of cooperation, processes and activities, communication relationships, etc.) so that the agent can implement these in solutions, then this complexity is often seen as the basis of the misunderstanding. In this context, the agent (CREM) is in a position to develop good and subsequently adapted solutions only once this information about the core business processes has been collected and integrated. This complexity can be the basis for misinterpretations and transmission and translation errors (Bogaschewsky & Glock, 2008), which has a significant impact on the effectiveness of the workplace solution to be produced.

On the other hand, the agent is also subject to the principal's instructions – especially with these professional services of implementing innovative workplace concepts. The principal should be able to make reliable statements about his needs and be able to quantify these specifically in line with the company's objectives. In the absence of market-based charges, integrated systems tend to ask for the maximum performance as long as the good does not have a real price. In essence, this will lead to inefficiencies in the exchange of services; sometimes more space, functional relationships, office layouts, work systems and equipment features are requested than are actually needed. To prevent these maximization tendencies and thus promote an ineffective business solution, internal, joint target agreements with an integrated incentive system could be agreed upon, which place the project goals in the context of the overall business

goals and address them. This makes it possible to understand, ex nunc or ex post, why individual goals have not been achieved and how the corresponding responsibilities can be described (see Table 10.1).

However, the case of non-disclosure of information to the agent from the perspective of the principal will be assumed only if the agent would not harm himself. However, in many cases, it seems more likely that the principal unintentionally passes on incomplete information regarding his needs; this is likely to be the case especially in pilot projects for the implementation of innovative workplace concepts, as in these cases there is sometimes no established process with checklists, key figures, experience reports, etc. Especially in such situations it seems to make sense, for example, to integrate additional external companies to describe requirements with a more objective and neutral view or to form a project advisory board to support the transformation process (see Table 10.1).

With regard to the hidden characteristics, however, the first internal uncertainties seem to have already been identified, which must be solved by specific countermeasures in the intra-organizational context; Table 10.1 summarizes possible solution mechanisms (not conclusive).

However, the intended division of labour and task specialization between core business requirements and real estate management implementation inevitably leads to the situation that the principal is able to observe the performance of the CREM but ultimately cannot assess it from a technical point of view. Accordingly, the actual performance of the CREM unit can be determined only through in-depth analysis, additional data, external reports, etc., and thus through comprehensive information provided by the principal. In concrete terms, for example, a core business unit would have to know exactly which market solutions are available for which activities, with which structural and technical solutions and at what cost, how functional units can best be put together following internal communication relationships and how basic space requirements and occupancy rates, etc., are described. This would be followed by the question of what control and monitoring mechanisms should be introduced by the internal principal and what organizational costs would be involved. In order to solve the corresponding challenges, an external advisory board with expertise could be set up, for example; joint CREM workshops on the extensive integration of the user (co-producer) in the new working environment, integration of real and implemented project examples, etc., are only some of these solutions (see also Table 10.2). The user must develop an understanding of being an accepted partner at eye

Table 10.2 Options for problem limitation (hidden information/action)

Removal of information asymmetry		*Alignment of interests*
Monitoring	*Proactive approach*	*Monitoring*
• Formal control • Use of normative control and an organisational 'WE' feeling (emotional attachment of employees) • Common values (workplace as an identity and image-forming characteristic) • Establishment of an externally staffed project advisory board for project implementation	• Integration and creation of confidence-building measures • Joint workshops for planning and implementation • Extensive integration of the user including early involvement (co-producer) • Technical support (e.g. Building Information Modelling visuals for the design of the workspace, surfaces, colours, functional relationships, etc.)	• Description of the objectives and measurement of the CREM value contribution (incentive-compatible reward) • Joint project reports on project progress to the management

level and be given the feeling that his opinion, his estimation and his view, and thus his needs, are first taken and considered.

With increasing project progress of innovative or even changed working environments, however, the measurement of project success in the form of the degree of target achievement is also becoming more and more important, so that investment costs are put in relation to the benefit contribution. Measuring and evaluating the 'benefit contribution' (e.g. via productivity) of new workplace solutions within a company – especially with regard to the associated investment costs – appears anything but easy (Haynes et al., 2017), which would have to increase the measurement problems of the principal further. It becomes clear that the agent (CREM) can use leeway and information advantages to refrain from agreed actions or to implement activities that are to be omitted and thus violate the principal's interests. This example, in particular, shows the importance of unidirectional (internal) benefits.

It can be assumed that the measurement and assessment problems increase with increasing complexity. The more strongly the existing working environments are interfered with or changed in this context (e.g. activity-oriented working environments, non-territorial workplaces, etc.), the more difficult it is likely to become to make a 'clear' assessment and measurement. In essence, this will lead to the consideration that the principal may observe the agent's performance, but that it is difficult for him to assess it professionally, or that the observation and control process can only be implemented at (further) high organizational and control costs. This is where jointly developed target agreements, project commitments and target and performance measurement systems can help, which clearly address the benefits of the workplace solution (see Table 10.2).

Control can be achieved in various ways. Groß (2008) clarifies between formal control (influences the members from outside) and normative control (refers to the shaping of internal convictions).

If these aspects are further examined, another form of asymmetrically distributed information may arise between the functional areas, which can be traced back to hidden intentions of the transaction partners and, above all, to the fact that one partner has brought in significantly more specific investments than the other. This dependency gives rise to the risk of opportunistic actions which may lead to a hold-up.

CREM units build up specific know-how over time – if only against the background of the division of labour already discussed; this applies not only to the implementation of workplace structures in particular, but also to real estate industry issues in general. This knowledge is based on suppliers, technically available solutions, use of sensors, specific requirements for surfaces, room temperatures, etc. This particular knowledge can be understood as human asset specificity (Williamson, 1996). What specific investments have in common is the fact that they cannot be used outside the transactional relationship actually planned with analogous value creation or without adjustments.

If it is assumed that there is an internal contract between the demand side and CREM, mutual dependence may be assumed in this context, although this does not necessarily have to be to the same extent (Bogaschewsky & Glock, 2008). It should also be noted that the principal (core business) and agent (CREM) functional areas discussed here generally report to different higher levels of authority (for example, Production to the Chief Production Officer and CREM to the Chief Financial Officer). In this context, the evaluation and assessment (e.g., by means of post-occupancy evaluation [POE] as described, e.g., in Kim & De Dear (2013), or at the Center for the Build Environment [CBE]) of the solution achieved in the form of user satisfaction, together with the financial framework data (e.g., investment costs, budget compliance, adherence to schedules, etc.) is integrated into the evaluation of the CREM unit's performance,

Table 10.3 Options for problem limitation (hidden intention)

Alignment of interests
• Creation of an attributability of success to principal and agents (each functional area is responsible for the endogenously achieved part of the success/failure)
• Final coordination of the actual requirements as well as all factors related to the (internal) contract (e.g. price, time planning, etc.) and allocation of cost surcharges in case of significant deviations (additional fee)
• Assurance of the 'guaranteed' acceptance of corresponding workplaces (e.g. with regard to quantity, area and equipment)

which would shift the dependency ratio in favour of the principal (see also Table 10.3). This, in turn, would allow the principal to have room for maneuvre at the expense of the agent. Looking at corporate practices, it can already be seen that ultimately all functional goals can (or must) be derived from the overriding corporate goals; nevertheless, it must be noted that there can and will also be conflicting goals at the functional area level and that there is sometimes an accountability problem – both positive and negative.

In addition, depending on the internal charging model for the service, more extensive opportunistic measures can also be taken by the functional areas. In this case, for example, one assumes that the principal and the CREM unit have essentially agreed on a solution to be implemented for the new working environment, as well as the associated investment volume and rental payments (e.g., cost rent). The CREM unit then draws up detailed plans, management concepts, invitations to tender, relocation plans, etc., and makes specific investments accordingly, because these solutions have no value outside of the actual intended use; or they may have to be adapted, which would entail additional costs. The principal anticipates this and changes the conditions of the underlying (internal) contract, e.g. the rent to be paid as cost rent. The principal could argue this opportunistic behaviour internally, for example, by referring to changed external conditions and environmental changes; especially in view of the different reporting lines within the company, this case of a hold-up could be possible in principle.

3 Methodology/research approach

Within agency theory, two different types of directions can be observed: on the one hand, descriptive or positive agency theory (which is also used here), which has a stronger empirical reference and less mathematical formulation; and on the other hand, normative theory, which is characterized by a strong mathematical reference (Eisenhardt, 1989). Applying the positive agency theory, the focus is on conflict situations between principal and agent, where their goals are different, and the underlying governance mechanisms. These mechanisms are analysed and explained in a descriptive way to point out how they "limit the agent's self-serving behaviour" (Eisenhardt, 1989, p. 59). Using the mathematical reference, the contractual relationships are systematically analysed and structured using various success and premium curves. The goal is to determine the most ideal constellation between principal and agent so that the agent can make decisions that maximize the principal's well-being. Mathematically determined incentive systems form the basis for this (Jensen & Meckling, 1976).

Knobloch (2020) has intensively studied existing studies of different coordination mechanisms and examined them methodically. He concludes that the normative approach of agency theory is predominantly applied (Knobloch, 2020). The contributions of, e.g., Geringer and

Woodcock (1995), Lafontaine (1992) and Fosberg (2004) derive various context-dependent hypotheses, based on the theoretical framework provided by the principal-agent theory, which are subsequently confirmed or refuted by the application of mathematical models such as regression analyses. The hypotheses are tested using data from databases such as LexisNexis Academic or publicly available information from ministries of economics or similar. Knobloch (2020) assumes that the normative approach is used relatively often due to the comparatively simple and cost-efficient procurement of information. In addition to the pure application of mathematical models based on database information, Hass (2010) and Boivie et al. (2011) test their derived hypotheses using data material collected through questionnaires. Both mathematical models and statistical analyses (e.g. T-tests) are used to test the hypotheses. All in all, these contributions can, due to the characteristics of hypothesis testing, be assigned to the quantitative research methodology. Buchanan et al. (2014) take the path of qualitative research and the positive approach of the principal-agent theory: In their study with 43 interviewees, they try to verify the extent to which the view of agency theory is confirmed in the context of corporations and, based on these findings, to give an assessment of the theory's inclination to analyse relationships within a corporation.

Beyond a theoretical understanding, however, it has also become clear that the implementation of new, innovative workplaces, which should support the creativity and productivity of the core business, integrates a large number of participants and, above all, requires a joint and targeted approach. Otherwise, there are also faulty possibilities of attributing the success and failure of a project. The principal-agent theory can provide the conceptual and theoretical framework for structuring and thus help both functional areas to understand each other better and to formulate project goals and implementations in the understanding of the achievement of the business objectives. Within this framework, the 'rigid' assumptions of agency theory – especially with regard to internal demand models between core and CREM business – seem to be modified, extended and, above all, shaped more realistically by means of behavioural economic approaches. Against this background, an investigation of successful models for the implementation of new working environments with reference to the solution mechanisms of the principal-agent theory would be ground-breaking, since in this theory concrete behavioural patterns and preference structures of the actors could be collected and derived as 'best practice' to expand the solution instruments described here. For this specific question, with the behavioural-economic enrichment of agency theory, qualitative designs would be the most appropriate. These findings would be a substantial enrichment, since on the one hand the solution instruments would no longer have to be derived descriptively and empirically along the assumptions and asymmetries of agency theory, but above all, because they would provide application-oriented solution instruments for internal actors to design user-oriented working environments.

4 Limitations

It should be noted at this point that a transfer to the inter-organizational area is possible, but further adjustments are necessary, especially with regard to the measurement of agency costs. The agency costs serve as an evaluation criterion for the benefit of a contractual arrangement (Ebers & Gotsch, 2006). Their use can sometimes lead to limitations in terms of evaluation, as it may be difficult to determine the reference line of agency costs against which the final evaluation is made.

Furthermore, it should not be overlooked that the business unit and CREM already have a 'common' past, which can be both positive and negative. Especially against this background, the 'hidden characteristics' in connection with the internal achievement relations are to be evaluated

differently. Irrespective of this, the possible solution mechanisms help to better understand the performance relationship and thus also create a solid foundation for change. It is precisely at this point that agency theory can be expanded to include behavioural economics approaches.

5 Theory relevance to practice

In practice, the contracts between the organizational units are mainly based on the exchange contractual relationship against the background of division of labour and task specialization. In general reality, it is not uncommon to observe that the organizational units – at least vis-à-vis the management – act as a maximizer of benefits. However, each function tries to maximize its own goals and thus its own benefit, even contrary to the defined company goals – if applied in an uncoordinated way. Agency theory, however, creates a broad framework of understanding and can thus be used to harmonize objectives. Its application seems to provide useful hints for CREM as well as for the implementation of individual projects such as the redesign of workplaces.

It has also been shown that the application and use of the principal-agent theory to solve the organizational problem in real estate management has so far – both in theory and in practice – taken place only to a limited extent. The agency theory is mostly used in the context of external contract constellations and is usually not applied within the company. The transfer of the agency theory to the internal contract constellation provides various possibilities for a better understanding of the internal contractual relationship and for the design of the same. The possibilities and options discussed in the context of the solutions can, however, be used, for example, in pilot projects in the field of designing new working environments, to conclude specific project agreements between the functional areas in which the goals, requirements and framework conditions, costs, times, etc., are recorded. They would thus serve as internal guidelines for action and rules of the game. Intensive cooperation and an active and trustworthy exchange of information is essential, especially in the design of new working environments, which will generally have a higher strategic significance, complexity, specificity, uncertainty and low reversibility. Project agreements, defined, operationalized goals, instruments, etc., can be helpful as rules of the game in this implementation. By understanding the internal contractual relationship, the CREM department would, for example, integrate confidence-building measures towards users, offer communication and information platforms and already implemented pilot projects, etc. With a deep and intensive understanding of the agency problems, CREM would develop process standards for corresponding projects and, above all, develop instruments, e.g. to describe the requirements and framework conditions. By using reference values or benchmarks, or by integrating external know-how and experience, CREM's own solutions could always be referenced and evaluated whether they actually address the core business objectives sufficiently. So, there seems to be an abundance of possible applications, which, however, require a basic understanding of the possible agency problems. Thus, agency theory can be understood as a structural and conceptual framework for the design of new working environments. Also, an objectified measurement of the generated target amount of the workplace solution as well as internal communication are essential derivable bundles of measures, which are often based on the confidence of the partners among themselves.

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11

BRANDING THEORY CONTRIBUTIONS TO CORPORATE REAL ESTATE MANAGEMENT

Rianne Appel-Meulenbroek and Abdul Jalil Omar*

1 Background

A brand is one way of identifying a product or a service. Doyle (1992, p. 319) suggested that "a successful brand is a name, symbol, design, or some combination, which identifies the 'product or service' of a particular organization as having sustainable differential advantage". A richer brand definition, however, is presented by Macrae et al. (1995), who suggested that a brand represents a unique combination of characteristics and added values, both functional and non-functional, which have taken a relevant meaning linked to the brand. A brand thus "can be seen as a cluster of physical, functional and socio-psychological attributes, beliefs and values associated with a certain product or service" (Appel-Meulenbroek et al., 2010). Clearly, it takes more than physical images to develop and communicate a brand to all relevant stakeholders of an organisation.

1.1 Branding origins

Branding originates from the marketing field and quickly after that was enriched with many theories from the psychology field. It is suggested that the term "brand' entered the marketing field in 1922 (Stern, 2006), but according to Bastos and Levy (2012), there are already some studies stemming from a few years before that. Nonetheless, it did not really start to gain interest until the 1950s, and most research even dates from the current century (Roper & Parker, 2006). Today, social sciences and humanities disciplines also study branding, arguing that branding efforts shape consumer desires and actions (Holt, 2002). There is also a lot of branding research in the tourism field, focused on city marketing and other forms of place branding (e.g. Kavaratzis, 2004). Additionally, the field of human resources (HR) is applying marketing theories to increase employer branding insights (e.g. App et al., 2012).

Roper and Parker (2006) distinguished four time-periods of branding theory development, which all have their own focus. First, the price was the main focus of branding theory (1979–1984), but later also the name (1987–1992) and the service (1993–1999) were included,

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followed by viewing the brand as a company asset (2001–2005). They labelled these four stages of branding as identification, differentiation, personification, and asset. Identification of a brand takes place when consumers associate a product or service with its producer or the owner. This origin of product branding emphasises uniqueness, to ensure that the consumer recognises the product. But the need for a brand increased especially during the industrial revolution, when improvement in production processes allowed for mass production, economies of scale and consistent quality (Low & Fullerton, 1994). The increased competition in the market demanded differentiation from others with similar products. As of then, consumers were encouraged to identify a product by name through mass communication, to strengthen the landing of products in the mind of customers for repeated purchasing from the same company. Distinctive brand differentiation among competing brands in the market can be achieved through innovation, which helps to maintain a dominant position for a longer period. Differentiation generally took place functionally or rationally (through size, package, quality, price and so on). From the 1990s, services were starting to be considered part of the brand to increase so-called personification. This moves a brand from a thing into a product with meaning to it, in order to emotionally attach consumers to it (Roper & Parker, 2006). For example, a product endorsed by a celebrity will add charisma to it, and consumers prefer a product, a store or a service that aligns with their own desired personality. The 'meaning' is defined through the characteristics of the brand and is constructed by customers when associating with the brand (Aaker & Fournier, 1995). After all, a company may try to create a powerful brand identity, but in the end the consumers create the brand meaning. With the turn of the century, the value of a brand also started to be seen as an asset for the company, turning a brand into just as important a value as other company assets.

1.2 Branding dimensions

Nowadays, branding theory distinguishes many different dimensions, both in relevant terms/concepts and in who is involved in communicating the brand and who is targeted by it. Regarding the latter, product branding is the base to sell products to customers, but it is not enough for companies to focus on creating reputation solely through products' quality (due to the standardisation and homogeneity of production processes nowadays). Therefore, so-called corporate branding aims at disseminating values and emotions symbolised by the company. It regards the corporate reputation as perceived by several different relevant stakeholders (Orozco-Toro & Ferre-Pavia, 2019). When the war on talent started, another stakeholder was added through so-called employer branding, that aimed this dissemination of company values not at customers, but at potential future employees. As Edwards (2010, p. 6) put it: "Whereas product branding considers how a product is represented to customers and corporate branding considers how an organisation is represented to a variety of external audiences, employer branding considers current and potential employees as branding targets". Successful organisations thus need to have a holistic, consistent and integrated approach to corporate branding. All organisational members should be contributors to the creation of the corporate brand, to achieve genuine coherence between the promise the brand makes and the performance the corporation delivers (Hatch & Schultz, 2003). The corporate brand then moves beyond the visual part of the brand, such as the logo and building, into multiple channels of communication, such as staff behaviour (Balmer & Gray, 2003). To do so, organisations must create synergy between the brand and the organisational culture (Hatch & Schultz, 2003), which is deeply embedded in organisational behaviour. Kaplan and Norton (2001) have stressed a relationship between employee behaviour and customer impression and retention. They state as an example for the retail sector that a compelling place to work leads to a compelling place to shop. The reality that they are trying to

deliver is that employee-centred services might be just as important as the clichéd statement to the external customers. But challenging the norm and creating synergy between the brand and the organisational culture is not easy (De Chernatony & Cottam, 2006).

Customer services (either as the main source of income of a company or related to their physical products) also add to the holistic experience of the brand. In order for a service to support a strong brand, the consumer must be aware of notable differences between the provider's offerings. Therefore, some scholars emphasise the creation of a strategic function internally, leaving the fixation on input and outcomes/sales (e.g. Gyrd-Jones et al., 2013; Kapferer, 2012; Balmer, 2010). Only then, organisations are integrating functional silos towards a dynamic corporate branding that supports stakeholder buy-in and branding outcomes (Vallaster & Lindgreen, 2011).

A second 'set' of dimensions regards the concepts/terms related to branding. Branding refers to the communication of what the organisation is, what it does and how it does it: which becomes visual through the so-called corporate identity (Markwick & Fill, 1997). Another concept that is often used in branding literature is 'image'. As Nandan (2005, p. 264) explains, "identity originates from the company, ie a company is responsible for creating a differentiated product with unique features. Brand image refers to consumer perceptions and encompasses a set of beliefs that consumers have about the brand". Or. as Sääksjärvi and Samiee (2011, p. 170) put it, "brand identity represents how firms aspire to be perceived, whereas brand image refers to how they are perceived". Both concepts are essential ingredients of strong brands (Nandan, 2005). Melewar and Karaosmanoglu (2006) claim that not only corporate culture determines corporate communication and thus corporate identity, although it is the starting point in their model. Additionally, the influence of corporate culture on corporate strategy and corporate behaviour is relevant, as all three aspects in turn influence corporate communication efforts to express the corporate identity as well. Another indirect line in their model flows from corporate strategy through corporate structure to corporate design and then into corporate communication and identity as well. This indirect line might be the most obvious way of branding and its oldest form, as it is the most visible and explicit form of communication; but as discussed earlier, behaviour is just as relevant.

What Melewar and Karosmanoglu's model overlooks is that corporate design, especially the physical workplace design, also influences employee behaviour and how well employees can perform their work (Appel-Meulenbroek et al., 2010). This is discussed in greater detail in the next section on the application of branding theory to workplaces, distinguishing the three different types of stakeholders that came forward to benefit from branding efforts: consumers of the companies' products/services, potential future employees, and current employees.

2 Applicability to workplace studies

Design aspects of the work environment are considered relevant for communicating corporate identity. So, corporate real estate (CRE) and facility management can help or hinder the communication of the corporate brand. However, so far branding models mainly mention aesthetical design factors of the workplace, such as the building's architecture and office layout as a direct influence on corporate communication to consumers passing by or visiting the building. They disregard the potentially strong relationship between the physical working environment and employee behaviour, as an indirect influence of CRE on corporate communication. Additionally, more and more organisations have started using their physical office designs for employer branding (e.g. the circular building of Google with slides as an alternative to stairs to emphasise playfulness). Besides supporting the organisation in communicating their corporate identity to

customers and employees (being internal customers), branding theory could additionally be relevant for CREM internal branding, to show its added strategic value for the organisation more clearly. So, this section explains these three ways how a branding theory could be applied to corporate real estate management:

1 Direct and indirect physical communication of corporate identity to consumers.
2 Employer branding.
3 CREM internal service branding.

2.1 Direct and indirect physical communication of corporate identity to consumers

Lindholm and Leväinen (2006) identified several ways in which CREM might add strategic value to promoting company marketing and sales, by their help in communicating corporate identity towards an improved corporate image. They mentioned that CREM should:

- Select locations that capture customers,
- Provide space that attracts customers,
- Make a symbolic statement through design and location,
- Create a workplace that supports the corporate brand,
- Provide the environment that supports the sale.

Interviews of CRE managers indicated that their most commonly aspired brand images are values like sustainability, reliability, transparency, innovation and being people-oriented (Khanna et al. (2013). However, these should also match the values of the organisations as a whole.

There are only a few concrete studies on the direct and indirect effect of workplace aspects on a company's branding success and customers' perceptions of their image. Regarding potential direct effects of the workplace, Bitner (1992) explored the impact of ambiance conditions (like temperature, sound, light and smell), space and function, and signs, symbols and artefacts on customers. Hatch and Cunliffe (2006) and Strati (1999) explored the relationship between CRE and images of companies more specifically, distinguishing location, layout and style as important factors. Appel-Meulenbroek et al. (2010) asked workplace managers of different (service) companies how they thought that a list of physical workplace aspects would help with corporate branding. All aspects that they tested for a direct or indirect influence were considered helpful: location typology and reputation, landscaping, façade, recognisability, quality of finishing, the main entrance, architectural style, visibility, floor plan, accessibility and indoor environmental quality (IEQ), facilities in the neighbourhood, accessibility by car, bicycle or public transport and restaurant facilities. However, the most important tools for branding in a direct way were considered to be the accessibility and typology of the location, the quality of the finishing and recognisability of the building, and the main entrance. Organisations convey a certain message through their building lobby, main entrance, facilities as well as signage to their customers and employees. To an extent, the terms brand and landscaping have even integrated to the term 'brandscaping' (coined by Sherry, 1987).

Regarding indirect effects, satisfied employees are able to bring more value to the company and are willing to go the extra mile to satisfy their external customers (De Chernatony & Cottam, 2006; Punjaisri & Wilson, 2007). Loyal and satisfied external customers are a result of quality employees who received internal service quality from company business functions like CREM. It is an internal quality chain reaction from internal customers to the external

customers to work synergistically. To satisfy employees, not only IEQ, furniture and equipment, enough diversity of functional spaces, and supportive facility services are important, but also softer aspects such as décor and privacy (van der Voordt et al., 2016).

2.2 Employer branding

As Backhaus and Tikoo (2004, p. 502) argued, employer branding "suggests differentiation of a firm's characteristics as an employer from those of its competitors, the employment brand highlights the unique aspects of the firm's employment offerings or environment". More recently, Backhaus (2016) pointed out that despite hundreds of published articles on this topic, many key aspects still need further investigation, and there is no agreement on which attributes are most important. Nonetheless, with the scarcity of talent in many knowledge-based sectors, employer branding is also increasingly including the office where a person gets to work. Organisations create trendy, modern offices to convince young talent that they will provide them with an attractive workplace experience if they become their employee. So far, there is little evidence whether the physical work environment actually makes the difference in choosing between jobs. A study by Themans et al. (2020) appears to be the only one that specifically included real estate in their study on employer branding. When asking knowledge workers to allocate points to aspects influencing an organisation's attractiveness as employer, real estate was the second lowest rated factor, only above organisational image and below rewards, social climate, development opportunities and working hours. However, as they argued in their study, the differences were very small, so real estate is clearly also a relevant aspect. Regarding the studied aspects within the real estate category, they identified location as the most important one, followed by the individual workspace, services and facilities and, last, the building itself. Especially the accessibility and the geographic position of the location scored high on creating an attractive employer.

2.3 CREM internal service branding

As visible in Chapter 12 on the Value Adding Management model, CREM can add value to the core business of a client organisation in many ways. Nonetheless, there remains a strong focus of CREM and general management in practice on cost efficiency of providing accommodation. Such a focus on unit costs and building condition, rather than on overall costs and business outcomes affected by the workplace design, is the reason that CREM has a hard time capturing strategic attention (Price et al., 2009). But there is increased attention for showing the full value and contribution of CREM (Heywood & Kenley, 2008). Perhaps better internal branding of the CREM/FM department could help with that. As Omar and Heywood (2014, p. 74) mentioned, "CREM needs to better frame itself in terms of supporting business as that is what their customers saw as CREM's core competence". CREM internal service branding is a process of building a service brand from inside out through tangible and intangible assets, and of a company's mission and their commitment to satisfy their most important customer, which is the employees. For employees, their workplace is more than just a business resource, as it also reflects their psychological needs, such as territoriality, privacy, autonomy and social interaction with other people (see Budie et al., 2019). Besides, physical workplace conditions include emotional and physiological aspects for individuals through attachment, familiarity and identity (Inalhan, 2009). Ignoring the emotional effects can damage human well-being from a socio-psychological point of view but also might influence their behaviour towards customers.

From the three branding applications discussed in this chapter, internal service branding might be the biggest branding challenge of CREM for several reasons:

1 Optimal workplace support is complex, as functional, physical and psychological aspects could all play a part. A structured literature review by Appel-Meulenbroek et al. (2018) identified 134 studies, from which they extracted 10 employee outcomes that have been proven to be affected by the physical work environment, plus 8 categories of workplace 'design' variables that could be used to influence these outcomes. Therefore, there are many product and service qualities that could be branded internally towards employees and general management.
2 Different internal stakeholders prefer different settings for an optimal workplace experience. The major question top management would like to have answered is probably how the workplace design and other physical elements are able to create value for productivity and competitiveness. Employees, on the other hand, might care more about their wellbeing, privacy and support of activities. Plus, there is no one solution for every employee because so many individual differences in preferences exist (Budie et al., 2019). It can thus even be considered a wicked problem, because as Kreuter et al. (2004) describe, wicked problems are difficult to pin down and influenced by a constellation of complex social and political factors that change over time. Workplace management is also subject to such a constellation (see also Chapter 4 on the St. Gallen Management Model and Chapter 7 on Strategy-as-Practice).
3 Justifying tangible real estate contributions to employee productivity and behaviour is quite challenging; the latter because it is hard to isolate the effects of physical aspects from other factors influencing the employee at the same time. For example, empirical testing of the workplace impact on personal productivity and organisational value is still scarce (De Paoli et al., 2013).
4 The strategic importance of internal service branding relies heavily on the service provider's action and communication (Kang, 2016). As an internal service function to a business, CREM needs to communicate its expertise and performance in fulfilling companies' requirements to improve employees' and management's trust. However, this is always a collective contribution with other business functions such as HR, IT and finance and thus asks for working in harmony with such departments. And generally external service providers are hired to fulfil part of the CREM service delivery as well, so they are also part of communicating the CREM service.

What is important is how CREM plays its role in the brand-building process to translate the external brand values to the internal organisation values or vice versa. Omar and Heywood (2014) highlighted that workplace acceptance among employees increases when CREM is perceived as trusted and a reliable contact point to provide them with the necessary tangible and intangible conditions to perform at their best. Employees also need to have a better understanding of the meaning of the workplace in order to adapt smoothly to a new situation (Inalhan, 2009). The internal market of employees requires tailored services that fit with what the organisation wants to communicate to the outside. Thus, satisfying internal customers seems as equally important as satisfying external customers in providing quality products or services to the market.

As businesses strive to improve their competitive position in a crowded marketplace, strategic use of all resources, including CREM, into marketing strategies is necessary to succeed. Even though CREM does not directly engage with external customers, they are thus also a stakeholder in developing a strong and sustainable corporate brand for companies.

3 Methodology/research approach

Branding research has benefited from a full range of quantitative and qualitative methods, even including neural techniques and ethnographic methods (Keller, 2020). However, literature reviews show that while business-to-business branding (Keränen et al., 2012) and nation branding (Hao et al., 2019) studies mostly use surveys, place branding studies are mostly conceptual, qualitative studies (Acharya & Rahman, 2016). Keränen et al. (2012) also emphasise a lack of longitudinal research and focus on single industries. Only a few studies are focused on CREM and branding. Many of these studies are using either single or multiple case study approaches, sometimes with a combination of several research methods, including quantitative and/or qualitative data collection (e.g. De Paoli et al., 2013; Gyrd-Jones et al., 2013; Omar & Heywood, 2014). The strength of multiple cases obviously is the larger sample size, which is beneficial to understanding the triangulation of practices from several industries or different parties within the organisation, such as CREM managers, business units, other business functions and top management. For the direct and indirect physical branding, studies mainly asked CRE managers how they approach this and what they find most important/relevant. This helps to understand the association between the physical elements and corporate identity, such as the relationship of corporate branding to internationalisation (Foroudi et al., 2019; Khanna et al., 2013). However, it does not provide proof for the impact of CREM branding on the corporate communication of the brand. Future studies should thus further analyse characteristics or phenomena relevant for external CREM branding and their impact on stakeholders. A qualitative approach can be in the form of focus groups, observation and in-depth interviews with company clients. Quantitative approaches should include more large-scale survey studies that can identify how the effort of branding through CRE is perceived and whether it is thus successful. Such data could be obtained from company customers, those people living in the neighbourhood of the company's buildings, and/or passers-by (in the case of heavy trafficked locations). Similarly, more large-scale studies like Themans et al. (2020) could identify in greater detail how CREM can support employer branding the best way.

Regarding internal CREM branding, generally, studies are also based on case studies to provide insights in correlation of physical changes with employee performance and other employee and/or organisational outcomes (Omar & Heywood, 2014; Palm, 2016). The intention of such studies is to create a new way of thinking about the physical changes in the workspace and its meaning to employees or other stakeholders (Skogland & Hansen, 2017). For example, Palm (2016) used the evaluation from CREM's customers (top-level management) from 24 companies in Sweden. But a broader customer evaluation (e.g. employees, neighbours, clients) could provide CREM with different perspectives on strategies for improving their level of quality in CREM services. Recent large-scale literature reviews (e.g. Appel-Meulenbroek et al., 2018; Engelen et al., 2019) have shown that the added strategic value of CREM to the business is a complex set of dependent and independent variables. More of these structured overview studies could together form the input towards a business case for CRE interventions, which CREM could use for internal branding of their preferably strategic position.

4 Limitations

There are no real limitations in applying branding theory and research methods to workplace research. As described before, the theoretical concepts in the Melewar and Karaosmanoglu's (2006) model can be successfully applied to CREM research (and already have been, albeit a few times only). Also, many methodologies used to study branding are no different from

methodologies generally used in workplace research, such as surveys, interviews, observations, experiments and focus groups. However, some additional marketing research methods might be harder to apply to workplace research because the necessary data is not available in the public domain. For example, product-based companies can do competitive analyses with direct competitors on market share and brand familiarity, and they can study consumer buying behaviour by using data from national/regional statistics or online sales platforms, or even observe consumer behaviour in shopping areas. On the contrary, CREM data of competitors in the same industry sector are not available and hard to obtain; a lot is invisible unless the buildings can be visited, and FM systems could be accessed. Also, for direct and indirect physical branding, neighbours and passers-by might not be interested in collaborating in research on how they perceive a company's CRE appearance, as there is nothing to gain for them (opposed to being informed about retail products). Regarding internal CREM branding, there is still little benchmarking available, except for employees' workplace experience through the (paid) survey-based Leesman index (www.leesmanindex.com). As CREM departments do not share how well they are performing, this kind of research is thus also more difficult.

5 Theory relevance to practice

While CREM internal service branding and support of employer branding is relevant for all (larger) organisations, the relevance of direct physical communication by the CRE of the corporate identity to consumers probably depends on the business sector that a company is in. It seems more relevant for companies with frequent interactions with customers on site, such as banks and retailers. Nonetheless, it also matters if the CRE is located on a visible location, such as a city centre or busy highway location with many passers-by.

As there are few proven effects yet, CREM in practice should start applying branding theory through identifying a list of relevant internal and external stakeholders. Only by obtaining information from a representative delegation they can really identify how to improve their support of the corporate brand and their internal branding process. So far, evidence is obtained only from a few sectors or by non-representative samples of several sectors. So, these findings need to be tested in practice for the specific business type and sector that a CREM's client organisation represents. Understanding the key CRE factors that can influence the corporate brand of their specific organisation and their internal branding provides guidelines for designing a CREM strategy that supports both successfully. Both for external and internal branding efforts, towards consumers and towards current and potential employees, individual/group preferences need to be considered, which also depend on personal characteristics such as gender, age, personality and activity profile. Even internally, an organisation could have to deal with a variety of subcultures that also (need to) find expression in the corporate brand.

A successful corporate branding strategy is holistic, consistent and integrated and it requires not only the company's formal communication system but also many informal interactions a company has with its various stakeholders. Brand building involves a coordinated, interdisciplinary effort which plays a large role in forming the image and reputation of the corporate brand. CREM in practice needs to show the role their discipline can play in the organisation, as this is often still largely overlooked. A lot could be learned from sectors where the communication of corporate identity to external consumers through CRE appearance has occupied a central place in these organisations' corporate marketing practice (e.g. retailers).

For internal service branding, the CREM departments of different organisations could exchange more knowledge and experiences to work more rapidly towards a clear business case of workplace interventions. As CRE interventions are generally not done frequently, it would

take a long time for a single CREM department to gather all necessary insights for a successful internal branding strategy. The jointly acquired knowledge could then inform internal brand alignment, which should explicitly consider current and future demand for CREM from current and future portfolios. Heywood and Arkesteijn (2017) suggested the importance of a multi-directional alignment strategy that helps to evident CREM brand strategies in organisations. As a result, this multi-directionality would make them able to reach multiple stakeholders to provide comprehensive alignment directions (see also Chapter 9 on alignment theory). Successful support of corporate branding strategies through CRE management will require comprehensive feedback from management and lower organisational levels, to complete the loop in assessing progress and making adjustments when needed. Early development of a business strategy plan with objective measurements for real estate might provide CREM with a framework that could help them explainable their value to decision makers in their organisation. Then, CREM can move smoothly into the strategic planning process and live up to the potential to add strategic value to their organisation.

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12

VALUE ADDING MANAGEMENT OF BUILDINGS, WORKPLACES, FACILITIES AND SERVICES

Theo J.M. van der Voordt and Per Anker Jensen*

1 Background

In 2009, the second author of this chapter started a EuroFM workgroup with the aim to bring together researchers from different research environments, which were engaged or interested in comparing and developing joint research activities on the added value of facilities management (FM). Around the same time, he had developed a FM Value Map (Jensen, 2010, 2012). This input-throughput-output-outcome process model was inspired from the cause-effect principles of Strategic Mapping from Balanced Scorecard methodology by Kaplan and Norton (2000). It makes a distinction in six core business values and four values that are connected to the surroundings, and four main stakeholders (owners, staff, customers and society).

The first author of this chapter joined the EuroFM work group and added insights from the field of corporate real estate management (CREM). Important ideas were traced from the work by Nourse and Roulac (1993), who linked corporate strategy with eight corporate real estate strategies and fourteen real estate operating decisions, and by Lindholm et al. (2006), who linked similar real estate strategies to revenue growth, productivity growth and shareholder value, and various PhD projects.

The findings of the EuroFM work group have been published in the book *The Added Value of Facilities Management: Concepts, Findings and Perspectives* edited by Jensen et al. (2012a). This book presents academic research of twenty-two co-authors from seven nationalities on added value and Value Adding Management of buildings, workplaces, facilities and services.

In 2012, Jensen et al. (2012b) explored relevant research topics and findings on the added value of FM within research on FM, CREM and B2B marketing. Based on a brainstorming session with participants of the EuroFM work group, it was decided to invite experts to elaborate twelve value dimensions regarding state-of-the-art knowledge, how to manage and measure these value parameters, and future perspectives. At the European Facility Management Conference EFMC, 2013, Jensen, van der Voordt and Coenen organised a workshop about how to manage and measure different value dimensions. The attendants showed to interpret added value in different ways and to find it difficult to operationalise added value in clear parameters,

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interventions and ways to measure. Jensen et al. (2013) further explored similarities and dissimilarities in conceptual frameworks on the added value of FM and CREM and related stakeholders. Interviews with practitioners investigated if/how they apply the added value concept in practice, what values are prioritised, what interventions are implemented and how the outcomes are measured (van der Voordt & Jensen, 2014). This confirmed the need for a coherent definition of added value and appropriate tools to measure different value parameters. A critical review of twenty-one papers from EFMC 2013, EFMC 2014 and CIB 2014 on the added value of FM and CREM showed a lack of integrated analyses of the added value, including sacrifices (time, money, risks), and which stakeholders benefit the most and the least from particular interventions (Jensen & van der Voordt, 2015).

All these activities contributed to a second book, *Facilities Management and Corporate Real Estate Management as Value Drivers: How to Manage and Measure Adding Value*, edited by Jensen and van der Voordt (2017). This book tried to open the black box of input → throughput → output → outcome → impact/added value by discussing a taxonomy of six types of interventions, twelve value parameters, state-of-the-art of concepts and research findings for each value parameter, and ways to manage and measure added value.

The leading idea behind this research is that appropriate buildings, workplaces, facilities and services can add value to organisations, individuals and the society as a whole. Next, some main findings are summarised.

1.1 Value, added value, value types and parameters

The concept of *value* has been used for a long time. For instance, the economic theory of exchange value, going back to Rubin (1927), attempts to explain the exchange value or price of value or price of goods and services. Key questions include why goods and services are priced as they are, how the value of goods and services comes about and – for normative value theories – how to calculate the *correct* price of goods and services. Economy, efficiency and effectiveness may be used to contribute to an assessment of the value for money provided by a purchase, project or activity. Economy refers to minimising the cost of resources used or required (inputs) – *spending less*. Efficiency regards the relationship between the output from goods or services and the resources to produce them – *spending well*. Effectiveness regards the relationship between the intended and actual results of public spending (outcomes) – *spending wisely* (National Audit Office, 2020). The subjective theory of value believes that a good's value depends on the consumer's wants and needs (Stigler, 1950). In connection to supportive functions such as FM and CREM, Michael Porter discussed the concept of value chains and showed how primary and supportive business activities can contribute to more customers, financial profit and competitive advantage (Porter, 1985, 2001).

From an economic point of view, *added value* is created when financial value is added, i.e. lower costs and/or higher revenue for the organisation. However, Coenen et al. (2013) argue that value should be regarded as the cornerstone of FM, because its activities are used as inputs into the client's resource-integrating and value-creating activities as described in the value chain of Porter (1985), where FM is part of the organisations' infrastructure. They plea for including both the supply-side and demand-side perspective and identifying a wider scope of value exchange/creation from the point of view of different stakeholders. In line with this, added value may be defined as the trade-off between the benefits of one choice compared to another choice or an intervention in a current situation, and the sacrifices in terms of costs and risks to achieve these benefits, from the perspective of all stakeholders (Jensen et al., 2012a).

In the book chapters by authors from different countries, disciplines and sectors (offices, universities, health care and industry), Jensen et al. (2012a) detected fifty different definitions of added value. They clustered these in six main different types of added value:

1 Use value: quality in relation to the needs and preferences of the end users;
2 Customer value: trade-off between benefits and costs for the customers or consumers;
3 Economic, financial or exchange value: the economic trade-off between costs and benefits;
4 Social value: connecting people by supporting social interaction, identity and civic pride;
5 Environmental value: environmental impact of FM, Green FM;
6 Relationship value: for example, getting high-quality services or experiencing a special treatment.

Other researchers clustered different types of value as well, for instance, in productivity, profitability and competitive advantage (De Vries et al., 2008) and ditto plus sustainability (Den Heijer, 2012). Later on, Jensen and van der Voordt (2017) clustered twelve value parameters into four categories: (1) people-related values (satisfaction, image, culture, health and safety); (2) process and product (productivity, adaptability, innovation and creativity, risk); (3) economy (cost, value of assets) and (4) societal (sustainability, corporate social responsibility). Interviews with practitioners showed that the values that are included in Value Adding Management practices depend on the vision, mission and objectives of the company, its life cycle, organisational culture (e.g. hierarchical versus a network organisation), commercial versus not-for-profit, branch (offices, healthcare, learning environments, retail and leisure), and contextual factors such as the labour market and economics (van der Voordt & Jensen, 2014).

1.2 Value Adding Management (VAM)

Value Adding Management and related terms are widely used in the business and management literature. In the literature related to manufacturing, Value Adding Management is often used in a similar way as Lean Management with a focus on eliminating non-value-adding or 'waste' activities. In FM- and CREM-related literature, the focus is more often on the benefits part (Jensen & van der Voordt, 2015).

In order to support decision makers in value adding FM and CREM, Hoendervanger et al. (2017) developed a Value Adding Management process model with four steps; see Figure 12.1 (for a summary, see van der Voordt et al., 2016). This model is action oriented and follows the same steps in the renowned Deming cycle (Gidey et al., 2014). The PDCA cycle is widely applied to support total quality management, which is familiar to many practitioners. The VAM model corresponds with the principles of Benefits Realization Management (BRM), a set of organisational change processes structured to close the gap between strategy planning and execution by ensuring the implementation of the most valuable initiatives (Serra & Kunc, 2015). It also corresponds with the so-called Logic Model, which was developed in the early 1970s as a tool to evaluate the effectiveness of a program (Weiss, 1972; McCawley, no year; Millar et al., 2001). Common components are:

- Inputs: resources such as money, staff, equipment;
- Throughput/activities, e.g. the development of procedures or training programs;
- Outputs: what is produced, for instance, documents or the number of people that were trained;
- Outcomes/impacts: the changes or benefits that result from the intervention or program, e.g. increased skills of knowledge.

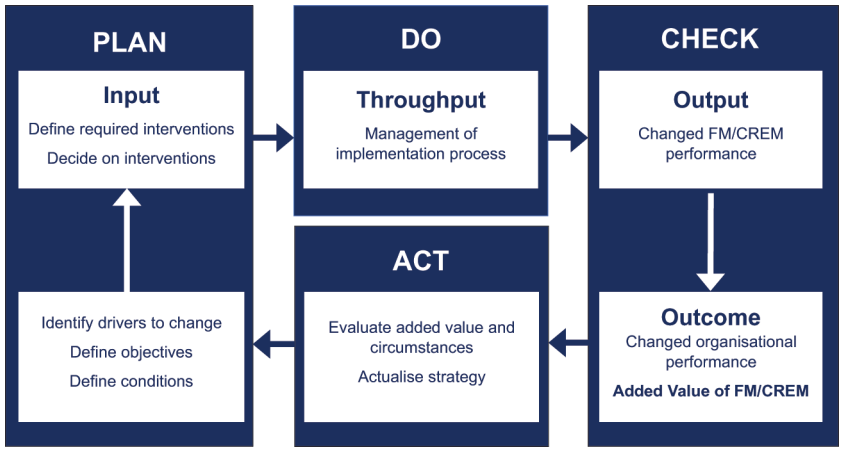

Figure 12.1 Value Adding Management model (Hoendervanger, Bergsma, van der Voordt, & Jensen, In Jensen and van der Voordt (2017, chapter 17 on tools to manage and measure adding value by FM and CREM)

The principles of input-throughput-output-outcome/added value correspond with what to do and why, how to implement and how to measure its impact. However, what is missing in most organisational change frameworks is a clear link with FM and CREM, which is key in the VAM model presented in Figure 12.1.

The main actions in the *Plan phase* are to identify the drivers to change, i.e. to define if there is a gap between the desired and actual performance of the organisation and the accommodation, facilities and services, and to define which interventions may result in improved performance. The Plan phase ends with clear decisions about which interventions should be implemented and how to implement them. In order to support this first step, Jensen and van der Voordt (2020) developed a typology of Value Adding FM/CREM interventions. Analysing the context of Value Adding Management may start with exploring the different roles, interests and power of stakeholders involved, using stakeholder analysis. A SWOT analysis can help to identify the need and direction for change, concerning both the organisation and the FM/CREM processes and products.

The *Do phase* encompasses the implementation of the proposed interventions and management of the change process. Decisions to be made include who should be involved in the process and how, time schedules, how to cope with resistance to change and how to cope with the different needs of different stakeholders. A major challenge is to keep focus on the initial goals regarding adding specific values. Implementation processes tend to develop their own dynamics, which can easily shift the focus from long-term strategic organisational goals to short-term tactical and operational goals of the participants. A tailor-made approach should be designed that fits with the characteristics of the intervention (complexity, budget, risks, timeframe), the goals and the social/organisational context.

In the *Check* phase, the costs and benefits of the intervention(s) and its impact on the performance of the organisation and its facilities have to be measured, both during the change and ex-post, after the implementation of the intervention(s) has been realised. To be able to measure whether the performance has been improved, a baseline measurement i.e. an ex-ante measurement before the intervention is implemented is needed as well. It is also necessary to evaluate if the changed performance fits with the organisational strategy, mission, vision and objectives and as such adds value to the organisation.

The *Act phase* is quite similar to the Plan phase. However, whereas the Plan phase may start with an analysis of changing internal or external circumstances or a strategic analysis of the strengths and weaknesses of the organisation and FM/CREM products and processes, these factors are already taken into account in the Act phase. When all objectives have been attained and maximum value has been added, the Act phase may be limited to consolidation of the new situation, until new drivers to change come to the fore. If the objectives are not sufficiently attained or not optimally, or if too many negative side effects come to the fore, new interventions or broadening or strengthening of earlier interventions should be considered. Another option is to reconsider the objectives. It may happen that the aimed performance was not realistic and feasible within the current conditions. Moreover, the context or conditions of the original objectives may have changed, which might force the organisation to change its organisational and/or FM/CREM strategy. If new or revised interventions have to be implemented, the Plan and Do phases start again.

The cyclic character emphasises that Value Adding Management is or should be a continuous process. Evaluation of realised output/outcome/added value may be a starting point for new interventions.

1.3 Performance measurement

In order to identify whether FM and CREM interventions add value to the organisation, its users and society as a whole, performance measurement before and after the intervention(s) is key, both of organisational performance and FM/CREM performance. Various models and tools are available about performance measurement (Riratanaphong et al., 2012). Table 12.1 presents a selection of possible FM and CREM interventions and tools to measure the output and outcomes, based on literature search and expert views (Jensen & van der Voordt, 2017; van der Voordt & Jensen, 2018). Various measuring tools can be combined in a Post-Occupancy Evaluation (POE), also called evaluation of buildings-in-use.

Which KPIs are or should be prioritised depends on the context and criteria such as tangibility, reliability, responsiveness, assurance (competence, courtesy, credibility, security) and empathy (access, communication, understanding the customer) (Shanin & Mahbod, 2007).

2 Applicability to workplace studies

VAM theory has proven its value in various research projects. For instance, Petrulaitiene and Jylhä (2015) used semi-structured interviews to analyse six Finnish organisations on expected and perceived value of workplace concepts. The actual perceived value of the workplace concepts showed to be richer than the expected value in advance of workplace change. Besides, a shift from cost- to business-workplace strategies was noticed. Main tools to add value were active employee involvement and orientation towards their needs, activity-based offices with unassigned workspaces, and more meeting areas. One of the organisations expected reduced workplace costs and improved business processes. However, after applying a new activity-based workplace concept, hub creation, implementing virtual communication tools in meeting rooms and providing multi-purpose office space, it was found that added value was reached in all categories, with great improvements in process development and space itself. In another case, it was seen that a customer-driven approach also improved the performance in the People category such as the overall effectiveness, motivation, communication and flexibility of employees. Orientation towards employees' needs improved employee motivation through communication strategies and changing management style. This led to better customer services and improved the organisation's image and reputation.

Table 12.1 Examples of interventions, assessment methods and KPIs

Value	*Interventions*	*Tools to measure impact*	*KPIs*
Satisfaction	More suitable spatial layout. More collaborative spaces. Better indoor climate.	Employee surveys. Interviews. Walk-throughs.	Employee satisfaction with: – Workplaces – Collaborative space – Indoor environment
Image	Move to a new location. High-quality surroundings. Reorganisation of spatial layout.	Stakeholder surveys. Group discussions. Analysis of social media.	Perceptions of corporate identity. Corporate value. Corporate brand.
Culture	More open settings to support collaboration. Shared desks/places. New behavioural rules.	Employee surveys. Observations. Interviews. Workshops.	Perceptions of – Corporate culture – Match between culture and work environment
Health and Safety (H&S)	Higher level of personal control. Ergonomic designed furniture. Better indoor air quality.	Capture and react on complaints. Workplace H&S assessment.	Sick leave. Number of accidents. Percentage of satisfied employees.
Productivity	Higher level of transparency to support collaboration. Facilities for concentrated work. Ergonomic furniture.	Observations. Measuring time spent or saved. Employee surveys.	Output per employee. Perceived support of: – Individual productivity – Team productivity
Adaptability	Surplus of spaces, load-bearing capacity, installation capacity and facilities. Removable and relocatable units and building components.	Building performance assessment, i.e. using Flex 2.0 or Flex 2.0 Light. Observation of adaptations of the building-in-use.	Weighted assessment values, i.e. scores on scales of Flex 2.0 or Flex 2.0 Light.
Innovation and Creativity	Better visibility and overhearing among employees. Different types of meeting spaces and informal areas. ICT that supports virtual knowledge sharing.	Spatial network analysis. Social network analysis. Logbooks on knowledge sharing activities.	Level of enclosure/openness. Average walking distance. Diversity of workspaces and meeting places.
Risk	Emergency and recovery plans. Back-up supply systems. Insurances.	Measuring time of business interruptions. Measuring risk expenses.	Uptime of critical activities. Total risk expenses. Total insurance expenses.

(*Continued*)

Table 12.1 (Continued)

Value	*Interventions*	*Tools to measure impact*	*KPIs*
Cost	Cost saving by – Establishing FM department – Process optimisation – Outsourcing	Accounting with an appropriate cost structure. Measuring space, number of workstations and FTE.	Cost/m^2, workstation or FTE of Total FM, Space, Workplace
Value of Assets	Disposal of CRE. Sale and lease back. Improve owned CRE by adaptive reuse.	Estimate annual potential gross income and annual operational expenses. Market valuation. Estimate cost of new development.	Capitalisation. Market value. Cost of new development.
Sustainability	Sustainability framework. Reduction of energy consumption. Reduction of travel and transport activities.	Critical success factors from corporate strategy. Survey with multi-criteria scoring methodology. Continuous review process.	Consumption of primary energy and water. CO_2 emissions. Access to transport.
Corporate Social Responsibility (CSR)	Employing challenged workers. Promoting public transport. Circular purchasing model.	Depends on corporate CSR policy and target.	People: diversity of staff. Planet: utilisation of space. Profit: total FM/CREM cost.

Using a quantitative national online survey with responses of more than 7,500 alumni from universities of applied sciences, Von Felten et al. (2015) analysed the potential demand gap in FM. Besides, they assessed whether FM has the potential to be a value driver in the core business, i.e. whether a company that invests less than one Euro into Facility Management services can increase its productivity by more than one Euro. The use value was measured by the potential of enhanced working productivity, which was compared with the potential enhanced FM resources (exchange value) to deliver the best quality of FM service. The study showed that more than three out of four respondents thought that the quality of their work would be slightly better, better or much better when a workplace without disturbance and appropriate ICT services are offered in the best possible way. Appropriate meeting points, technical installations, office services and catering were mentioned by over 50% of all respondents. The estimated annual perceived productivity gains by a workplace without disturbance and optimal ICT services were 50 hours and 31 hours respectively. With an average productivity potential per year of €3,300, the availability of 'Workplace without disturbance' was rated as having the greatest potential, followed by €2,000 for providing or enhancing 'ICT Hardware' and €1,900 for 'ICT Services'. Cost calculations showed that the benefits of increased productivity due to reduced disturbance by increasing the distance between workers and acoustical measures offset the estimated extra costs and resulted in a net financial added value of €3,100 per workplace per year.

Several studies assessed the added value of facilities and services such as adjustable workstations (sit-stand desks) in relation to health and wellbeing. For instance, Garland et al. (2018) conducted a quantitative study of an organisation in the USA with a group of staff getting adjustable workstations and a control group with traditional workstations. Participants received workplace wellness and ergonomic training, completed self-administered questionnaires and responded to repeated micro-polling four times over one year. Among participants with adjustable workstations, 47% reported decline in upper back, shoulder and neck discomfort; 88% reported convenience to use, 65% reported increased productivity and 65% reported positive impact outside the workplace. The main sacrifices would be the cost of replacing traditional workstations with adjustable workstations and the cost of workplace wellness and ergonomic training.

3 Methodology/research approach

A combination of qualitative research methods such as content analysis of documents, workshops and different types of interviews (Waldburger & Nielsen, 2012), and quantitative methods such as questionnaire surveys, real-time data collection using smart devices, and benchmarking of costs and benefits of different interventions may help to capture a holistic view of value adding workplace management. The former section discussed research projects using semi-structured interviews (Petrulaitiene & Jylhä, 2015) and quantitative surveys (Von Felten et al., 2015; Garland et al., 2018), whereas Section 5 will present some research projects using cards with the names of different values on it, asking the respondents whether they incorporate these values in daily practice, why and how (van der Zwart et al., 2012), and the combined use of document analysis and semi-structured interviews (Beckers et al., 2015). Based on a critical review of twenty-one research papers, Jensen and van der Voordt (2015) concluded that the use of mixed research methods is most appropriate, where quantitative results provide overview and identify the most important aspects; while qualitative research identifies specific interventions that can actually add value.

In spite of the available body of knowledge, many questions still have to be answered for a further and deeper understanding of value adding workplace management (Jensen et al., 2012a), in particular:

- What are the key value drivers in workplace management, and which internal and external factors are leading?
- How does value adding workplace management vary by sector (offices, learning environments, health care facilities, retail and leisure)?
- Is it possible to further harmonise and standardise input factors (objectives, interventions), throughput (change management), output (workplace change), outcome (added value) and ways to measure (KPIs)?
- How can the theory be elaborated in practical guidelines and tools?
- How can the theory be applied in integrated business cases that weigh all value parameters and the different needs and interests of all stakeholders?

4 Limitations

Although the VAM theory has been applied in workplace research using different research designs and methods, various questions remain to be answered (see Section 3). In particular, how to weigh the different values and the different needs, preferences and influences of many stakeholders is quite complex and needs more attention in connection to decision-making theory. Most values are not easy to measure in a quantitative way, which limits application in benchmarking research. Validated measuring scales are needed to link VAM to preference-based design and management of workplaces, buildings and CRE portfolios (Arkesteijn, 2019).

5 Theory relevance to practice

Riratanaphong and van der Voordt (2015) assessed the goals and objectives behind workplace change in practice and how different added values have been measured in two offices in Thailand and one office in the Netherlands. It was found that many performance criteria and KPIs from literature are used in practice. However, apart from the Balanced Scorecard, no performance measurement system from literature is literally applied. Regarding most issues, none of the organisations conducted a comparison of the impact of their real estate on organisational performance before and after the change. In one case only, both ex-ante and ex-post data were collected about the appraisal of change by the end users, with a focus on employee satisfaction and perceived productivity support by the work environment. Other research also shows that, so far, the VAM theory, including all twelve value parameters and all four steps, is not yet often applied in practice. Usually, a limited number of values is incorporated in VAM. In workplace management, in particular user satisfaction, productivity and cost reduction are often highly prioritised (van der Voordt & Jensen, 2014).

van der Zwart et al. (2012) assessed if and how hospitals apply Value Adding Management by FM/CREM in daily practice. Building on organisational documents, interviews with CEOs, building project leaders and FM/CREM managers started with an open question, whether adding value was used as a strategic tool. Then, little cards with the names of the value parameters were presented with the request to rank them on level of importance and why particular values were prioritised. Staff and patient satisfaction, productivity and cost effectiveness appeared quite often in the top three of most important values, whereas sustainability was mainly an issue that was taken into account when payback times were limited to less than three years. Reasons for

prioritisation included a sense of urgency, level of importance (dependent on the context, economic situations, involved stakeholders and opportunities or threats of existing buildings), and aiming to attain the best possible ratio between high benefits and low costs.

Beckers et al. (2015) applied the VAM theory on learning spaces in thirteen Dutch universities of applied sciences and compared the espoused CRE strategy (found in documents) with the in-use strategy (measured by observations and interviews). Furthermore, they assessed the alignment of the CRE strategy to the corporate strategy and the alignment of CRE operating decisions with CRE strategy. The research findings show several layers of how CRE managers aim to align CRE with corporate goals to add value to the organisation. It appears that the CRE strategies in use are more clearly aligned with the corporate strategies than with the espoused CRE strategies.

It is expected that since the VAM theory is well disseminated, Value Adding Management of buildings, workplaces, facilities and services will be more and more connected to general business management in order to align CREM/FM interventions to the organisational context and organisational objectives (see also Chapter 9 on alignment theory).

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13

THE TOYOTA PRODUCTION SYSTEM

Applying the concept of waste in real estate management

*Tuuli Jylhä**

1 Background

Use of resources is one of the greatest challenges globally in sustainability development. Overall, the built environment is responsible for a great part of energy consumption, emissions, and waste generation (Van den Dobbelsteen, 2004; Remøy, 2010; Remøy & Wilkinson, 2012). Both the construction and the use phase of a building consume natural, technical, and social resources and create emissions. For example, around 80–85% of a real estate's total energy is consumed during its use phase (Sharma et al., 2007) which creates up to 90% of all its life-cycle emissions (Junnila et al., 2006). In addition to natural and technical resources, the use phase requires plenty of intangible human capital (Lehtonen & Puhto, 2004); for example, in managing, planning, procuring, and controlling. A considerable amount of this human capital is wasted (Jylhä, 2013). The World Economic Forum (2017) has drawn the same overall conclusions by stating that almost 40% of the human capital is wasted.

Circular economy (CE) aims at efficient and effective use of resources. Circularity is based on the idea of reducing resource input into the system and eliminating leakages out of the system (Geissdoerfer et al., 2017). In the built environment, the one-sided interest in elimination of leakages out of the system, for example through looping and re-looping, has gained some criticism (e.g., Kyrö, 2020; Ness & Xing, 2017). Taking into account the long life cycle of buildings, the slow renewal of the building stock, and the amount of resources consumed in the use phase of a building, resource reduction in the built environment becomes highly relevant. Here, the focus is on resource reduction in the use phase of a real estate. An extended concept of waste is adapted from the Toyota Production System in the field of real estate and workplace management (REM and WM) to reduce the use of resources and to manage for long-term circularity.

1.1 Extended concept of waste

The concept of waste is typically associated with the Toyota Production System (TPS) and the related lean management movement, which has introduced the concept to a wider audience in

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the management field since the 1980s. The term 'lean' was introduced by Krafcik (1988) and later used, for example, by Womack et al. (1990), Womack and Jones (2003) and Liker (2004) in the mainstream literature. Although the waste concept has provided a long-term competitive advantage to Toyota, the history of the concept started, according to Koskela et al. (2012), at the end of the 18th century. They stated that in 1880–1930, waste of resources had its flourishing period. For example, in 1911, Taylor called after 'greater national efficiency' referring to the resource-efficiency and effectiveness of both tangible and intangible resources (Taylor, 1911, p. 7; Koskela et al., 2012, p. 5):

> We can see and feel the waste of material things. Awkward, inefficient, or ill-directed movements of men, however, leave nothing visible or tangible behind them. . . . [E]ven though our daily loss from this source is greater than from our waste of material things, the one has stirred us deeply, while the other has moved us but little.

The overconsumption of materials and labour force had a key role in production until around 1930. In the flourishing period of waste thinking development, the concept of waste was used not solely in production systems, but also to reduce waste in non-material environments such as governments, services, and engineering. After 1930, the concept of waste gradually re-emerged when the interest towards the Toyota Production System (TPS) started to rise and when the environmental movement highlighted the environmental side of the waste, for example, unwanted by-products and pollutions (Koskela et al., 2012).

The extended waste concept here refers to "the use of more than needed and unwanted output" after Bølviken et al. (2014). Taiichi Ohno, the father of TPS, wrote that "we have to start producing only the things we need" (Ohno, 1989, p. 18) using minimum resources, including natural and human resources. Lean thinking has been recognised as a resource-efficient philosophy that is applicable across industries (González Chávez et al., 2019). In this chapter, the concept of waste is used to re-create and release the available resources to avoid resource overconsumption and resource losses, including the tangible and intangible losses such as loss of human resources and time. Furthermore, the extended waste concept identifies value that is not needed as waste.

1.2 Waste in the TPS

The TPS recognises work and waste (Ohno, 1989). In the TPS, work refers to a series of processes and steps where value is produced or processed (Imai, 1997). For example, the product is given a feature, or needed knowledge is deducted and reported. The work in the steps and processes either adds value or does not.

In the TPS, waste – the (over)consumption of resources without increasing customer value – is categorised into seven types (Ohno, 1989; Imai, 1997): (1) waste of overproduction, referring to producing more that needed; (2) waste of time on hand, referring to waiting; (3) waste of transportation, i.e., unneeded movement of parts and material; (4) waste of processing itself, for example over-processing; (5) waste of excess inventory that ties up capital and resources in unused products; (6) waste of motion, for example in the search of a missing document; and (7) waste of making defective products, typically meaning unwanted output, rework, or value deterioration.

In the TPS, the fundamental idea to achieve efficient and effective use of resources is based on waste reduction. Waste reduction is done through continuous improvement (*kaizen*) at the workplace (*gemba*), where the value is added (Imai, 1997). To implement *kaizen* in *gemba*, two other waste aspects are needed (see Figure 13.1). The seven waste types presented are in Japanese

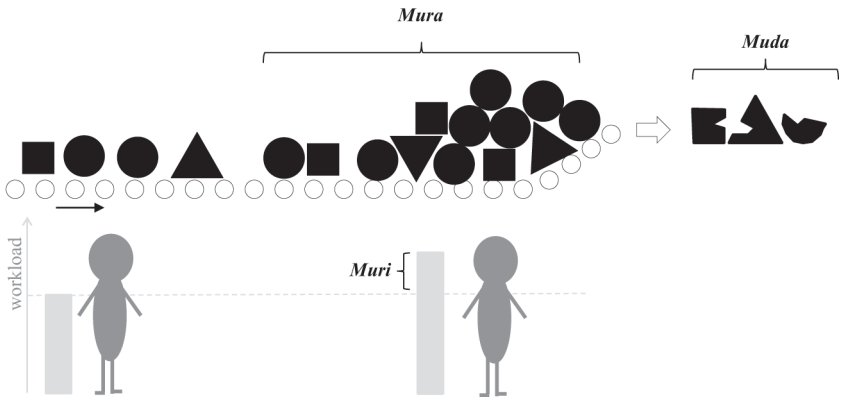

Figure 13.1 Illustration of muda, mura, and muri (partly adapted from Hohmann, 2014)

called *muda*. *Mura* and *muri* compose muda. *Mura* refers to the irregularities (Imai, 1997) or inconsistency (Ohno, 1989; Takeda, 1990) that prevent, delay, or interrupt the workflow. For example, a document waiting to be approved constitutes waste of time for the employees in the next process steps. *Muri* refers to the unreasonableness (Ohno, 1989) or strenuous work (Imai, 1997) in terms of work hours or demand. For example, too little time available, inappropriate machines, or improper training can lead to defective products and services.

According to Imai (1997), the reduction of muda is simple: stopping something that we are doing. This means holistic reconfiguration on the *gemba* level, i.e., on the entire process level, which might, especially in knowledge-intensive fields, include multiple *gemba*s (Jylhä, 2013, 2019) within and across organisations.

1.3 Making-do as waste

Koskela (2004) has introduced making-do as the eighth category of *muda*. 'Make do' means that something is done without all necessary input, or the quality of the input is lower than needed (for example, Cambridge Dictionary, 2020). Making-do is used frequently in the field of lean construction (e.g., Formoso et al., 2011; Emmitt et al., 2012; Fireman et al., 2013).

Originally, the idea of making-do is from operations management. Ronen (1992) explained it through the idea of a complete kit, i.e. a practice to 'do it right the first time and on time'. In operations management, the complete kit means that all needed input, such as assembly parts or components, documents and/or information, is ready for the "assembly, subassembly or process". Only when the kit is complete can the assembly be started in the process (Ronen, 1992). If this principle is not followed, waste is generated within that sub-process (i.e., in a *gemba*) and across the entire process (i.e., in multiple *gembas*) (Koskela, 2004). Ronen explained the waste as evils of an incomplete kit (Ronen, 1992; Jylhä et al., 2014).

The incomplete kit means that the job cannot be finished in the process. Instead, the object of a job remains in the process, when waiting for the missing part, information, or documents. Because fewer jobs are finished and more jobs are released due to an incomplete kit, there is (1) *more work-in-process*.

From the perspective of a single job, this leads to (2) *longer lead times*: an incomplete kit takes more handling time because some arrangements, operations, or set-ups need to be done more than once. This increases the entire lead time of the assembly. In addition to longer lead times,

variance of the lead times increases. In manufacturing, (3) *high variance* is one of the main causes of quality problems (e.g., Deming, 1982). By nature, the prediction of the missing part or information cannot be punctual. The quality of the finished product is also jeopardised, when the unfinished job waits for the missing information or component without the best possible storage facilities or needed maintenance. This simply (4) *deteriorates the quality and requires more rework.*

From the perspective of the production process, more work-in-process generates more waste. It (5) *declines throughput* when the unfinished job does not flow through the process but instead it is in the way of other jobs, resulting in waiting and longer lead times. It (6) *declines the overall productivity* when more resources are spent in handling and management due to double set-ups and operations – there is an overlap with the activities done before the waiting and after the waiting. More work-in-process also (7) *declines the manageability of the process*. The unfinished tasks do not fit or do not follow the principles of the controls in the process. This requires more resources to manage and control the unfinished task. Furthermore, (8) *the missing items are typically received with extra delay* because the non-suitable controls and decline in the manageability of the process do not support fast delivery. This is opposite to the illusion of making the process faster by starting to work with an incomplete kit. Finally, more work-in-process (9) *increases operating expenses* due to using more resources (especially human resources) than needed: double handling, double managing, rework, lower quality, and damaged parts, to mention a few examples.

Lastly, from the perspective of the workers, (10) *motivation declines*. Workers see and experience the waste, such as double work, rework, and lower quality, caused by the system failure. The workers' motivation is not supported when the system logic goes against their grain.

To summarise, the resource input is consumed for work and waste (Ohno, 1989). Lean thinking proposes efficient and effective use of resources by eliminating waste, i.e., *muda*, *mura*, and *muri*. This elimination is in line with the circularity idea of reducing resource input to the system and avoiding resource losses in the system.

2 Concept of waste for releasing and re-creating resources in corporate real estate management

The current mainstream CRE and workplace management research and practice do not acknowledge the extended waste concept. However, the dominant role of alignment theories in CREM provides readiness and fitness to accept and adapt the extended waste concept. Why? Because waste reduction provides greater alignment (Jylhä, 2019). CREM aims for greater alignment. This is highlighted, for example, in the definition of CREM: "the alignment of the real estate portfolio of a corporation or a public authority to the needs of the core business" (Dewulf et al., 2000). See also Chapter 9 on alignment theory.

2.1 Current alignment in CRE

Alignment constitutes several integrations within and across corporations (Kathuria et al., 2007). The alignment within a corporation includes vertical and horizontal alignment (summarised in Figure 13.2). In vertical alignment, often referred to as strategic alignment, the strategies, actions, and decisions between several corporate levels are harmonised (Kathuria et al., 2007). This type of alignment is well-studied in the current CREM literature (e.g., Weatherhead, 1997; Nourse & Roulac, 1993; Lindholm, 2008), which means that CREM can contribute to strategic corporate objectives (Jylhä, 2019).

Horizontal alignment is divided into cross-functional and intra-functional alignment. In general, horizontal alignment is acknowledged but studied less both in the general management

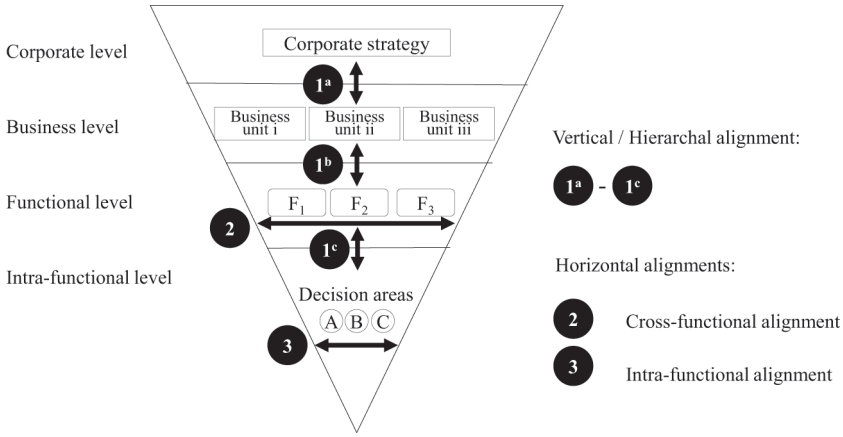

Figure 13.2 Summary of the current alignment in CRE (adapted from Jylhä, 2019)

literature (Kathuria et al., 2007) and in the CREM literature (Jylhä, 2019). The cross-functional alignment refers to the fit in decisions, planning, and operations between different corporate functions (Kathuria et al., 2007), such as HR, ICT, operations, and CRE (Jylhä, 2019). The intra-functional alignment identifies the fit between various decision areas within that function (Kathuria et al., 2007), for example, within the CREM function (Jylhä, 2019). In CREM, intra-functional alignment means, for example, that decisions, planning, and actions are aligned between financial, building, and user-oriented decision areas (Jylhä, 2019).

Horizontal alignment also covers the integration across corporations (Alagaraja et al., 2015) which is typically studied in supply chain and value chain management (Jylhä, 2019). In the field of CREM, this type of alignment has received less attention, although supply chains and the external service provider network play a crucial role in the value delivery (Jylhä, 2019).

2.2 Alignment to reduce waste in CRE

Waste reduction aligns especially horizontally (Schniederjans et al., 2010; Jylhä, 2019). From the circularity perspective, horizontal alignment reduces the resource input into the system and resource losses in the system. By following the concepts of *muda*, *mura*, and *muri*, horizontal CRE alignment can reduce waste on three levels: (1) on the work level (*muda*), (2) on the system level (*mura*), and (3) on the employee level (*muri*).

Waste on the work level (*muda*) refers to work steps that do not add value. (1) Waste of overproduction of information, products, or services refers, for example, to unnecessary data, unused square metres, or excess use of user or maintenance services. (2) Waste of time takes place when searching, working, and thinking the same twice, for example, in decision-making, planning, negotiations, or coordination due to the incomplete kit. (3) Waste of transporting information, people, or equipment is generated when, for example, excess RE information is delivered to decision-making or maintenance equipment is transported without a need. (4) Waste of over- and underprocessing happens, for example, when repairs are not planned in the budget or FM services are bought without knowing the user need. (5) Waste of inventory takes place, for example, in the format of non-needed plans, reviews, or negotiations. (6) Waste of motion is performed especially when searching for missing information (Jylhä & Suvanto, 2015), for example, in the search of an updated floor plan, a lease agreement, or a report.

(7) Waste of defects and unwanted value occur when, for example, a wrong decision is made, or the service or product is damaged or does not match the customer needs.

In terms of the TPS, waste reduction on the work level takes place at *gembas* in and between the CRE decision areas within the corporation. Reducing waste on *gemba* means horizontal alignment. In terms of circularity, tangible and intangible resources in the individual work steps are reduced and released to mobilise them into value delivery steps within the (CRE) organisation. This means that the (CRE) organisation is recreating its resource base through its processes and strategic routines, which are known as dynamic capabilities in management science (e.g., Eisenhardt & Martin, 2000; Teece et al., 1997; Jiang, 2014).

Waste on the system level (*mura*) refers to the interruptions that generate waste not solely within a process step but along the entire system. In terms of the TPS, waste is generated between *gembas* within the organisation and across organisations, covering a network of processes. Jylhä (2013) identified that the separate sub-processes are the root aggravation of waste generation. Unsynchronised sub-processes constitute *making-do waste* especially in the downstream. Waste reduction releases tangible and intangible resources and renews the resource base of the system. This resource base is then mobilised into long-term horizontal co-creation processes (e.g., Eisenhardt & Martin, 2000; Teece et al., 1997; Jiang, 2014) across the system.

Waste on the employee level (*muri*) refers to overload of work. The overload comprises the waste on the work and system levels (Jylhä et al., 2014). From the work level perspective, the employee uses resources for work that does not add value due to the lack of standardised best practices and rationalised work steps (Ohno, 1989). From the system level perspective, making-do waste overconsumes especially the human resources when more work-in-process declines the responsiveness and manageability of the process. By decreasing *muda* and *mura*, also the overload of work is decreased (Hines et al., 2011). This improves the social inclusion and performance of the workers, which is also relevant in circularity enhancement (Geissdoerfer et al., 2017).

To summarise, waste reduction aligns horizontally. Continuous waste reduction can be seen as a dynamic capability of an organisation. Dynamic capability means that the organisation modifies its resource base (Eisenhardt & Martin, 2000; Jiang, 2014) through its processes and strategic routines (Eisenhardt & Martin, 2000). When adopting the extended waste concept, the processes and strategic routines constantly identify, reduce, and release resources that lead to re-creation of the resource base. From the circularity perspective, this type of horizontal alignment has the potential to enhance long-term circularity.

3 Methodology/research approach

The research approaches to study waste can be divide into two. By following the presentation of Lousberg and Van Stijn (NA), representionalist research aims to understand the waste concept in reality, in this case in the context of real estate and workplace management, by observing it. Interventionist research aims to understand the waste concept by engaging in it. In both cases, studying waste in reality requires a hands-on approach. The key distinction is whether the researcher remains as an observer or if the researcher takes a more active approach in the intervention(s). Value stream mapping (VSM) is a common lean technique to study flows and related waste, for example, in manufacturing (see e.g. Abdulmalek & Rajgopal, 2007; McDonald et al., 2002), in construction (see e.g. Arbulu et al., 2003; Yu et al., 2009), or in healthcare (see e.g. Henrique et al., 2016; Lummus et al., 2006). VSM visualises work processes. According to Lee and Snyder (2006), this visualisation process leads to enhanced mutual understanding of the flow and further supports its implementation. A Kaizen workshop is a special workshop to develop and implement value stream maps (Liker, 2004).

Depending on the research approach, the data collection methods vary from qualitative observations, interviews, workshops, and document gathering (e.g., Rahani & al-Ashraf, 2012; Jylhä, 2013, 2014) to analysing quantitative data typically related to processes and operations such as lead times, ratio of value-added times to lead times, work-in-process, set up times, and quality indicators, to name a few (see e.g. Arbulu et al., 2003; Yu et al., 2009; Abdulmalek & Rajgopal, 2007).

In the field of workplace and real estate management, flows and processes are mainly studied from the perspective of office (layout) and its impact on the office user (for example, Vischer, 2008; Haynes, 2008; Appel-Meulenbroek et al., 2014). Here the flows and processes are related not necessarily to the output of a service or product delivery and its impact on the office user, but on the workplace management-related processes and strategic routines (e.g., Jylhä, 2013, 2014) that make the workplace management organisation a learning organisation. Future research in the workplace management fields would benefit if both research streams, the impact of the office on users, and the resource-efficient and effective way of implementing that knowledge in the workplace management processes and routines would get more attention.

4 Limitations of the theory

The implementation of waste reduction requires a long-term approach. The concept of waste has shown both its power in the production systems of organisations (e.g., Ohno, 1989; Shingo, 1989; Koskela, 2000; Schniederjans et al., 2010; Mazzocato et al., 2010) and its limitations in implementation (e.g., Cusumano, 1994; Cooney, 2002; Rymaszewska, 2014).

Long-term waste reduction is not about adapting and implementing a selected set of tools and techniques from the TPS. This is mainly due to two issues. First, long-term improvements typically require changes on many levels of the system. In lean, according to Teece et al. (1997), the changes require synchronised improvements both on the shop floor and in higher-order managerial processes. Because of the multiple layers in the system, simply replicating a technique on one level does not bring long-term benefits.

Second, due to the dynamic environment, waste reduction is done constantly through continuous improvements in the TPS. Continuous improvement can be interpreted as an organisational learning process where "repetition and experimentation enable tasks to be performed better and quicker" (Teece et al., 1997, p. 520). The processes and managerial practices carry and implement the knowledge stock that exists in organisations (e.g. Besanko et al., 2013; Jiang, 2014). In the TPS, continuous improvement is implemented through the processes and practices of the improvement system. Without creating a coherent improvement system, the adaptation of individual lean tools and techniques might yield zero benefits (Hansen & Møller, 2016).

To summarise, the limitations of the extended waste concept lie in needed structural and long-term improvements in the organisational processes, which make the organisation a learning organisation. These processes are hard to replicate even when observed, as Teece et al. (1997) stated. This limitation can also offer a great benefit: when (C)RE organisations and systems adapt the extended waste concepts, it motivates organisations to improve their processes and strategic routines, resulting in structural and long-term advantage to sustain the transmission from linear economy to circular economy.

5 Theory relevance to practice

For real estate and workplace managers, learning to see waste and reducing it means doing the right things with as few resources as possible. This leads to resource efficiency and effectiveness

meaning, for example, lower costs, future-proofed allocation of resources, and contribution to the sustainability goals. In this section, a case is briefly presented to illustrate the excess use of intangible resources in the corporate real estate management context. The case has been originally presented by Jylhä et al. (2014). The case organisation was in the process of centralising its operations. The centralisation, which was a business-driven need, resulted in re-structuring the current real estate portfolio that included 10 properties in the same market in the Helsinki Metropolitan Area, Finland. In the case analysis, the focus was on the system level, including phases and steps to find a suitable property or properties to support the centralisation of the operations. The CRE organisation was an agent acting on behalf of the case organisation by following the service agreements. Heywood and Kenley (2010, 2013) called this the extended CREM organisation. The agent established a team on the intra-functional level to create a solution for its corporate customer. The work lasted approximately 3.5 years, starting in autumn 2009 and ending with a final solution in early 2013.

Value stream visualisation identified that most of the work done in the first 2.5 years was making-do. The work in the process was started with incomplete information resulting in several rounds of layout planning, bidding, property searches, analysis, and negotiations, which consumed lot of human resources and time. More work-in-process resulted in (1) longer lead times due to waiting for missing information; (2) variance in lead times because the same steps were done again after the waiting (e.g., arranging the same meetings twice or reworking with the schedule to fix an error); (3) decrease in quality because the missing information prevented delivering the right quality at the first time, for example, in terms of the office layout or location; (4) decrease in throughput when the work was not finished (e.g., unfinished layouts, negotiations, and other documents) but remained in the process; (5) decrease in the manageability of the process, which required more resources to control the inconsistency of disproportionate information or special arrangements; and (6) increase in the operational in-house expenses (the waste of human resources) and outsourced expenses (e.g., the final layout drawings were purchased twice).

The case especially illustrates the excess use of human resources and time. The wasted human resources would have had potential to be mobilised into value-adding work.

6 Further reading

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14

RADICAL INNOVATION THEORY

Towards radical design of digital workplaces

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1 Background

Since Schumpeter introduced the concept of 'creative destruction' in *Capitalism, Socialism and Democracy* (Schumpeter, 1942), the academic community has pushed a simple but very powerful and popular concept, which is mostly referred to nowadays as 'radical innovation', or 'disruption'. Most scholars in economics and strategic management who analyse technological innovation refer to Schumpeter's seminal work. The concept of radical innovation has been then the subject of numerous publications covering specific and thematic issues such as uncertainty (Leifer et al., 2001; Rosenberg & Nathan, 1994), knowledge and learning (Lundvall, 1992), competition and technological race (Fudenberg et al., 1983; Reinganum, 1989; Scherer, 1991; Tirole & Jean, 1988) and the degree of substitutability (complementarity) between the existing and the new market (Battaggion & Grieco, 2009).

Chesbrough (2003), as a focal person in open innovation theories, states that in order to enhance firms' innovation capability for radical innovation, they must involve capable actors within and outside the firm. Although firms have become increasingly sophisticated in the development of incremental innovations, many companies struggle to generate radical innovations. Radical innovation has been responsible for some of society's greatest advances over the past one hundred years in fields as diverse as transportation, power, information technology, and medicine (Bers et al., 2009). One can wonder how radical innovations can make a difference in workplace management research now and in the future. Radical innovations are in the agenda of existing companies; however, new companies are also interesting due to the agile performance in radical innovations. The workplaces are more and more digital – how does it happen?

1.1 Concepts

Invention can be defined as the creation of a product or introduction of a process for the first time. Innovation, on the other hand, occurs if someone improves on or makes a significant contribution to an existing product, process, or service. Innovations can be classified as incremental and radical (disruptive) according to changes resulting from the innovation (see e.g. Leifer et al.,

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2000; Utterback, 1994). Innovation and discovery are important progress factors of human society. As a multifaceted concept innovation has been described as the quest for finding new ways of doing things. The concept innovation does however not only mean a change in the status quo; it also includes the creation and commercialisation of new knowledge and discoveries. Soken and Barnes (2014) argue that innovation is about creating value and that it requires individuals and organisations to embrace something novel. Integrating insights from management, economics, policy, and psychology, Samli (2011) argues that creativity can be channelled into innovation, and innovation can be channelled, in turn, toward economic development. Imagination is envisioning things that do not exist. Creativity is applying imagination to address a challenge. Innovation is applying creativity to generate unique solutions. Entrepreneurship is applying innovation, to bring unique ideas to fruition, inspiring others' imagination.

Innovation has been categorised into two different kinds, radical innovation and incremental innovation (Oke et al., 2009), and it is a shared belief that there exists a difference between the two concepts (Hurmelinna-Laukkanen et al., 2008). Incremental innovation is an 'improvement effort of something that already exists', whilst radical innovation is 'the discovery of something completely new' (Oke et al., 2009). Incremental innovations are based on prior knowledge and consist of substantial product, service or process improvements that, although they have a certain degree of novelty, do not clearly break away from the already existing product, service, or process (Jiménez-Jiménez & Sanz-Valle, 2011). Most innovations are incremental, being gradual enhancements or feature replacements to existing products, services, processes, and business models. Incremental innovations have a sustaining nature and allow an organisation to maintain its current approach to target markets. That is, they do not create new lines of business, nor do they create completely new markets for an existing product or service.

Radical innovations, by contrast, correspond to disruptive change. The disruptive change can be related to technology, markets, society, or all three. An innovation can be said to be radical when it has the potential to produce one or more of the following: (1) an entirely new set of performance features, (2) improvements in known performance features of five times or greater, or (3) a significant (30 percent or greater) reduction of cost (Leifer et al., 2000). Radical innovation is expected to imply more fundamental changes for the company's activities and is often related to higher risks during both the development and the commercialisation in comparison to incremental innovation (Büschgens et al., 2013). Gassmann et al. (2012, p. 121) define radical innovation as "products that have a high impact on existing markets or create wholly new markets by offering totally new benefits, significant improvements in known benefits, or significant reduction in costs". However, radical innovation should not only be related to products. Integrating Gassmann's definition with the OECD definition, one can claim: radical innovation is *product*-, process-, marketing- or organisational innovation that has *high impact* on an organisation's existing/new activities or *existing/new markets by offering totally new benefits, significant improvements in known benefits, or significant reduction in costs*.

1.2 Characteristics of radical innovation

Radical innovations are disruptive. Radical innovation is an innovation leadership concept aimed at destroying current products, services, and business models to create new markets and replace existing ones. While incremental innovation can be managed top-down, radical innovation requires mentoring, leadership, and facilitation from the ground. Radical innovation goes further than incremental innovation, in which the development and optimisation of existing products and services is in the foreground. A radical innovation significantly changes supply and demand conditions in a market. Radical innovations create new lines of business. The

introduction of consumer digital photography is a good example of a radical innovation that caused major disruptive technological and social changes. Such major disruptive changes are rare; but smaller-scale disruptive changes, affecting primarily the business of a single company, happen frequently (Paasi et al., 2008).

Radical innovations take time. Radical innovation is a leadership concept with the goal of long-term growth over the next five to ten years. Development projects for radical innovation are typically long in duration. It often takes several years from the discovery of a new business opportunity through the incubation (i.e. evolving the opportunity into a business proposition) to acceleration or ramping up of the business to stand on its own (O'Connor & Ayers, 2005). Ten years is not a long time for this process. Partially because of the long duration, development projects for radical innovations are surrounded by multiple uncertainties (Leifer et al., 2000; Utterback, 1994). Radical innovation life cycles are longer, more unpredictable, have more stops and starts, are more context-dependent in that strategic considerations can accelerate, retard, or terminate progress, and more often include cross-functional and or cross-unit teamwork in comparison with incremental innovations (McDermott & O'Connor, 2002). Taleb (2010) uses the concept of Black Swans, which are very low probability and high impact events which we are essentially incapable of foreseeing. He argues that since we lack the ability to predict Black Swans, we should instead build our institutions to be Black Swan-proof, making them resistant and resilient to shocks, and minimising the incentives to build hard-to-unwind and hard-to-rebuild assets. Often, the ingredients for a radical innovation might be there but the legacy systems or conventional designs dominate, so there is no space for a radical innovation.

Radical innovation is a risky business. The revenues can be huge but highly uncertain, while the hit rates are low and the costs of failure often very high (Cooper, 1993). Risk awareness is a capability of the organisation to recognise risks before they threaten, mitigate them when they arise, and recover from the damages they may cause. Proactive risk management is needed (Wheelwright & Clark, 1992).

Radical innovations are multidimensional. Leifer et al. (2000) have defined four major dimensions of uncertainty that are relevant for all radical innovation development projects: technological, market, organisational, and resource uncertainties. The leadership challenge of multiple dimensions of uncertainty is complicated by the fact that the uncertainties interact with each other, in the sense that there are complex correlations. Further complexity is brought by the long-time span of the process during which major disruptive changes may happen in technology, markets, and competition having major influence (either positive or negative) on the business potential of the innovation.

Radical innovations are new combinations and represent serendipity. Radical innovations prompt significant subsequent technological development and exhibit novelty and 'architectural' innovation, i.e. rearranging the way design elements are put together in a system. This requires a transdisciplinary approach. Radical innovations are seen to involve significant conceptual breakthroughs, through either luck or genius. Radical and incremental innovation projects differ on different project dimensions. Incremental projects are more linear and predictable, with fewer resource uncertainties, including simpler collaboration relationships.

2 Applicability to workplace studies

Radical innovations often serve as the foundation for new technological systems, industries, or domains. Radical innovation theory focuses either on the process of product development or typologies of innovations. The design-science paradigm seeks to extend the boundaries of human and organisational capabilities by creating new and innovative artefacts (Hevner et al., 2004).

In workplace research the transformation of workplaces as digital and physical entities describes the evolution towards innovations; however, the disruptive or radical innovations are scarce.

The technological systems have a significant role in the workplace transformation. Workplace research has focused on digital and physical entities for a long time; e.g. Joroff (2002) stated that digital technologies allow people to change the workplace in a fundamental way. The connectivity enabled by these technologies has opened new opportunities for how, when, and where people work. Levin (2005) states that while organisations continue to build facilities that range from newer adaptations of their previous model to what some may deem radical departures with the goal of creating new ways of working, the selection of what course of planning direction to take is still often left to a methodology that is removed from the long-term strategic objectives of the organisation. Hardy et al. (2008) discuss the distributed workplace model by identifying the public, privileged, and private virtual environments aligned with characteristics of physical working environments.

According to Mobach et al. (2015), an important toolkit for innovation in facilities management is the holistic orchestration of organisation, architecture, technology, and nature; the outcome for organisations is in behaviour, mood, and health of users. The new knowledge to advance an integral approach of infrastructure, space, people, and organisation by taking a cross-disciplinary design perspective is needed. This integration must remain action focused and problem oriented, as it is directed at improved actions of the facility manager and the organisation he or she works for. Given the specific practical and/or societal problems, the improved actions to be developed by a consortium of practitioners and scientists should, in turn, lead to a proven better organisation performance and benefit for the end user.

Technological innovation is transforming continuously, and now ubiquitous computing is beginning to transform the workplace. Ubiquitous, mobile workers are not only present in one physical workspace (e.g. in the main office or with a laptop in the park), but also within a combination of the other spaces. This would mean that although a worker is physically working in his living room at home (physical workspace), in his or her thoughts and current mental state, the worker might be in his or her main office at the company premises (mental space). Ubiquitous workplaces change the work system, workplace democracy, high-tech application, workplace boundaries, workspaces, people practice, workplace experience, and workplace culture (Cascio & Montealegre, 2016). The role of technology and potential to even greater radical innovation is increasing.

Many scholars have classified the processes of radical innovation from the user-centred or human-centred design (HCD) approach e.g. (Norman, 1998). The behavioural-science paradigm in research in the information systems discipline seeks to develop and verify theories that explain or predict human or organisational behaviour (Hevner et al., 2004). The usability of workplace research has the same focus. Usability is a concept like functionality, but usability depends on subjective view of users, context, culture, situation, and experience. Understanding usability is achieved by involving users (Fronczek-Munter, 2016). Work by Voss (2004) has highlighted the importance of users in the design of 'experience innovation' whilst German research on a number of service sectors stresses the importance of customising and tailoring the experience via forms of co-creation (Reichwald et al., 2008).

Blakstad and Knudsen (2008) has studied the relation between organisations and the physical environment. They have explored how buildings support organisational goals using output from descriptive methods as input to participatory processes. Some design methods are targeted at frame breaking – creative problem solving, imagination, etc. – whilst others are about understanding users and bringing their perspective into the articulation – anthropology, empathic design, construct elicitation, etc. (Schrage, 2000; Thomke, 2003). Additionally, in the tradition

of computer science research, understanding user behaviour is common; for example, the individual's acceptance of information systems in the Technology Acceptance Model (TAM) (Davis, 1989). TAM considers that an individual's intention to use a system will be verified by perceived usefulness and perceived ease of use of that system.

Innovation typologies have been developed from various perspectives to identify differences between innovations. As one example of product development components, Henderson and Clark's (1990) Innovation Model proposes four categories of innovation, which describe whether the innovation relates to a product's architecture, components, or both. Radical innovation happens when both factors are affected. Verganti (2008) propose a framework, which connects the two dimensions of innovation (technology and meaning). This theoretical framework distinguishes the procedures of incremental and radical innovation to address the fundamental activities of innovation.

The framework provides four different innovation clusters with three drivers: technology, design, and users. Four different clusters provide potential for four different workplace realities (WPR), Figure 14.1.

1 Technology-push innovation comes from radical changes in technology without any change in the meaning of the products. Technology push innovation is the result of dynamics of technological research. In workplace transformation, the functionality of technology creates radical improvement but is achieved without affecting the meaning. Such functionality can be opening the digital bridge from one site to another site, extending, e.g., the dimensions of a breakout room with technology. This improvement increases informal collaboration between people; they are digitally co-located but physically in different places.
2 The overlap between technology push and design-driven innovation highlights that breakthrough technological changes are often associated with radical changes in product meanings, i.e. that shifts in technological paradigms are often coupled by shifts in socio-cultural regimes. In workplace transformation, it means that radically improved technology is adding sources to the existing, related, and potential meanings of the new reality and cross-fertilises both the physical and digital entity. This can be, for example, an experience of

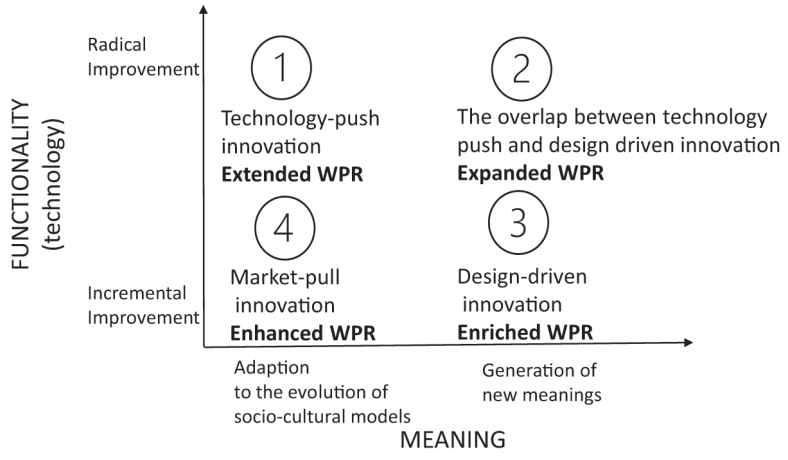

Figure 14.1 Four different workplace realities (WPR) applied from innovation framework by Verganti (2008)

three-dimensional remote presence, creating new meanings for users. New socio-digital functions set requirements for the physical environment, which is serving the expanded reality. Technology can also be a co-worker, assisting with the tasks which used to be done by individuals. The digital and physical layers of workplaces form an integrated platform for shared reality.

3 In design-driven innovation, the innovation starts from the comprehension of subtle and unspoken dynamics in socio-cultural models and results in proposing radically new meanings that often imply a change in socio-cultural regimes. In workplace transformation, incremental improvements in technology support the generation of new meanings. This transformation is experienced at a large scale during the working-from-home period caused by regulations of social distancing and lockdowns in the pandemic year 2020: incremental technology provided possibilities to transform homes for living to places for working, while digital reality provided tools from large digital collaboration platforms to digital group work rooms and individual working. This created new meanings for working from home.

4 Market-pull innovation starts from the analysis of user needs and subsequently searches for the technologies and meanings that can satisfy them and identifies directly or indirectly directions for innovation. Although the user-centred approach is more advanced and sophisticated, as its methodologies allow us to better understand why and how people give meaning to existing things, which can lead to more innovative concepts compared to traditional market-pull processes. It still operates within existing socio-cultural regimes. In the context of workplace transformation, incremental technology enriches the adaption to socio-cultural models. This is the workplace where technology is embedded to offices supporting e.g. meetings online. The technology can be smart and intuitive to use, making it easy to accept for use.

To summarise, the framework helps to identify four different types of workplace realities:

1 Extended workplace reality
2 Expanded workplace reality
3 Enriched workplace reality
4 Enhanced workplace reality

Each reality can use technological innovation in a different manner, either adopting or regenerating the meaning of work in digital and physical reality.

3 Methodology/research approach

The methodologies used in innovations research in general are based on the long tradition of using design tools in innovation, exemplified in a variety of handbooks and also in the insights gained from key design practitioners like IDEO (Bruce & Bessant, 2002; KELLEY, 2001). Work by von Hippel and colleagues has shown over many years the power of user-led approaches (Von Hippel, 2001) and case examples, such as that of Lego, testify to the growing importance of working with users in co-creation mode (Moser & Piller, 2006).

User-centred or human-centred design (HCD) methods have a common framework: an iterative cycle of investigation – usually characterised by observations, an ideation phase, and rapid prototype and testing. Each iteration builds on the lessons learned from the previous cycle, and the process terminates either when the results are appropriate or when the allotted time has run out.

Methodologies used are qualitative by their nature, with a strong focus on participatory approaches. However, some researchers also argue that the user-driven approach does not lead to radical innovations but rather to incremental innovations. Even qualitative approaches might reduce participation to objectifying users – rather than having them to co-design as equal members of the design team. The qualitative approach is still mostly an evaluative method, and there is a need for constructive approaches like design science and action research. Hevner et al. (2004) have developed a methodology for guidance and to inform on more effective design and adoption for complex information systems. The built environment and workplaces with all technical layers can be seen simultaneously as a complex system.

The following research questions should inspire workplace researchers: (1) How can the extended and expanded workplace realities be co-created by integrating the digital and physical architecture in co-design? (2) How does one support the change processes from the physical workplaces to the enhanced, enriched, extended, or expanded workplace realities? (3) How does one create the co-design methodology to improve the workplace transformation to benefit from the incremental and radical innovations?

4 Limitations

Radical innovation theory is describing something which is not happening very often. However, it is essential to understand and apply innovation design and design science thinking to integrate complex information and build environment systems. This is the only way to create inspiring ubiquitous environments where reality is stronger than place.

The applied framework helps to identify research gaps and challenges of transdisciplinary research. However, the dimension of meanings has many layers which are not discussed: individual, organisational, and societal meanings demand different research designs. The framework for understanding digitisation and digital transformation of workplaces in use is in this phase only theoretical and needs to be tested, validated, and iterated in practice.

5 Theory relevance to practice

Radical innovations are based on technological development. The use of them in the context of the workplace challenges users, organisations, and society, while hybrid working environments are more common. The research can provide keys to develop a workplace-experience-based common language and understanding for ubiquitous workplace offering. The frequently used expression 'smart environment' is not enough: smartness is about brains – we need to include heart and emotions to humanise smart solutions. By understanding the logic and transformations in technology-driven incremental and radical innovations, one can increase the competences to identify the requirements for the physical workplace. Designing, constructing, and maintaining such workplaces requires a transdisciplinary team. In practice, we have architects for physical planning and digital planning; in the future, they should sit around the same table more often.

The holistic user experience in future work environments includes more integrated digital and physical workplaces. A digital work environment consists of different realities – virtual reality, augmented reality, or mixed reality – and working within these realities still relies upon a physical reality. The requirements are set not only by the user but also by the technology. Technology is no longer only a technical solution; it shares our work and acts as a co-worker. Presented workplace realities (extended, expanded, enriched, or enhanced) can be used to identify the existing characteristics of the workplace, to set the direction for future development

and to develop new measurements for connectivity capability of different concepts. Innovations in work environments need not always be radical, but designing them should be more radical.

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15
USABILITY THEORY
Adding a user-centric perspective to workplace management

Lukas Windlinger and Deniz Tuzcuoğlu*

1 Background

Usability of the built environment is a concept that describes a human-centric approach to quality-in-use of physical environments with the goal of supporting users' activities and user-related outcomes. In architecture, the idea of usability has been known for centuries. Its introduction into the field of architecture is commonly attributed to Vitruvius, who postulated that buildings must be built with due reference to durability, convenience, and beauty (Vitruvius, 1914). In modern research and development, however, usability of workplaces is based on fundamental work on ergonomics in human-computer interaction (HCI). Commonly, Bennett (1979) is credited with the first publication with usability in its title. A further seminal paper by Gould and Lewis (1985) introduced the idea of early focus on users and tasks, empirical measurement, and iterative design as key principles of usability. Shackel (1991) discussed usability as a situational concept, i.e. design of tools as dependent on users, tasks, and environments. Further, he described the usability paradigm in terms of utility (i.e. whether the tool will do what is needed functionally), usability (i.e. whether the users will work it successfully), and likeability (i.e. whether the users feel it is suitable). These dimensions became the defining characteristics of the modern understanding of usability as it is defined by the International Organization for Standardization (ISO) as: "The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" (ISO 9241–11, 2018). While these aspects of the ISO guidance on usability were developed in the context of work with visual display terminals, the guidance is applicable to other situations where users interact with artefacts or objects to achieve certain intended objectives such as situations where people interact with different types of systems (including the built environment), products, and services (ISO 9241–11, 2018).

According to ISO 9241, usability is composed of three dimensions:

- *Effectiveness* describes usability from an output point of view. It includes the accuracy and completeness with which users achieve specified goals.
- *Efficiency* relates output to resources, i.e. describes the resources expended in relation to the accuracy and completeness with which users achieve goals.
- *Satisfaction* describes the comfort and acceptability of use.

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The three dimensions refer to output, process, and subjective assessment of the experience of interacting with a system, product, or service. Effectiveness and efficiency refer to usefulness of systems, i.e. the degree to which the interaction with the systems supports users to achieve output. Satisfaction complements usefulness of a system with a user-friendliness component (cf. Davis, 1989).

A recent extension of the usability concept in the context of user experience that may lead to new research and insights in the built environment is coolness as a characterisation of products or facet of HCI. Holtzblatt (2011) set out to find out what makes things cool (i.e. what drives the cool user experience). She found that the centre of cool is joy, and joy in life happens when products help fulfil core human needs such as accomplishment, connection, identity, and sensation. Further research on cool products shows that user experience is composed of desirability and rebelliousness (unconventional, novel aspects) besides usability (e.g. Bruun et al., 2016; Raptis et al., 2017).

2 Applicability to workplace studies

The Hawthorne studies (Roethlisberger & Dickson, 1939) disproved the deterministic-mechanistic approach of environmental influences and pointed out the importance of perceived qualities of the environment. Thus, for the behavioural relevance of a given environmental exposure, not the physically measurable quality is crucial, but its function for a person and his/her actions. Previous research shows that objective measures (i.e. measures that are independent from self-reports of users) are generally not correlated with perception-based or subjective evaluations (Hornbæk & Law, 2007; Windlinger, 2012). Thus, an approach to usability of the built environment does not require an abstraction of physical parameters but an extension of such measures with subject- and action-related terms (Schultz-Gambard & Hommel, 1987).

The usability concept was developed for the built environment by CIB Task Group (TG51) (Jensø et al., 2004) and the CIB working commission on Usability of Workplaces (W111) (Alexander, 2006, 2008; Lindahl et al., 2012).

The working commission on Usability of Workplaces (CIB W111) by the International Council for Research and Innovation in Building and Construction (CIB) conducted research on the application of usability concepts to the work environment with an international team of researchers and practitioners. The network provided new insights on the application of usability concepts and a better understanding of the user experience of different categories of environments, including workplaces. Conceptual research and case studies were to address underlying philosophical, theoretical, and methodological issues of usability of workplaces. Themes included user experience, feed-forward processes, and explorations of the links between the quality of the environment, health, well-being, and productivity in the workplace. The results of usability evaluations are used as feedback for continuous improvement processes of the workplace, facilities, and management. The main motivation for organisations to participate in usability research was the improvement of facilities with potentials to add value to their core business/user organisations.

The working commission on Usability of Workplaces (CIB W111) drew upon the ISO definition of usability from the beginning. Even though the usability concept has its roots and its most important and largest field of application in human-computer interaction, the developments of CIB W111 remained largely unconnected to usability in HCI literature and debates.

The introduction of usability in the built environment supplemented or even replaced a narrower focus on functionality of buildings and facilities that was based on technical rationalism with attributes of products that are described mainly in objectively measurable terms

(Jensen, 2010). Since usability focuses on use or interaction of people with buildings and facilities and the resulting experience, it is highly context-dependent and situational. Usability evaluations therefore must specify contextual parameters such as purpose of the environment, user groups, activities, specific locations, places, or rooms (Hansen et al., 2011).

2.1 Applying the usability perspective in workplace-related processes

Usability has been applied in different categories of environments such as workplaces (e.g. Alexander, 2005; Windlinger et al., 2016), learning environments (e.g. Alexander, 2010), and hospitals (e.g. Fronczek-Munter, 2016).

In the workplace, user reactions to the physical environment shape individual well-being, social interactions, and organisational effectiveness. Therefore, work environments should be aligned with work tasks and organisational goals and strategies in order to produce the best accommodation for a certain work style (Aronoff & Kaplan, 1995; Becker, 1990; Vischer, 1996). From this perspective, work environments are considered as a resource or tool that should be designed not primarily to reduce space (and cost), but to support the work style and business mission of the organisation (Vischer, 1996) and thus to contribute to organisational profitability. The significance of the built environment for the effective operation of an organisation is rooted in the fact that buildings and spaces are constructed for particular purposes or functions. Functional and programmatic aspects are translated into spatial forms and infrastructure. However, these aspects are very rarely evaluated (Hay et al., 2017; Li et al., 2018).

Usability as a quality-in-use approach is based on considering workplaces as a tool or resource and acknowledging that what matters most for users of an environment is their experience (and not compliance of a building or indoor quality aspect to norms, standards, or expert assessments). Therefore, usability is highly contextual, i.e. dependent on tasks, user characteristics, and properties of the physical, social, and technical environment (cf. Alonso-Ríos et al., 2010).

The usability perspective can be applied in strategic, developmental, operational, and evaluative phases of workplace projects as well as in workplace-related processes and continuous improvement. Usability is thus a general approach in workplace management which affects workplace strategies and projects as well as the day-to-day operations and continuous improvement of work environments. Key principles of usability management are:

- An early and continuous focus on users: identification of users (or user groups) and their activities and interactions with the work environment is a fundamental point of departure.
- A balanced consideration of output, process, and subjective assessment of the experience of interacting with the environment.
- A combination of objective and subjective measures: in the HCI domain, the output component of usability often contains some objective outcome measures related to performance. In the built environment domain, objective outcome measures may be partly substituted by user assessments since performance-related objective measures are rather an exception in knowledge work. Subjective measures should cover functional properties (usefulness) as well as experience (user friendliness).
- Integration of four perspectives (Bevan et al., 1991; Sauer et al., 2020): (1) product-oriented view: product-inherent attributes (e.g. ergonomics); (2) user-oriented view: users' mental effort in usage of a system, product, or service and their attitude towards it; (3) performance-oriented view: user interaction with the system, product, or service; and (4) context-oriented view: influences of differences in tasks, user characteristics, and physical, social, and technical environment.

- Taking account of changes over time: work environments may change as buildings and infrastructure move through their respective life cycles, or when regulations change. Contexts of use may change as business strategies, organisations, or technologies develop.

These principles imply that conceiving, designing, managing, and optimisation of work environments are tailored to specific contexts (and do not just follow standards). The process of achieving or increasing usability of a specific context is carried out as true interdisciplinary cooperation in and for real work settings. Interdisciplinary teams involve experts and users or participants that are as similar as possible to future user groups. Usability-focused workplace-related processes are participative in nature. Participation reaches beyond information and consultation but involves co-development of concepts and spatial/infrastructural solutions in iterations. Design of work environments is based on analyses and follows a human-centred design approach "that puts human needs, capabilities, and behaviour first, then designs to accommodate those needs, capabilities, and ways of behaving" (Norman, 2013, p. 8). This approach considers differences between different user groups and stakeholders. Eventually, usability of the built environment refers to a continuous improvement process with periodic usability evaluations. Periodic evaluations are formative in nature, i.e. they aim at improving the work environment by identifying problems in human-environment interaction (as opposed to summative evaluations that evaluate quality of the environment with the goal of comparing it against other environments or some specified standards or goals) (cf. Sauer et al., 2020).

Usability thus emerges as a fundamental approach or perspective in workplace management which includes the day-to-day operations and continuous improvement of work environments. Usability adds value to work organisations by aligning the physical work environment design to organisational operations.

2.2 Usability briefing and design

The importance of briefing to achieve usability is highlighted by the CIB W111 work commission, where usability is taken as a central concept for the workplace design and operation of facilities (Alexander, 2010). Briefing is usually known as one of the first phases of a building project, before the design activities. In practice, it involves users as data sources and results in briefing documents (the brief or the program of building requirements) (Fronczek-Munter, 2014). Considering the traditional approach in briefing, several researchers suggest that briefing should be a dynamic (Nutt, 1993; Prins et al., 2006) and a continuous process (van der Voordt & van Wegen, 2005; Jensen, 2006). Briefing in usability studies refers to a transition from being a single process in a definite initial stage resulting in a final document, to a continuous and interactive process throughout all building processes (Jensen, 2006).

Alexander (2006) emphasises that knowledge from usability evaluations should feed into briefing. Jensen et al. (2011) notice the potential implications for the briefing process when usability is taken as a contingent quality rather than as the inherent functionality of the physical environment. They introduce a usability briefing model that involves users since the concept of usability is seen as a similar approach to functionality but strongly depends on subjective views of users, context, culture, situation, and experience. Jensen (2006) identified the following reasons as the most important for involving users in the briefing process:

- Ensure that new facilities are designed in accordance with the needs and intentions of the organisation,

- Learn from good and bad experiences with existing facilities,
- Ensure acceptance and appreciation of the new facilities among managers and staff.

Jensen et al. (2011) suggest that further research should examine the effects of user involvement for different types of users, processes, and facilities while considering the role of the users in the briefing process and how to manage inclusive and continuous briefing. The follow-up research by Fronczek-Munter (2014) addresses these suggestions and proposes additional relevant characteristics for usability briefing, i.e. concerning existing or future facilities, process being continuous in all phases with focusing on usability, and the importance of co-learning and co-designing.

Compared with the characteristics of traditional briefing (Table 15.1), usability briefing is a continuous briefing process with a focus on usability, in which users are actively involved, not only in evaluations and data gathering but also in decision of workplace-related processes (Fronczek-Munter, 2014). The novelty of the usability briefing model by Fronczek-Munter (2014) consists in the combination of the four known activities of briefing (design, evaluations, user involvement, briefing documents). It organises them as well as provides a visual overview of the four activities throughout all building design phases. The model consists of main activities to be carried out with a focus on the stages and methods where usability topics are formalised (e.g. in notes, documents), discussed (in workshops, design meetings), and systematically evaluated (e.g. in design appraisals). The model combines continuous user presence, co-creation, design and evaluation with various users and stakeholders, and using creative boundary objects in workshops (Table 15.1).

Researchers emphasise that briefing is a key process to achieve usability and effective facilities (Alexander, 2008; Blakstad et al., 2010; Jensen, 2010). For instance, the case study in NCR Discovery Centre, Dundee, Scotland, investigated how to add value to the outcome by involving people, and how to avoid design errors by realising their requirements for the workspace. Different from a traditional top-down approach, where generally users are expected to adapt to what is given to them, the involvement of staff in the planning was seen as very important as stakeholders wanted a significant change to their working environment (Alexander, 2005). Another case study of a new broadcasting facility for the Danish Broadcasting Corporation in Copenhagen, Denmark, investigated evidence for relocation processes and activities that would lead to more usable workplaces. The results show that user involvement in briefing and design had a positive effect on the finished buildings and user satisfaction (Jensen, 2006).

Other usability studies investigate different aspects of the usability concept in workplaces. For instance, research by Rasila et al. (2010) claims that understanding the usability dimensions

Table 15.1 Comparison of traditional briefing and usability briefing (Fronczek-Munter, 2014, p. 270)

Traditional briefing	*Usability briefing*
Concerns new building/construction	Concerns all client/user needs in existing or future facilities
A definite phase at an initial stage of construction	A continuous process with changing focus in all the phases of building life cycle including occupancy
An expert-based information collection	A co-learning and dialogue process
Users mainly involved as data sources	Users actively involved as co-designers and part of a corporate change process
The result is a brief, i.e. a requirement specification	Continuous collection of visions and specification requirement specs, with changing detail and focus

end users use in assessing built environments makes it possible to improve existing environments and to create new environments that suit end-user needs better. They propose 12 different dimensions that users could use when they are assessing the usability of built environments: efficiency, flexibility, learnability, memorability, amount/tolerance/prevention of errors accessibility, navigation, functionality, atmosphere, interaction and feedback, servicescape, feeling secure, space networks. Lindahl et al. (2012) emphasise that usability evaluations should also focus on how the building impacts value creation in the user organisation. They suggest that the user organisations ask: *What do we want to achieve? What do we want the building to contribute? How can our premises create added value for the organisation?* Another usability study by Windlinger et al. (2016) aimed to capture the elements of user experience connected to usability using the distinction between usefulness and user-friendliness. Their findings show that perceived support of work activities by workspaces in relation to work tasks is the main element of usefulness. The most important aspects of user-friendliness are comfort and control. The correlations between usefulness and user-friendliness and outcomes of usable workspace design are low for self-assessed performance, moderate for job satisfaction, and high for work area satisfaction. Another recent usability study focuses on social and healthcare workplaces. The study lists the most important usability elements in these workplaces as functionality, safety/security, healthiness, orientation, interaction, and comfort (Aalto, 2019).

3 Methodology/research approach

The cases analysed by CIB W111 applied various tools and methods to provide fundamental insights on usability of the built environment and how to evaluate it. Furthermore, specific tools were developed considering their potential to contribute to the use of workplaces in various aspects, such as workplace management and design decisions. Traditional methods used in building evaluation are usually expert-based and concerned mainly with the physical aspects of the environment and do not involve user experience. One of the strong traditions has been post-occupancy evaluations (POEs). POE (Preiser et al., 1988) refers to a process of systematic collection of data after a building is in use and is strongly tied to performance. Data collection is gathered from experts and users, but convergence between users' assessments and the view of designers and facilities managers is usually low (Chigot, 2005). Researchers criticise the existing assessment methods as they focus too much on technical aspects of the buildings (e.g. van der Voordt & Van Wegen, 2005; Alexander, 2006). POE originally included the idea of a feed-forward approach (i.e. use data from POE for planning). However, this approach is rarely applied in practice. Instead, POE practices are mostly used as feedback from finished buildings, and researchers (e.g., Jensen, 2010; Alexander, 2006) suggest that usability evaluations should be part of a feed-forward approach in workplace projects. From a workplace management point of view, usability evaluations lead to improvements in both existing and new buildings. The methods and focus used for evaluation of usability of workplaces have shifted towards a more holistic, process-oriented, and user-centric approach.

Nenonen et al. (2008) investigated how to assess work environments from the user perspective, as part of user experience. They developed a methodology for user-oriented workplace management, which consists of post-occupancy evaluations, usability walk-through audits, and service process evaluations that are combined with insights from customer journeys. Considering pros and cons of different methods and tools, they deduce that POE focuses on the building as an object instead of process, while usability walkthrough can focus on qualities of different functions within a building and its attributes, and customer journey provides data about the processes and user experiences in the work environment. Even though the methods can unveil

small details that may affect the user experience in workplaces, they recognised a need for further development of the theoretical framework, methods, and tools for measuring usability from different users' perspectives.

Another usability study by the Norwegian group (Blakstad et al., 2008) aimed to evaluate the relation between building and people and organisation when evaluating usability of buildings. Considering the challenge of understanding users' actions and a long list of user types and groups, they suggest not only focusing on the individual level but also looking at the impact of the building in the organisational context, for a better understanding of the relation between people and building. They describe usability as context-dependent and related to user experiences and social relations between users and facilities. They further emphasise that the complexity of usability shows the importance of triangulation of methods (multi-methods strategies) and interdisciplinary research teams with different backgrounds and skills to perform the usability evaluations.

Future methods and research on usability of workplaces need to focus on the management of the complex issue of efficiency of facility use incorporated with the efficiency of the organisation. It is left to future research to identify and take advantage of naturally occurring situations for quasi-experimental longitudinal field studies (cf. Shadish et al., 2002) or other possibilities to demonstrate benefits of a usability approach in the built environment. Furthermore, the content dimensions of usability of the built environment are not yet developed in detail, and a framework that would relate material, ambient, and socio-spatial aspects of workplaces to efficiency, effectiveness, and satisfaction remains to be developed.

4 Limitations

Usability theory has its roots in human-computer interaction (HCI). Usability engineering may be difficult in the built environment compared to HCI since modifications, adaptations, and optimisations of workplaces and other environments follow different principles (in terms of effort, cost, dynamics, and time cycles) than software. This may be a reason why usability is not established as a process – or, at least, perspective – in practice in the built environment domain. While principally hypotheses could be derived from usability theory, rigorous experimental or field studies are missing so far. It must be acknowledged that it is very challenging to empirically demonstrate benefits of a usability approach since normally there will be no comparison to other approaches possible.

5 Theory relevance to practice

Usability of the built environment is an approach that emphasises quality in use with a strong focus on human experience. It thus extends post-occupancy evaluation and its associated continuous improvement ideas with a more user-oriented or even user-centred perspective. Usability provides valuable guidance in developing, assessing, and improving workplaces with a user-centric perspective.

5.1 Management of usability of workplaces

Taking the aforementioned into account, an extended perspective of workplace management with a focus on usability has potentials to make the workplace process more effective and usable. The usability perspective can be applied in strategic, developmental, operational, and evaluative phases of workplace projects as well as in workplace-related processes and continuous

improvement. The experiences and learnings that have resulted from usability studies emphasise that, besides continuous user presence, a better understanding of the concept of usability is important for the application of usability in workplace projects. For instance, Blakstad and Hansen (2012) studied the adoption of different tools and methods for usability evaluations in four organisations in Norway. They found that the adoption of methods for usability evaluations can be a driver of innovation in organisations when key players have awareness and competence and when sufficient resources and adequate incentives are present.

For the application of usability in workplace management, Jensen et al. (2009) suggest considering usability as a general approach which refers to a continuous briefing and commissioning for the improvement of work environments throughout all building processes. As shown in Figure 15.1, the briefing process refers to an ongoing capturing of requirements based on experience and changing needs with continuous user presence, and it has a peak around the start of the design phase but continues during the construction and occupation of the building. The commissioning process, with an opposite intensity, refers to an ongoing optimisation of building performance during the use of existing and new buildings. It begins with ensuring and verifying the performance of the new building and intensifies during design and construction with a peak when the new building is occupied.

Considering the objectives of facilities management, which are to provide setting and services to support the effectiveness of organisations and to support user activities (e.g. work on tasks, work processes) and their outcomes (performance, productivity), the application of usability in workplace management is a complementary approach that focuses on quality-in-use. The important key for management of usability of workplaces is specifying the processes and strategies throughout the whole life cycle of the work environment with a focus on usability aspects. These aspects are to connect effective utilisation of the physical, environmental, and organisational resources to result in positive outcomes and value creation for all users and stakeholders.

5.2 USEtool: a toolkit for usability in the built environment

A major outcome of usability in the built environment research and development is a USEtool, a common usability framework or methodology (Hansen et al., 2010; Blakstad et al., 2010). It consists of five stages and results in the drafting of an action plan for improved usability for the organisation involved. For each stage, they propose a general (preliminary) introduction, followed by a description of the goals in that stage, the methods used, and the expected results, with a focus on usability aspects related to effectiveness. They, later, published the USEtool handbook as an active tool that building owners themselves can implement by using their internal resources (Hansen et al., 2011). Their objective was to develop a set of tools that are easy

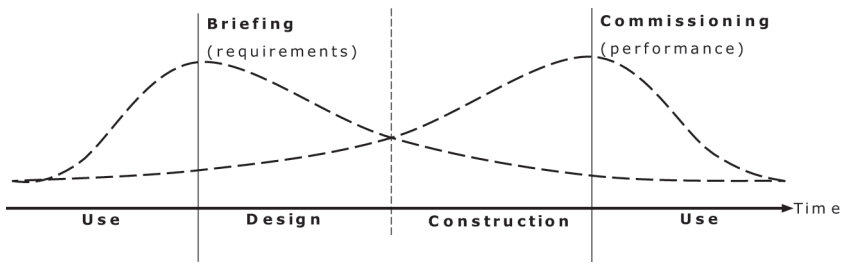

Figure 15.1 Continuous briefing and commissioning (adapted from Jensen et al., 2009, p. 7)

to use and more manageable for evaluation, as providing both an overview and more in-depth knowledge of the concept of usability. As the perspective may vary depending on whether the context is the preferences and satisfaction of individuals or the effectiveness of the organisation as a whole, they focus on who, what, where, and why questions in their tool in order to have a clear assessment (Hansen et al., 2010, 2011; Blakstad et al., 2010):

- For what? The definition of usability emphasises the fact that there are specified objectives to be achieved. To define the activities that are to take place "for what?" is multifaceted: *What objectives are to be realised? What activities are to be conducted? What work processes should be supported?*
- For whom? As the definition of usability designates specified users, it is important to define which user groups are in focus. There is a need to define both the user level (individual, group, user organisation) and the type of user (user group). Different user groups may have divergent or even conflicting views of usability.
- Where? Users' experiences should be related to space or place. This means that in usability evaluations there is a need to relate users' experiences to specific physical surroundings.
- Why? Discovering factors that enhance/inhibit effectiveness is not sufficient; the next step is to understand why. This fundamental will enable generalising and providing knowledge for the benefit of future projects or to improve existing settings.

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16

USER-CENTRED DESIGN THINKING

Application of UCDT theories to workplace management

Minyoung Kwon and Hilde Remøy*

1 Background

The term 'User-centred design (UCD)' is defined by Norman and Draper (1986). This theory was first introduced to the area of human-computer interaction. The first application in this area focused on the usability of computer design, aiming at supporting a minimum effort by users to learn how to use a product with high efficiency. The philosophy of this theory comes not from a humanistic desire, but from a desire to gain optimal functioning of the human-machine system, as defined by Endsley et al. (2003). The UCD is against subjective assumptions, and it requires proof that the design decisions are significant. Recently, the theory has been widely used in various fields, such as in the field of industrial design and ergonomics, with a strong concept of user evaluation. The traditional way of designing is based on designers' ideas and their design process, for example, reflecting the designer's ambition and considering users from the designer's point of view. On the contrary, the UCD places users at the centre of the design, and designers reflect on users' needs and interests in the design (Abras et al., 2004). As a result, UCD leads to improved safety, effectiveness, user acceptance, and satisfaction (Berns, 2004; Chammas et al., 2015).

UCDT can be seen as a basic method for a user-centred management strategy. There are several examples of how it has been applied to different fields. Berns (2004) explained the applied UCD process by using an example where UCD was used for developing an IT-portal for the Swedish Net University. The UCD method was used to collect the various interests and demands of different user groups from a pilot study that was conducted. A questionnaire was focused on the type of users, needs, and the user satisfaction. The results contributed to guarantee the functionality and quality of the portal. Kautonen and Nieminen (2018) applied the UCDT approach to digital library management. The study presented an examination of the performance management in digital library services in terms of public services provided by organisations. The study aimed at suggesting a model which engages people and different stakeholders for the library management. They emphasised the benefits of UCD approach, which are mainly to capture divergent views of design performance from stakeholders. In other

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fields, such as ergonomics, the UCD is used to develop technical devices. Martin et al. (2012) state the importance of applying the UCD principles in medical devices. The study developed a prototype focusing on device, safety and effectiveness in order to design devices adequately. This study included a brainstorming session with the device development team members from different disciplines to collect ideas from different perspectives. After, the results of the brainstorming session were used for potential user interviews regarding the prototype devices.

User involvement is seen as an essential factor in the UCD process. However, the scope of user involvement varies, and it depends on the scheme of approach and research fields. According to Johnson (1998), the active involvement of users throughout the design process is a vital issue to understand their needs and interests and to overcome the limitations of the products. On the other hand, Rekha Devi et al. (2012) stated that users' actual involvement is not necessary in the UCD, but designers need to consider users' feedback in the design process. The definitions of Carr (1997) can explain the reason why there are different interpretations of user involvement in the UCD theory. According to their clarification, there are differences between user design and user-centred design:

> In the former, users are engaged in the actual creation of their own systems in negotiation with leaders and designers. In the latter, users are considered central to the design specification; however, design control remains firmly in the hands of professional designers, and approval power remains with leadership.
>
> *(Carr, 1997, p. 10)*

The UCD aims to optimise usability, instead of forcing the users to change their behaviour to fit the use of a product (Grott, 2019), and to provide good user experience (Sharp et al., 2015). User experience includes the motivations and emotions of users (Triberti & Brivio, 2020). UCD analyses the following aspects:

- What are the needs of the users?
- What are the limitations of the design?
- What are the preferences of the users?
- What are the expectations of the users?
- How to create user-centred design solutions?

With consideration of these aspects, designers evaluate the final design based on feedback from users after use. ISO 13407 is an international standard providing guidance on human-centred design activities. According to the description of ISO 13407 by Jokela et al. (2003), there are four stages of UCD activities before conducting the analysis. First, researchers need to identify who are the users, to specify the context such as the environment of use, and to understand the tasks of the users. The second step is to identify the user and organisational requirements. The third step is to incorporate interaction design and usability into design solutions. Lastly, researchers evaluate designs against requirements.

The concept of 'Design thinking (DT)' is broader than that of UCD. DT is an approach to problem-solving and creating solutions, focusing on developing a feasible design (Vagal et al., 2019). It is aimed at innovation and ideation to come up with new ideas to solve problems or challenges. DT is also a methodology guiding a constant interaction between the designer and the targeted users. The DT process is illustrated in Figure 16.1. In this process, researchers investigate what is happening by observing and interviewing users during the observation stage. This stage is about understanding the users' needs. After the observation, the researchers gather

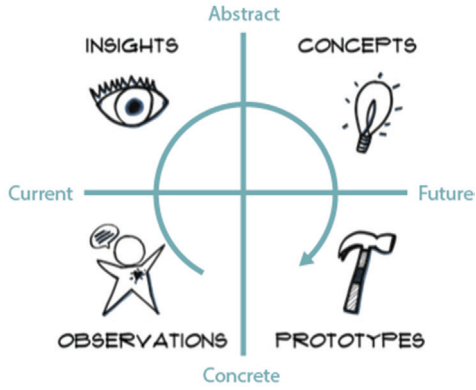

Figure 16.1 Design thinking process (Stanford et al., 2017)

information and data and focus on defining the problems and generating research questions. In the concept stage, the insights are used to draw an abstract concept by linking the ideas to real user needs. Based on the selected concepts, prototypes are created that users can react to. The main issue in this stage is that the prototypes should be quickly modified for user tests.

User-centred design thinking (UCDT) combines the efforts of UCD and DT. UCDT has been developed as an approach to tackle challenges. UCDT considers the needs of users and satisfying users' needs in physical and psychological ways, but it is also about finding solutions to develop policy, services, etc. Research starts with collecting feedback from representative users. The feedback is then used to make design decisions before the initial design is prototyped (Still & Crane, 2017). The design is revised until the outcome meets the users' cognitive needs and requirements.

2 Applicability to workplace studies

Studying users' experiences can help to investigate the bilateral influences between user behaviour and the environment of places. The UCDT theory, focusing on user experience, can identify the environment-behaviour relationship (Hillier & Leaman, 1973). The application of UCDT offers benefits for overall workplace management by establishing shared goals between central management and users of a space. This approach helps to formulate users' needs and to develop management directions in workplaces, thereby assisting employees in performing more effectively. During this process, it is essential to make a balance between the different aims of those two parts.

Workplace research often has an issue with the 'research-practice gap'. In general, UCDT allows researchers to examine how effective the management plan or the research outcomes are in achieving the researchers' goals. It also can find a gap or a flaw that might happen in practice. For this reason, UCDT is more than just a tool that would have been applied for the start of user-centred studies. In addition, this theory can also be implemented for a research validation because the study is executed in the real world with actual users. Implementing UCDT can ensure that a new plan for workplace design or management will maintain positive user experience and satisfaction.

The UCDT might, therefore, be a useful approach to workplace research and management as follows:

- Understanding users is a major part of both UCD and workplace research.
- UCDT helps to set a clear target and goals for both users and central management.
- UCDT decreases the complexity of the user-centred research process.
- UCDT also includes consideration of commercial values.
- Feedback from office users can contribute to supply-side decisions.
- UCDT is a practical approach because one can stop guessing and make decisions based on actual users' feedback.

2.1 Application of user-centred design thinking theory in the workplace research

The user-centred approach has already been applied to the built environment. Jacqueline C. Vischer constructed a well-known theory in this field. Vischer (2008) defined user-centred theory in the built environment, stating that users' behaviour in a building is influenced not only by the space they use but also by users' intentions, attitudes, feelings, expectations, and social context. The two key concepts in her theory are users' experience and user-building relationship, which may help to fill the gap between theoretical and practical knowledge. According to Vischer (2008), users' feedback regarding functional comfort is not given only by the physical comfort; instead, comprehensive factors affect user comfort. Figure 16.2 shows an analytic framework to assess the users' experience in the workplace. In workplace research, there are three types of users: individuals, groups/teams, and organisations. In addition, physical, functional, and psychological comfort should be included for user evaluation of the built environment performance.

A recent study by Kwon (2020) classified physical and psychological factors to be dealt with in work environment studies. Although the classification was developed based on the analytical framework by Vischer (2008), the classification deals with work-environment factors that influence user satisfaction regardless of types of users. It means that the employees are considered as individuals, but not in a group or organisational level. The UCDT was implemented in the way of investigating employees' needs. There are three-step influences. The fundamental class for comfort in the workplace is physical comfort, the second class of comfort is functional, and the last class is psychological comfort. The influential factors for physical comfort are essential

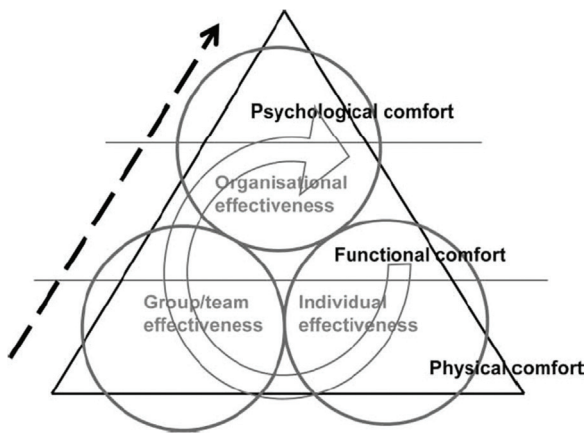

Figure 16.2 Analytic framework for assessing the user's experience (Vischer, 2008)

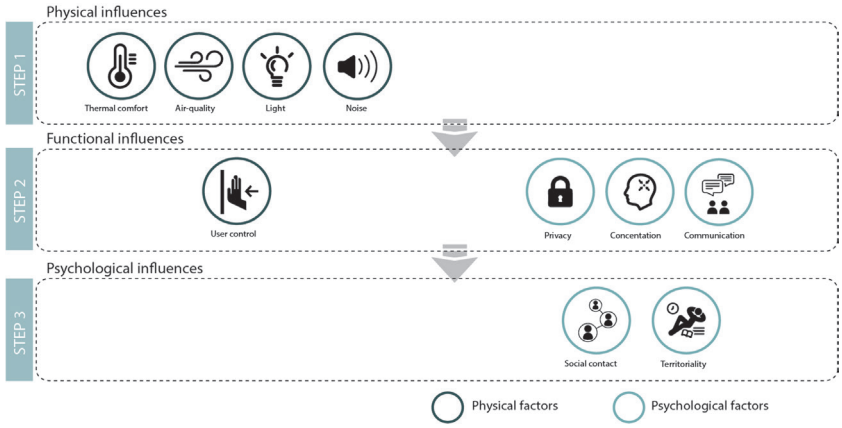

Figure 16.3 Classification of physical, functional, and psychological factors based on the dimensions of comfort

for people to be able to work in the work environment. In contrast, psychological comfort is not an essential class but can help to achieve a higher level of employee satisfaction. Figure 16.3 shows ten influential factors for user satisfaction, divided into physical, functional, and psychological factors. At the later stage of the study of Kwon (2020), these factors were tested through actual user surveys and observation methods to develop optimal office design principles for user satisfaction and comfort, taking the influence of the different factors together into account. Using this framework, researchers can decide what the important factors they should consider in office-related user studies are, and designers can decide to which extent they can set a goal to achieve user satisfaction.

3 Methodology/research approach

In workplace management, the UCDT aims to develop solutions to improve the performance of employees/occupants, thereby increasing satisfaction, productivity, wellbeing, etc. Interactions with users take various forms in both empirical and inspection methods. As Rekha Devi et al. (2012) stated, users' actual involvement is not overarching in workplace research, but researchers need users' feedback during the research process. Cognitive analysis should be implemented to understand the patterns and relationships of user perception (Klein et al., 1997).

Some researchers are keen on collecting as much data as possible on user satisfaction through a user survey. However, in some cases, it takes too much time to collect users' opinions. In UCDT, researchers do not construct subjective assumptions or hypotheses about user behaviour but statistically prove what is actually happening (Lowdermilk, 2013), which is called evidence-based research. In this type of research, both problem definitions and solution generations are contemplated simultaneously (Cross, 2006). Therefore, it is important to use the right approach to avoid collecting unnecessary data and to conduct surveys and analyses more efficiently.

The need-finding methodology is at the core of UCDT (Lai et al., 2010). Need-finding is not searching for solutions but looking for needs. This allows us to sense intangible relations and patterns of experience and helps to define latent user needs. Users' needs and requirements can be identified by investigating user experience. Sanders (1992) defined the level of needs expression:

- Observable needs: can be observed by the research.
- Explicit needs: can be expressed verbally by the user.
- Tacit needs: cannot be expressed verbally by the user.
- Latent needs: is subconscious and inexpressible by the user.

Wallisch et al. (2019) stated that statistical data collection, surveys, and conjoint analysis are suitable to gather explicit needs from users. Lead-user methods (Hemetsberger & Godula, 2007) and diaries are appropriate to collect tacit or latent needs from users.

Kwon (2020) applied a user-focused research approach to evaluate user experience/satisfaction in workplaces (see Figure 16.4). In the first phase, researchers set a goal and collect data based on what they want to find out through the field study. The field study can be conducted by empirical methods (e.g., survey, interviews, focus group, and contextual inquiry), or inspection methods (e.g., walkthrough and heuristic evaluation[1]). The objective of these methods is to become familiar with user needs and preferences. This phase is the foundation for creating core requirements for UCDT research. The second phase is to understand users. In general, applied ethnography and lead user methods are used to identify user needs and user involvement (Dell'Era & Landoni, 2014). Applied ethnography means the practice of observing users in the context of use (Sanders, 2002); and the lead user method gets direct input from lead users through inquiring about the product and service needs of lead users (Urban & Von Hippel, 1988). Lead users, also called early adopters, are experiencing needs ahead of targeted markets. Unlike other fields using UCDT approach, identifying user groups before starting any study is very difficult in the workplace study. After collecting the data, the types of users can be classified based on user profiles and characteristics such as studies done by Mettler and Wulf (2019), Despenic et al. (2017), and Matthews et al. (2011). The third phase is to define interactions

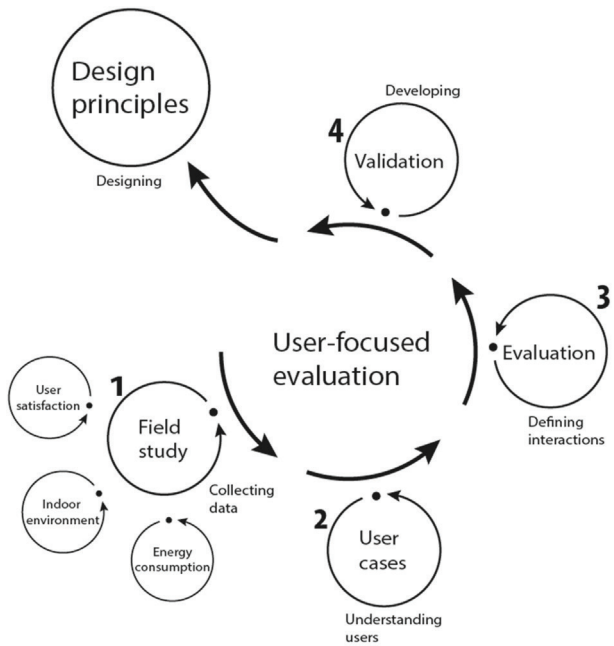

Figure 16.4 User-focused evaluation research approach (Kwon, 2020)

between the workplace environment and users. The evaluation/analysis phase discovers new users' needs or flaws in the current condition. In the validation process, workplace management, guidelines, or services will be developed.

Traditional workplace management has considered users without actual understanding of user experience. Although the UCDT theory in this chapter does not include users in the management and design process directly, it reflects users' experiences and feedback to workplace management. Moreover, the approach does help not only to collect users' feedback but also to figure out latent user needs.

4 Limitations

Although the original approach of the UCDT theory has not been applied to the field of workplace research, the fundamental concept has been integrated into this field as a methodological approach for user studies. There are advantages of UCDT theory, such as that researchers can achieve a deeper understanding of the psychological, organisational, and social factors of workplace satisfaction.

However, there are also possible limitations:

- Selecting representative users.
- Privacy during code of user behaviour.
- The scale of the test environment and repeatability.
- Unsuccessful user participation.
- Different cultural backgrounds.

First, one of the major considerations for UCDT is to identify the users: the actual users, and the primary users. In general, volunteers who are willing to join the research are selected for interviews or workshops. However, it is sometimes difficult to tell if the participating users are representative for all users. This may also cause a bias in user studies. Second, privacy is always an issue in the code of conduct of research on user behaviour. As a researcher, it is essential to check human research ethics and privacy regulations. It may limit collecting specific data from users. Third, the methodological scheme may not be repeatable for every workplace research since the scheme can be modified according to what researchers want to achieve, in which condition they can collect data, and which phase they want to involve users. However, the core approach of UCDT, such as need-finding methodology, is repeatable in most workplace research.

Nonetheless, various types of methods may be applied according to the scale of the test environment or type of users. Next, it is sometimes difficult to collect a sufficient number of responses from people. Successful user participation is of prime importance in user surveys. However, inviting users for surveys can cause delays in research. Last, cultural differences between researchers and users can lead to miscommunication. Thus, as a researcher, it is important to understand the culture before conducting the experiment, and it is recommended to translate questionnaires to the own language of the respondents.

5 Theory relevance to practice

User-centred design thinking (UCDT) has been developed as an approach to tackle challenges and involve users in doing this; hence, it is already a very practice-oriented approach. The contribution of this theory to workplace management may be to provide some advice to

practitioners who seek to implement user-centred management. UCDT is not only considering the needs of users and satisfying users' needs but is also about finding solutions to develop policy, services, etc. In workplace research, research starts with collecting feedback from representative users on their current workplace, satisfaction, and preferences. Practitioners then use the feedback to make design decisions before the initial design is prototyped.

The range of workplace management research is comprehensive. Practitioners need to take overall perspectives: they need to include the environmental comfort by considering physical and functional factors, which are mainly related to the quality of building. Practitioners should basically consider the indoor environmental quality such as thermal comfort, air quality, noise, and lighting. Personal control over the indoor environment is essential to increase user satisfaction. Moreover, the psychological factors, including social interaction and ambience environment, should be included in the workplace management. Throughout the design process, the users may be consulted to improve the design. Very often, encountered challenges are related to different preferences of different (types of) users. The challenges can be met by applying UCDT, which is using a cyclical research and design process and by getting the input and feedback of the different users. In the cyclical process, the design is revised until the outcome meets the users' cognitive needs and requirements. Concluding, this UCDT approach may help practitioner readers to manage workplaces better for the users.

Note

1 Heuristic evaluation is an informal method of usability analysis where a small set of evaluators examine the interface and judge its compliance with recognised usability principles.

6 Further reading

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17
HOSPITALITY THEORY
Application of hospitality theory in the work environment

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It's not the service, it's not the needs, it's the way you deliver the service.

1 Background

There is no single definition of hospitality, nor is there a single model or theory. This is understandable, as researchers from various academic fields have been discussing the topic, each from their own perspective. For example, philosophers and theologians focus on ideal hospitable behaviour (e.g. Derrida, 1998; Levinas, 1987; Reynolds, 2010), historians emphasise the development of the concept over time (e.g. O'Gorman, 2007) and sociologists and anthropologists explore the hospitality exchange of peoples, countries and cultures (e.g. Burgess, 1982; Selwyn, 2000). Furthermore, psychologists study the individual perspective of either the host or the guest (Ariffin & Maghzi, 2012; Pijls et al., 2017; Tasci & Semrad, 2016) and the researchers related to the hospitality business focus mainly on directly applicable knowledge for the hospitality industry (e.g. Lashley, 2009; Lugosi et al., 2009). Although the business and managerial sector has thus far dominated the literature on hospitality (Lynch et al., 2011), the understanding of the relevance of the concept for other service sectors is growing. This chapter argues how the existing knowledge on hospitality can be also applied to the work environment. The chapter will start by further introducing the topic. What is hospitality?

Hospitality is an exchange process: it involves a host and a guest. The host provides for the guest and the guest reciprocates, in commercial environments by payment, in non-commercial environments by some form of gratitude or by returning the favour in the future. Hospitality is not unconditional: both host and guest are bound by implicit rules, such as one shall not harm the other. It is not a new phenomenon. It has existed since the beginning of humankind and has always played a role in human societies as private, social, and commercial phenomena (Lashley, 2015). Hospitality is studied from many perspectives, ranging from anthropology, philosophy, history and religion, to sociology, environmental psychology, to business. So where to start when explaining what hospitality is? As the focus of this book is on workplace research, this chapter will take a rather practical view on hospitality.

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Hospitality is both practical and experiential; it can be offered as a product (by the host), and it is experienced (by the guest). It may be understood as the offer of certain products and services that fulfil Maslow's lowest levels, by offering a place to stay when you are away from your home, and by taking care of basic physiological needs such as food and drinks (e.g. Cassee & Reuland, 1983; Reuland et al., 1985; Brotherton & Wood, 2000). It may also be understood as a much more holistic concept, describing an experience that fulfils psychological needs by making people feel liked and esteemed (e.g. Tasci & Semrad, 2016; Pijls et al., 2017), and ultimately letting them thrive, as in Maslow's highest level, self-fulfilment. On this experiential level, hospitality involves the experience of personal attention which is expressed by experiencing inviting, care and comfort (Pijls et al., 2017), heart-warming, heart-soothing and heart-assuring (Tasci & Semrad, 2016) or personalisation, warm welcoming, special relationship, straight from the heart and comfort (Ariffin & Maghzi, 2012). Considering both the practical and the experiential level of the concept, hospitality therefore concerns both the physical and social environment, both environmental dimensions and employee behaviour, and is expressed in functional, sensory, and behavioural service clues (Berry et al., 2006).

Definitions of hospitality (Table 17.1) are often from the perspective of the provider of hospitality, the host, who may offer products/services, delivered by hospitable staff, in a hospitable environment, and to a lesser extent the perspective of the receiver, the guest, describing the actual experience of hospitality. To be hospitable, the definitions from the perspective of the guest should be the starting point. Once the desired hospitality experience has been defined, guests' needs can be met by offering the right accommodation and services, both on a practical and experiential level.

2 Applicability to workplace studies

Over the last decade, hospitality transgressed beyond the boundaries of the traditional hospitality industry, as many organisations found that the application of aspects of hospitality enables business success in an experience economy. The care and cure sector were among the first industries to acknowledge the importance of hospitality, as a pleasant and comfortable environment can reduce stress and enhance patients' well-being (Fiset, 2006). Moreover, patient satisfaction is the result of the quality of the medical treatment and of the way patients and their relatives feel treated in the process by all staff involved. Hospitableness and a hospitable environment evidently improve patient satisfaction (Groen, 2014; Suess & Mody, 2018) and thus contribute to a better market position of care and cure institutions.

Following the experience economy trend, other organisations started to see the benefits of paying attention to hospitality too. Staff that behaves hospitably to clients contribute to client satisfaction and customer loyalty (Heskett et al., 1997). Heskett's Service Profit Chain depicts the cause-and-effect relationship between employee experience, customer experience and profit and turnover. His research showed that employee satisfaction and customer satisfaction are strongly linked, as are customer satisfaction and growth and profit.

In the workplace, hospitality towards own members of staff gained importance in markets that are characterised by a war for talent. It is generally recognised that intellectual and human capital is the foundation of competitive advantage in the modern economy (Berthon et al., 2005). The human capital of an organisation, i.e. highly skilled employees, is one of its most important resources for production and as such leads to its success and performance (van der Voordt et al., 2017). In this context, hospitality is a means for employer branding, staff retainment and staff productivity. As Knoll (2016) notes, workplace becomes an experience and starts providing value to customers through flexibility, community and shared resources. Harris (2015)

Table 17.1 Definitions of hospitality

Author(s)	*Description of hospitality*	*Offer*	*Perspective*
Cassee and Reuland (1983, p. 144)	"A harmonious mixture of food, beverage, and/or shelter, a physical environment, and behaviour and attitude of people."	Product/service, behaviour, environment	Provider/host
Reuland et al. (1985, p. 142)	"A process involving a provider (offering hospitality) and receiver (consuming hospitality). This process involves the transfer of three elements: product (meal or bed), behaviour of employees, and environment of the restaurant."	Product/service, behaviour, environment	Provider/host
King (1995, p. 229)	"Hospitality in a commercial or organizational setting is a specific kind of relationship between individuals – a host and a guest. In this relationship, the host understands what would give pleasure to the guest and enhances his or her comfort and well-being, and delivers it generously and flawlessly in face-to-face interactions, with deference, tactfulness and the process of social ritual."	Staff behaviour	Provider/host
Brotherton and Wood (2000, p. 142)	"Hospitality is a contemporaneous human exchange, which is voluntarily entered into, and designed to enhance the mutual well-being of the parties concerned through the provision of accommodation, and/or food, and/or drink."	Product/service, staff behaviour	Provider/host and Receiver/guest
Brotherton (2005, p. 150)	"The notion of hospitality is being viewed as something closely associated with being made to feel 'welcome' by 'warm' and 'friendly' staff within an environment that is 'comfortable, pleasant and relaxing.'"	Staff behaviour, environment	Receiver/guest
Ariffin and Maghzi (2012, p. 192)	"Commercial hospitality in the context of hotel services, is defined as acts of entertaining the guests to create memorable and friendly staying experiences by meeting their physiological and emotional needs selflessly."	Product/service, staff behaviour, environment	Provider/host
Blain and Lashley (2014, p. 8)	Hospitableness is "an individual's concern to offer genuine hospitality which is essentially altruistic."	Staff behaviour	Provider/host
Tasci and Semrad (2016, p. 32)	"Taking care of needs by serving by hospitableness (heart-warming, heart-assuring, heart-soothing)."	Staff behaviour	Provider/host
Pijls (2020, p. 172)	"Hospitality can be defined as providing an orchestration of environmental, service, social and technological service cues, in such a way that customers experience an optimal mix of inviting, care and comfort."	Product/service, staff behaviour, environment	Receiver/guest

signals a paradigm shift in workplace management; from a focus on bricks (managing buildings) to a focus on the impact of buildings on users (managing people): "In their quest to deliver a positive workplace experience, workplace executives homed in on a few particular attributes that describe these environments . . . creating a warm, welcoming environment." In short, "we want people to be super comfortable" (Knoll, 2016).

The traditional employer–employee relationship is evolving. Workers are more demanding today and have a greater ability to be footloose in their choice of employer. These dynamics have led to a situation in which workplace design and management is increasingly focused on meeting workforce expectations (Harris, 2016). Workplace management focuses amongst others on "creating and managing a memorable experience to attract talent" (Harris, 2016, p. 13). The workplace might be considered to be a service. In fact, 'workplace as a service' is a new concept in the FM world (Petrulaitiene et al., 2018), even though a workplace does not fit the traditional characterisation of a service, namely being intangible, perishable, inseparable and heterogeneous (Lovelock & Gummesson, 2004).

2.1 Host and guest, provider and receiver of hospitality in the workplace

The employer is responsible for the health and safety of the employee during working hours and provides a work environment that will enable the employee to be productive. As such, the employer is seen as the 'host'. As workspace management is an FM responsibility, as are hospitality services, in many situations the providers of hospitality will be facility management operational staff.

But who is the guest? FM has many customers to serve. On a strategic level this concerns an organisation's top management, on a tactical level the heads of departments and on an operational level the end users (workers, visitors, external customers). The EN 15221 FM model refers to these different customer groups as clients, customers and consumers, respectively.

Ultimately, the majority of receivers of hospitality are the facility manager's customers. Gremler et al. (1994) suggest that interactions among internal customers and service providers (i.e. internal service encounters) are similar to those between internal and external customers, in terms of their expectations, perceptions and evaluations of the service encounter. In practice, like in the traditional hospitality industry, the hospitality relationship is transaction-based, although the exchange with this type of users is more implicit. In exchange for feeling valued by an organisation, employees will add to the productivity of the organisation and behave like loyal members (do no harm to the organisation). As the employee usually works for the organisation for a longer time, satisfaction with workplace and job, loyalty and commitment to productivity for the employer are the preferred outcomes (see e.g. Batenburg & van der Voordt, 2008; Groen et al., 2019; Bakker, 2011).

So, there is a clear parallel between the hospitality industry and the workplace. The guest/employee stays at the premises of the host and experiences both the physical and the psychological environment the host provides. The guest reciprocates by being satisfied, and loyal, the employee by being satisfied with workplace and services, committing to his/her work and being productive for the organisation.

2.2 Hospitality as a product and hospitality as an experience

Furthermore, we need to distinguish between 'hospitality offered as a product' and the 'hospitality as experienced as a result of products offered'. The facility product hospitality covers,

among other things, catering, reception and meeting rooms (EN-15221–4). FM is responsible for the provision of services and the way in which these services are delivered. FM contributes to an experience, the feeling of welcome (parking and reception services), care (service desk, reservation system, janitorial services) and comfort (food services, furniture and amenities) of the consumer (employee). And whether it concerns reception services, janitorial services or service desk, analogous to the hospitality industry, it is the interplay of accommodation (space) and workplace services and the behaviour of hospitable service staff that results in an experience of hospitality by the user (employee, visitor).

A model that can help illustrate this distinction is the FM Added Value Map developed by Jensen (2010). This model expresses the added value of FM to the overall performance of organisations. One of the ways to add value is by improving employee satisfaction. Furthermore, FM contributes to the image of an organisation and supports the organisational culture, which are factors that enhance the attractiveness of an organisation for potential employees (Chhabra & Sharma, 2014). The perception of hospitality adds to the employee satisfaction (outcome level). Although hospitality is not explicitly mentioned in the model, the EN-15221–4 defines the hospitality product as part of both the space aspect (e.g. meeting rooms) and services (e.g. reception services and food services). Likewise, the Chartered Institute of Building Service Engineers (CIBSE) model supports the relevance of hospitality for the work environment (Mawson, 2002). In the CIBSE model, it is assumed that, in addition to many other variables, psychological factors (personality, expectations and experiences) have an effect on satisfaction, job satisfaction and consequently on performance and productivity. Thus, experiences, including the experience of hospitality, is linked to other workspace-related outcome variables.

However, literature on workplace satisfaction focuses rather on tangible aspects – the products offered – than on experience (see e.g. Leesman, 2017; WODI in Groen et al., 2019). A strict focus on tangibles, with a purely functional and technical view on workspace, ignores that *how* you deliver something may be at least as important as *what* you deliver, and the implications/inferences people constantly make about the world around us. What does it mean to me, how does it make me feel?

Literature in other disciplines, such as marketing, recognises both the what and how of products and services. The 'servicescape', developed by Bitner (1992), explicitly recognises both tangible aspects (ambient conditions, layout/equipment/furnishing, signs symbols and artefacts) and intangible aspects (interactions between service providers and users). Likewise, Berry et al. (2006) distinguish between functional clues in services (the offer), mechanical clues (the sensory perception of the environment) and humanic clues (directly referring to other people's behaviour). Furthermore, they state that only the functional clues are fully objectively measurable, the perception of the other clues is strongly coloured by how individual users consciously and subconsciously experience the clues.

An example: most workplaces have some form of reception service. In terms of Berry et al. (2006), the welcoming and registration of visitors belong to the functional clues. The reception area is the service environment, which is seen as a mechanical clue by Berry et al. (2006) and as environmental conditions by Bitner (1992). Aspects that influence the user's perception are, for example: the ease of navigation, the visibility of the reception desk upon entry of the building, the indoor climate, the acoustic quality, the colours and the materials used. In Bitner's servicescape model, these environmental conditions are a moderator for the social interaction, as these evoke a response in both the host and the guest. The behaviour of receptionist and security staff, as well as the behaviour of other users of the area, belong to the humanic clues following Berry et al. (2006). In Bitner's model, 'social interaction' includes the behaviour of the guest/customer and the host/employee.

These models show that in the overall perception of the workplace, both tangible and intangible aspects play an important role and that the aspects that influence the user perception show overlap with the experiential dimensions inviting, care and comfort as identified by Pijls (2020).

2.3 Hospitality and the perception of the work environment

In workplace research, many papers have been written about workplace satisfaction, or satisfaction with facilities and its relationship with outputs like (perceived) employee performance and/or productivity. Other chapters deal with this topic. What is interesting is how the workplace affects you on a deeper level, the psychological effects of workplace. Does it affect the ties that you form with your colleagues (Khazanchi et al., 2019)? How does the workplace make you feel? Happy (Fisher, 2010), or enthusiastic because you are treated respectfully (Sirota et al., 2005)? Healthy and vigorous? Is it, like Newsham et al. (2009) say, an indicator of the appreciation of the organisation for its employees? In the hospitality industry the experience of the guest is referred to as 'experience of hospitality', in the work context there are references to several other psychological outcomes, such as employee satisfaction, well-being, commitment, engagement and psychological comfort, but not to hospitality. Would 'hospitality' be a valuable addition to the manifold of constructs used to measure how employees perceive their workplace?

As already explained, hospitality encompasses the physical, psychological and social aspects of a workplace. It does not refer to specific aspects or to satisfaction, but it focuses on how the workplace is perceived and is therefore suitable for all kinds of organisations and jobs. The effect of the hospitality offered is the hospitality experienced. One of people's fundamental psychological needs is to feel connected to other people, as stated in Deci and Ryan's Relational Motivation Theory (Deci & Ryan, 2014). This implies giving and receiving personal attention. As personal attention is the core element of hospitality, hospitality at the workplace is likely to be an important factor for the physiological and psychological well-being of employees at work. It is related to 'psychological comfort', as introduced by Vischer (2008), and is related to research by Newsham et al. (2009), who argue that the workplace is an expression of the attitude from the organisation towards its employees. It exceeds satisfaction with the work environment, as it is not limited to the functional/instrumental evaluation of the workplace.

This chapter argues that the construct 'hospitality' is valuable in workspace research, as it describes how the employees experience their workplace holistically. So far, there is little attention for experience of hospitality in workplace research. The next section will dive into operationalisation and measurement of the experience of hospitality.

3 Methodology/research approach

Although there is a large amount of literature on hospitality, empirical research on hospitality is limited, even within the hospitality industry. As a consequence, also instruments to measure hospitality are scarce. Only a few authors have developed instruments to measure hospitality or hospitableness, either from the perspective of the provider (the host), or the receiver (the guest) (see Table 17.2).

Tasci and Semrad (2016) approach hospitality as a socio-psychological phenomenon. They differentiate between different levels of hospitality, going from basic needs via sustenance/entertainment to services and finally to hospitality, 'taking care of needs by serving with hospitableness'. Their Hospitableness Scale contains 10 stable items, assembling into Heart-warming, Heart-assuring, and Heart-soothing factors, that all refer to behavioural aspects of staff.

Table 17.2 Comparison of instrument to measure (aspects of) hospitality

Paper	*Instrument*	*Focus*
Pijls et al. (2017)	Experience of Hospitality (EH) scale	Guest; functional, sensory and humanic aspects of space and services
Pizam and Tasci (2019)	Scale for measuring experienscape	Guest; experienscape
Tasci and Semrad (2016)	Hospitableness Scale	Guest; human interaction
Ariffin and Maghzi (2012)	Dimensions of hospitality in hotels	Guest; mainly hospitable behaviour
Biswas-Diener et al. (2019)	The Brief Hospitality scale	Host; hospitable behaviour
Blain and Lashley (2014)	Scale for measuring hospitableness	Host; hospitable behaviour

Both the Brief Hospitality Scale by Biswas-Diener et al. (2019) and the measure for hospitableness developed by Blain and Lashley (2014) focused on behavioural aspects of staff, resulting in an instrument that measures the strength of genuine hospitality in individuals. Blain and Lashley (2014) distinguish three sub-elements, namely 'desire to put guests before yourself', 'desire to make guests happy' and 'desire to make guests feel special'. The Brief Hospitality Scale measures a person's tendency to hospitable behaviour as a whole, with four questions. Ariffin and Maghzi (2012) proposed a scale to measure commercial hospitality for hotel services, containing five sub-elements, namely 'personalisation', 'warm welcoming', 'special relationship', straight from the heart' and 'comfort'.

These instruments were developed especially for the hospitality industry. The following instruments are suitable for any service environment. Pizam and Tasci (2019) have developed an instrument to measure the experienscape, with three options: holistically (one question), as one factor, or differentiating between sensory, functional, social, natural, cultural and hospitality culture components. Pijls et al. (2017) have developed the Experience of Hospitality Scale that considers the experience of hospitality to be influenced by the whole package of services/product, environmental and behavioural factors, resulting in the experience of 'inviting', 'care' and 'comfort'.

This makes the Experience of Hospitality Scale by Pijls et al. (2017) the only instrument so far that specifically focuses on the measurement of hospitality, whereas it can be used in very diverse service contexts, even in VR. Pijls (2020) has shown that Virtual Reality experiments are suitable for evaluating reception areas, and the technique is promising.

It is suggested to measure both the experience of hospitality of employees (for example, by using the EH scale) and the perception of functional, environmental and social clues in order to be able to identify the relation between the clues offered in the service environment and the employees' experience of hospitality. In this way, employers will be able to create a hospitable workplace for their employees. Thus, a combination of instruments measuring employees' experience of hospitality (Table 17.2) and measurement of how employees experience the functional, environmental and social clues that the employer offers their employees will help to increase the hospitality performance of the organisation.

Instruments to measure hospitality should ideally be filled in by employees while experiencing the workplace. Improving hospitality and thereby increasing productivity will require controlled experimental before-and-after measurements in a blank and intervention set-up, as otherwise it will not be possible to determine whether increases in productivity are truly caused by the implemented improvements.

Furthermore, the focus may be holistic, and in that case, the results will not directly indicate what measures should be taken, though a before-and-after measurement will indicate whether

changes in products/services, environment or staff behaviour have resulted in a change in the experienced level of hospitality. The Experience of Hospitality scale has been used to test whether offering heated cushions and either hot or cold coffee/tea had an effect on how visitors of a theatre perceived its hospitality (Pijls, 2020).

In addition, though we have argued that hospitality is important for workplaces, not just for the hospitality industry, there is up to now no research into the effect of the level of perceived hospitality on employee productivity/performance, or knowledge exchange, though hospitality may well be a mediator between satisfaction with workspace and (perceived) productivity, or between satisfaction with workspace and person-level constructs like commitment, engagement, job satisfaction and affective well-being that may in their turn affect productivity/performance or knowledge exchange.

Until now, qualitative research has mainly been used to unravel the concept of hospitality and to develop quantitative scales (e.g. Brotherton, 2005; Pijls et al., 2017; Tasci & Semrad, 2016). Qualitative methods could also help in our understanding of hospitality-related service clues in the working environment. Furthermore, service design techniques could also be applied to create hospitality in the office. For example, customer journeys (e.g. Følstad & Kvale, 2018) are useful to map the relevant touchpoints for employees and to define the desired experience of hospitality and associated service clues at these touchpoints.

4 Limitations

Measuring the experience of hospitality might be of use in any kind of workplace. The EH scale, for instance, does not contain questions that limit its applicability to certain contexts. There is, however, up to now no to little evidence from the field that the measuring the experience hospitality is of added value to FM or to business in general, except for the guest experience in the hospitality industry.

5 Theory relevance to practice

Meng and Minogue (2011) found four leading indicators in their study among institutions and associations that represent the majority of qualified FM professionals in the UK and Ireland: (1) client satisfaction; (2) cost-effectiveness; (3) response time; (4) service reliability. Likewise, Van Sprang and Drion (2020) mention three main FM-performance indicators (independent of in-house or outsourcing): cost-effectiveness, (service) quality and satisfaction. Moreover, satisfaction is one of the added values in the FM-value map (Jensen, 2010; Jensen & van der Voordt, 2017).

Measuring the experience of hospitality (EH) (Pijls et al., 2017) may be a valuable option to determine how employees experience their workplace. Especially when measured as a holistic construct, it is a measure of how people feel, irrespective of their specific job characteristics or workplace characteristics. It does not trigger complaining about details, or promise immediate response to requests, but describes the atmosphere in the organisation. The EH scale tells you whether employees feel cared for by the organisation; Pizam and Tasci's instrument (Pizam & Tasci, 2019) has an option to measure the experience of hospitality as a whole.

Pizam and Tasci (2019) would, however, also allow more detailed questions that combine workplace satisfaction questions with questions into the emotional experience of the workplace. FM will gain both detailed feedback and an impression of how people feel.

The instruments developed by Biswas-Diener et al. (2019) and Blain and Lashley (2014) are suitable in application procedures for frontline (hospitality) staff and give insight into people's skills to welcome visitors.

The EH scale is also suitable to determine how welcome the organisation feels, especially suitable for evaluating receptions areas where both employees and guests enter the building. The instrument may be used to measure the first impression that a building/organisation makes on new guests or new employees.

Instruments that measure hospitality are suitable for field research. Tasci and Semrad (2016), Pizam and Tasci (2019) or Pijls et al. (2017) can help evaluate improvements in services tested in mock-ups, or even Virtual Reality, allowing to test whether planned investments in the workplace will indeed improve the experience of the workplace.

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18

SERVICE MANAGEMENT – FOCUS ON CUSTOMER EXPERIENCE

*Vitalija Danivska and Nora Johanne Klungseth**

1 Background

Keeping the customer in mind is an overarching topic for service management. Without customers, there is no need for services. Services are increasing as an industry and are expected to continue to grow (Soubbotina, 2004; Buchholz, 2019). The authors of this chapter hold the perspective that services are one of the most valuable industry sectors.

1.1 When was service management theory formed?

Service management was developed as a more suitable perspective for service companies compared to scientific management principles (Grönroos, 1994). Historically, there have been disagreements regarding the geographical origin of service management as two schools developed in parallel in the 1980s.

The so-called Nordic School developed from the field of marketing. It studied service encounters and realised that marketing, as a separate function, did not enable enough changes in the organisation (Grönroos et al., 2015).

In North America, service management theory advanced more in the operation management field. Prior to 1990, service management included 'operations' as part of the term – service operations management (SOM). The change from SOM to service management was made in 1990 by a research seminar in France gathering scholars from operations management, marketing, and organisational behaviour (Fitzsimmons & Fitzsimmons, 2006).

Quite a bit of skills and knowledge is required to provide good services, like nutritious and tasty food, a clean and healthy environment, secure and timely IT services, and suitable ventilation and building maintenance. Services are not limited to those just described; other typical service jobs such as financial advisors, air hosts, health personnel, event managers, clothing stylists, and personal trainers exist. Despite their perspective, many service jobs tend to be perceived as menial, low-skilled work, having less worth. This perception may be a consequence of the original meaning of the word 'service' which refers to servants and/or slaves (Heineke & Davis, 2007).

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There are many ways to define a service. Irrespective of their definition, services tend to be described as a form of activity that vanishes as it is used or consumed, since the consumption or use occurs at the same time as it is provided (Fitzsimmons & Fitzsimmons, 2006). The Oxford dictionary of English defines a service as "the action of helping or doing work for someone" and a customer as "a person who buys goods or services from a shop or business" (Stevenson, 2010). ISO 41001 (2017) defines a service as a non-primary activity that provides support to primary activities of organisations (that is, to core businesses). With regards to customers, this chapter leans towards the definition used in ISO 41011 (2017), which uses the term 'demand organisation' for what CEN (EN 15221–1, 2007) split into the client, the customer, and the end user. In the perspective of EN 15221–1, customers are those who specify and order a service delivery, a client is the one procuring the service and the end users are those receiving the service. In this chapter, all these three stakeholders are included in the term 'customers'.

A service is often described as a non-physical activity that cannot be seen or held. Some say that services are sets of activities which tend to include an interaction between the customer and the service employee and/or resources or goods and/or systems (e.g., Grönroos, 1994; Storbacka et al., 1994). Others describe services and/or activities as deeds, processes, and performances or define services as "economical activities whose output is not a physical product or construction" (Fitzsimmons & Fitzsimmons, 2006, p. 4). Here, service is defined as a process that involves perishable activities that most likely entail an interaction between a producer and a consumer.

The worldwide growth of the service industry in the past fifty years or so has also led to the growth of service research with the aim of understanding the service, operations, and management processes related to them. Much research has been done, rooted in theories and approaches from multiple perspectives, including disciplines such as marketing, operations, organisational behaviour, and human resource management (HRM) (Johnston, 1999; Fitzsimmons & Fitzsimmons, 2006). This chapter discusses service management theory, its critical constructs, and how it can be applied to workplace management research and practice. In this regard, it is worth noting the importance that services have in the facility management (FM) domain, a domain closely related to workplace management research. Within FM, services can refer to both hard and soft services, considering bits, bites, and behaviours.

1.2 The logic behind the theory

Service management takes a holistic perspective towards organisational change and covers multiple problems arising in organisations. Table 18.1 presents a short literature overview emphasising different disciplinary approaches to service management. Within the *operations management* discipline, service research deals with the organising dilemma and studies the design, planning, controlling, and management of services. The core statement is that internal process quality influences the quality of the external service. The customer is seen as a co-creator of value. In *the marketing* discipline, researchers study relationships between a service provider and a customer. The main idea is that service quality depends on employee interactions with the customer, which leads to increased value and satisfaction. Studies within the *human resource management* (HRM) discipline focus on service employees and their empowerment as a source of competitive advantage. Employees are seen as internal customers that need to be served too. In *organisational management* discipline, service value creation is studied from a network perspective rather than a dyadic relationship, explaining relationships between the internal and external processes, customers, employees, and the market.

The aforementioned four disciplines influenced the formation of a separate service management theory the most. The main outcomes of studies in these disciplines led to the understanding

Table 18.1 Emerging service management themes studied in multiple disciplines

Discipline / *Emerging themes*	*Operations management*	*Marketing*	*HRM*	*Organisational management*
Service delivery	x			
Internal processes	x			x
Quality of processes	x			x
Service interaction		x		
Service encounters		x		
Service quality	x	x	x	x
Service experience		x	x	
Customer satisfaction		x	x	x
Empowerment			x	
Customer orientation	x	x	x	x
Value creation		x		x
Example articles	Fließ & Kleinaltenkamp, 2004	Bitner & Wang, 2014	Berry, 1981	Albrecht, 1988
	Johnston, 2008	Eyuboglu & Sumrall, 1989	Bowen, 2016	Barbee & Bott, 1991
	Gummesson, 1998	Grönroos, 1984	Chand, 2010	Huber et al., 2001
	Parente et al., 2002	Gummesson, 1998	Grönroos, 2007	Normann & Ramirez, 1993
	Slack et al., 2004	Lemon & Verhoef, 2016	Lashley, 1999	Osborne et al., 2013
	Heineke & Davis, 2007	Parasuraman et al., 1985		Storbacka et al., 1994
		Smith et al., 1999		Vermeeren et al., 2014
		Voorhees et al., 2017		

of service management as the overall organisational approach that focuses on the following four components (Grönroos, 1994):

1 creating value for the customer,
2 minimizing silos by collaborating internally and externally,
3 focusing on quality, and
4 developing personnel.

Service management emphasises the customer-centric view to business and uses the value-in-use (rooted in utility theory) understanding (Grönroos & Gummerus, 2014). According to Grönroos (1994), service management shifts the attention from internal efficiency towards the customer and/or market, developing long-term customer relationships and concentrating on the perceived total quality of products or services (total utility). According to the authors, the general management principles concentrate too much on economies of scale and cost reduction, whilst service management evaluates the cost of quality. However, cost and risk discussions are outside of the scope of this chapter.

1.2.1 Creating value for the customer

Value creation has been vital for understanding the roles between the actors and the process of creating value. Although value in service management is seen as an individual customer's preference, it does not concentrate only on measuring value through customer satisfaction; it also discusses the concept of customer/service experience. For example, Grönroos et al. (2015) say that customers influence the outcome of the service, and it results in the co-created and "experienced value for the parties" (p. 69). The value, thus, is created through configuring resources of knowledge, technology, people, and organisations (Maglio & Spohrer, 2008).

Customer/service experience can be defined as a "customer's journey with a firm over time during the purchase cycle across multiple touchpoints" (Lemon & Verhoef, 2016, p. 78). It includes three periods: the core encounter itself, and the periods right before and right after the encounter (e.g., Bitner & Wang, 2014; Voorhees et al., 2017). Here, the emphasis lies on the continuous nature of service and the need to integrate processes and multiple actors into the network for collaboration for successful service delivery. Voorhees et al. (2017) divide service encounters into three distinct types of encounters and define them as follows:

- the *pre-core service encounter* as the period before the core encounter that leads customers to engage in the core encounter (and with the firm),
- the *core service encounter* as "the time interval during which the primary service offering is provided to the customer" (p. 270) to fulfil the customer's need, and
- the *post-core service encounter* as the time during which the customer assesses his own experience.

These periods are affected by tangible and intangible service attributes and usually include multiple actors (Verhoef et al., 2009). Multiple touchpoints with service personnel, other customers, or other parts of the organisation are those service interactions that create overall experience. Thus, to create a positive experience, service strategy and organisational design and processes need to match.

A common challenge in creating customer experience (co-creating value) is the need for a deep understanding of the customer. Therefore, multiple methods for customer integration

and involvement have been developed and used both in research and practice, such as empathic design, living labs, information acceleration, or free elicitation (Edvardsson et al., 2012).

1.2.2 Collaborating both internally and externally

In service management, collaboration, and communication within the organisation, with the customer, and with other organisations play a key role (Johnston, 1999). The interactions between the customer and the service provider are defined as service encounters (Eyuboglu & Sumrall, 1989).

Bateson (1985, as cited in Fitzsimmons & Fitzsimmons, 2006) adds to this view by dividing the service provider into two separate parties. According to him, a service encounter involves three types of participants, all part of what he calls the Service Encounter Triad; the customer (C), the contact personnel (CP), and the service organisation (SO) (Figure 18.1). Different sets of forces are at play within this triad. If not handled well, the forces can become sources of conflict. The force between C-CP (the customer and the contact personnel), is *perceived control* over one's own work situation and beneficial service delivery. The force between C-SO, the customer, and the service organisation revolves around *satisfaction and efficiency*, while the force between CP-SO (the contact personnel and the service organisation), is *autonomy and efficiency*. It is worth noting that efficiency occurs on both sides of the service organisation, and that autonomy is highlighted in relation to the contact personnel, while satisfaction is highlighted in relation to the customer. According to Fitzsimmons and Fitzsimmons (2006), the efficiency force acting on each side of the service organisation may switch to an effectiveness force when the type of organisation involved changes from a for-profit to a non-profit organisation.

Service encounters are often thought of as human-to-human encounters. Fitzsimmons and Fitzsimmons (2006) pinpoint that service encounters can also be human-to-machine and machine-to-machine encounters. The human in the service encounter will at times be involved in co-creating activities, such as self-service solutions where customers themselves become part of the service they receive. Examples of co-creating in service encounter situations are such as "serving oneself from a salad bar" (Fitzsimmons & Fitzsimmons, 2006, p. 206) or onboarding oneself to a new type of software.

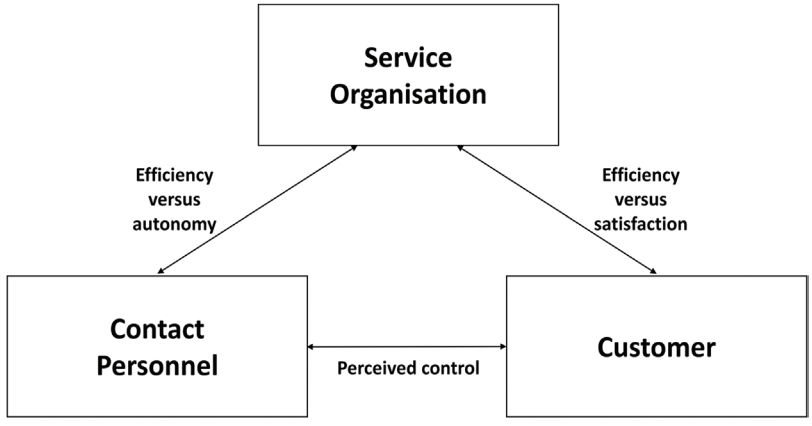

Figure 18.1 Service Encounter Triad (Bateson, 1985)

1.2.3 Focus on quality

The entire service delivery process, from back-office activities to interactions with customers, needs to be aligned in order to deliver value to the customer. The service interaction (service encounter) needs to meet customer expectations regarding the quality of a service. Hence, the quality of a service can be considered as one of the main drivers for customer satisfaction. The quality aspect of service management is discussed from external service quality and internal process quality perspectives. It explains the role of operations, how service is delivered, and how it can be assessed (Grönroos, 1984; Parasuraman et al., 1985; Osborne et al., 2013).

Grönroos (1984) discussed dimensions of service quality and separated visual functional quality (the process of service delivery such as smoothness or attitude of staff), technical quality (the outcome of the service such as speed, professional knowledge, etc.) and image factors (the perception of service process and outcome). At the same time, Parasuraman et al. (1985) developed a SERVQUAL framework, showing the criteria affecting the quality of services. In their model, service quality depends on tangibles, reliability, responsiveness, assurance, and empathy. Besides these factors, external factors might affect expectations of service quality too and might lower or increase the perceived service quality.

External service quality is strongly affected by the quality of internal processes (see, e.g., Gummesson, 1998; Parente et al., 2002; Johnston, 2008). To deliver high-quality service, the operations need to be oriented towards meeting the needs of a customer rather than the sole efficiency of producing the product or service. Therefore, customer-based planning (blueprinting) is used. A *service blueprint* visualises the service system from a customer point of view and allows breaking the process into multiple components for process efficiency (Fließ & Kleinaltenkamp, 2004; Bitner et al., 2008).

1.2.4 Developing personnel

How organisations treat their employees has an impact on how employees treat the company's customers. How employees treat the customers is vital, as in many ways they represent the company to customers. As such, Bowers and Martin (2007) argue that it makes sense, particularly for service industries, to treat their own employees as customers (and possibly better than customers), as motivated employees will have a positive impact on customers. Therefore, employees are referred to as 'internal customers' that need to be served too (e.g., Berry, 1981; see also Chapter 11 on branding theory).

In service operations, one of the key aspects of internal coordination is organising and empowering employees. Employees need to be supported by defining their tasks, providing tools, and helping to develop skills to enable their performance (Grönroos, 2007; Bowen, 2016). Lashley (1999) describes empowerment as management practices to engage employees at an emotional level. He lists five dimensions of empowerment: *task*, *task allocation*, *power*, *commitment*, and *culture*. His framework can be used to locate different forms of empowerment and present diverse sources of satisfaction to employees (Lashley, 1999). Empowered employees are willing to take responsibility for the service encounter, which leads to a better perceived service quality (e.g., Barbee & Bott, 1991; Lashley, 1999).

Figure 18.2 summarises the relationship between four components of service management theory and the topics discussed. The figure is presented bottom up, from input to the outcome. Shortly, contracts, policies, and management processes are developed in order to align internal processes. The alignment also depends on the collaboration between involved actors, personnel development, and the technical, functional, and perceived quality of service itself. In order to

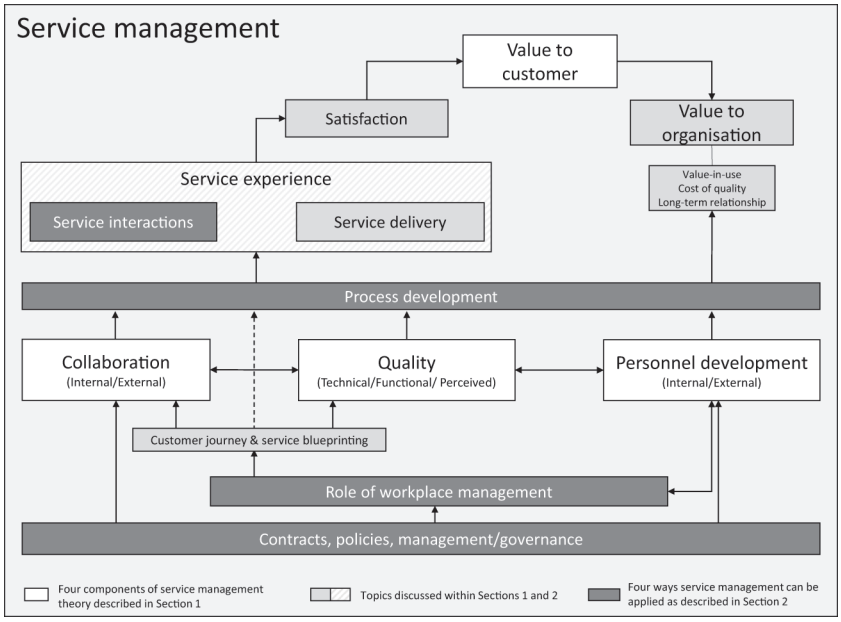

Figure 18.2 Service management components, topics, and ways of application

develop optimal service experience for the customers, customer journeys and service blueprinting techniques are used.

Service experience is created through the entire service delivery process, especially service interactions between the customer and service provider, and requires a suitable configuration of resources, technology, people, knowledge, and organisations. Service experience is evaluated through customer satisfaction, which is value to the customer itself. Consequently, this attention to customer value brings value to organisations through building long-term relationships and concentrating on the cost of quality.

2 Applicability to workplace studies

Facilities management and workplace management have been benefitting and can benefit further from implementing service management theory in workplace studies. First, the general mindset changes towards seeing the workplace (and especially the physical space) as a service that is delivered to employees and experienced by them. In this way, perceived workplace quality and employee satisfaction grow in importance from a general management perspective. Second, when service management theory is used for management and operations of (internal) services, it pushes organisations to become more employee- and customer-driven. This way organisations lean towards long-term goals and aim for quality improvements.

The rest of this section summarises how service management theory can help advance research on both workplace and facilities management. It further presents four main ways the theory has been applied in the field, namely understanding the role of workplace management, improving the consistency of practices through contracts, policies, management/governance, developing the workplace and facilities management processes, and understanding the service interactions better. These aspects are visualised in Figure 18.2 and described further in this section.

2.1 A better understanding of the role of workplace management in the organisation

Service management theory places customers as a central object in organisational activities. Generally, in the FM and CREM fields, customers are understood in multiple dimensions (customer, client, end user). This complexity often leads to situations where end users (people using the building) become of secondary importance in FM/CREM practices. But if end users are seen as the main customers of the workplace management unit, then the (workplace) service delivery and processes around are developed to create value for them. The key role of workplace managers is then understanding the needs of their customers (employees) and their preferences (service attributes), and delivering the most valuable outcomes (workplace experience) to improve customer satisfaction.

As indicated in the previous section of this chapter, customer satisfaction is composed of multiple factors, including tangible and intangible service/product attributes and overall perception of the service quality. Physical space, with its quality including construction quality, indoor environment quality, building design, and building appearance, can be considered a tangible attribute, and efficient FM processes behind the physical space as intangible attributes.

Additionally, the workplace should then be seen as a collection of various services and attributes forming the overall experience of the workplace. For example, a study of office offerings by Petrulaitiene et al. (2018) showed the transitions of office understanding from the provider perspective. Office offerings transitioned from simple square-metre offers to serviced office offers to an overall experience of being at a workplace. The study showed that, i.e., coworking spaces offer not only basic services needed for operating business but also various events and community creation activities to create overall experience for the customer.

Besides the tangible and intangible factors of service, the role of the service staff's attitude, its responsiveness, and its empathy also play a significant role in the perceived experience. For example, Pijls et al. (2020) studied service staff's abilities and personal traits in providing an experience of hospitality through the concept of the human touch (see also Chapter 17 on hospitality theory).

Workplace management practices could then be evaluated by emphasising different indicators from those currently used and tied to, i.e., the efficiency of space used, cost per square metre and similar indicators tied to real estate performance. Employee satisfaction, net promoter score, customer effort score, service tickets, response and resolution times and similar service quality measures would indicate the success of workplace management practices.

2.2 Improving the consistency of services through service contracts, policies, and management/governance

Internal and external collaboration and communication are emphasized in service management theory as aspects, affecting the quality of service delivery and management process. There is a need to integrate processes and multiple actors into the network for collaboration. In facilities and workplace management, some of the services are often outsourced. Thus, ensuring the quality of delivered services, the content and consistency of those services becomes a challenging task for the organisation. Thus, service level agreements (SLAs) are used to define outsourcing relations and organisational governance. Well-designed SLAs can have a significant impact on the relationship between the stakeholders involved and the quality of service delivery, service process, and service objects (e.g., Beaumont, 2006).

The service attributes that are included in SLAs should be defined based on the customer needs and developed together with involved stakeholders. For example, a study by

Petrulaitiene et al. (2016) identified service attributes for workplace service development – the need to create service packages, to level services based on customer needs, and to concentrate on the end user (employee). However, SLAs do not receive enough attention in academic research, especially in the FM/workplace management field.

2.3 Better analysis and development of workplace and FM service processes

Service management theory can help in developing internal workplace management processes by providing insights into service development processes and ensuring the quality of service and customer satisfaction. Understanding the factors that influence the quality of services has been central to service management research.

In order to create workplace experience, one needs to see the process from a customer point of view. In service management, customer journey is used to identify the touchpoints of service encounters. The quality of service encounters is the one that defines customer satisfaction. As mentioned earlier, service quality depends on multiple tangible and intangible, internal and external factors. For this, processes and multiple actors need to be integrated and their goals aligned.

The quality and effectiveness of the workplace and FM services can be studied by applying service blueprinting techniques (e.g., Coenen et al., 2011; Von Felten et al., 2012). Von Felten et al. (2012) claim that through FM service blueprinting, it is possible to improve the interrelationship between primary processes and FM processes and through this to make the FM value more transparent. Coenen et al. (2011) explain that FM service blueprinting helps to identify interfaces between core processes, support processes and customers. This way both the effectiveness and the efficiency of organisational processes can be addressed. Moreover, service blueprinting technique helps to understand the interrelations between multiple actors and to clearly define the role of the customer. As service blueprinting allows identification of (potential) failure points, it allows pre-emptive problem solving and a proactive management approach.

The understanding between the role of the customer and organisational processes has been reflected in various model developments in FM (Jensen, 2010; Jensen et al., 2012) and CREM (Lindholm, 2008). The latest addition, the Value Adding Management (VAM) model, describes the process of delivering value to customers through real estate management practices (see Chapter 12 on the VAM model). Additionally, service blueprinting technique and service management theory can further support the importance of a good alignment between core organisational goals, real estate and service development, and activities. If real estate and facilities services are not suitable and aligned, issues with achieving organisational goals and customer satisfaction will appear (see Chapter 9 on alignment theory).

2.4 Developing a deeper understanding of varied service management interactions

Service management theory helps to analyse interactions between various services and actors in the workplace ecosystem. Service encounters can be used to study how the workplace ecosystem, comprised from services, physical space, and external environment, is perceived by customers (organisations and end users). In order to study the entire ecosystem of services, consideration related to when and how services are delivered, all from on-demand services to the debates of night-time and daytime service delivery, also needs to be included in the discussion. When a service is delivered, it interacts with different considerations, such as the impact it has on society.

2.4.1 Service-service

Even though most of the service management theory was developed for understanding extra-organisational relationships and service creation, it can be applied also to intra-organisational relationships. Examples of more recent studies using the logic of service encounters to study service-service evaluation, combines service encounters with the logic of service experiences, such as Groen and Van Sprang (2020). Groen and van Sprang (2020) studied customers' perception of hospitality in a building's reception area and the overlap between services as receptionists and the security guards at the entrances of buildings.

2.4.2 Service-building

Buildings and physical workplaces can be viewed as a type of service. As this is a more static type of service, it is of value to make it distinct from the service-service interaction. Such a view of buildings and workplaces is of high value, particularly in relation to facility management. In the aforementioned study by Groen and van Sprang (2020), the layout of the reception-entrance area was a key part of the considerations for both service deliveries. The physical layout contributed to the collaboration between the two services and to their interaction with the building's visitors. The layout of a building also can affect the cost of services, as it influences the resources needed and the delivery time (Klungseth & Blakstad, 2016).

The way a service is organised can also be influenced by building type, e.g., whether outsourcing or own in-house production is the main supply model and/or to what degree it is a supporting supply model (Klungseth, 2014). As an example, a main supply model can be in-house service supply, concurrently it is possible for the organisation to add outsourcing as a supporting service supply to allow more flexibility in the service delivery. As a third supply model, the organisation can, in addition to both the in-house and outsourcing supply, engage with the wider society by allowing voluntary organisations, like local handball teams or the like, to supply ad hoc services as painting walls or moving furniture after events.

2.4.3 Service-stakeholder

Services interaction with stakeholders impacts the wider society. Services can interact with various stakeholders all from visitors of a core business (often several types of customers and/or business relations) to the family members of service personnel. For example, children's possibilities for education and good upbringing are affected by when their parents work (Kalleberg, 1977), irrespective of their parents' occupational and educational background. Take for instance the example of daytime and night-time cleaning. In the late 1980s and 1990s, Norway saw a change from night-time to daytime cleaning (Klungseth & Blakstad, 2016; Klungseth, 2015; Klungseth & Olsson, 2013). Two major factors facilitated this: (1) a focus in society on enabling a good family life for all levels of society, making it possible for both mums and dads to be at home after working hours, as opposed to taking shifts on when to be home and at work; and (2) public day care opportunities rose, enabling both parents to be at work during the day. This has also transformed end users' collaboration in the workplace; Norwegian end users are encouraged to co-create a clean environment (Moland & Andersen, 2007; Klungseth & Blakstad, 2016). Here it might be of value to note that such conditions are regulated through (the points mentioned earlier regarding) service contracts, policies, and management/governance; it is in these documents and such occasions the employees' working conditions are defined, and also where the wider impact on society is decided and/or created.

The biggest take-away from service management theory is the understanding of the relationship between human behaviour and organisational practices. In workplace management, this relationship has proven to be strong too. Thus, the same logic applied to workplace (and facility) management can push its function towards a much more strategic role in all organisations (see Chapter 2 on the CREM maturity model).

3 Methodology/research approach

Service management research applies both qualitative and quantitative research methodologies due to its multidisciplinary nature. The methods used for understanding relationships and interactions often use causal analyses. For example, a well-known method used for studying service encounters is the Critical Incident Technique (CIT). CIT is used for observing human behaviour directly and allowing identification of moments of satisfaction and dissatisfaction in these encounters (e.g., Edvardsson & Roos, 2001). Other causal analysis methods might be Confirmatory Factor Analysis (CFA) (e.g., Parente et al., 2002; Chand, 2010; Smith et al., 1999) or various multi-level analyses. For these types of methods, customer questionnaires or satisfaction surveys are often used data sources. To show connections between customer satisfaction and a company's profit, e.g., Vermeeren et al. (2014) used Structural Equation Modelling (SEM) analysis. These types of methodologies seek general laws and follow a deductive approach.

Another part of the studies is more process-oriented and deals with structured patterns, rooted in qualitative approaches. It is often based on action research and inductive or abductive reasoning. Quite common qualitative research is based on in-depth case studies (e.g., Normann & Ramírez, 1993). Different tools might be used for analysing the processes in the organisation. such as the Resource Allocation Model (RAM) (e.g., Voorhees et al., 2017) or service blueprinting. For example, various methods for customer integration in service development have been established based on interviews or observations (Edvardsson et al., 2012). Other commonly encountered research methodologies are literature reviews, content analysis (e.g., Slack et al., 2004), and conceptual analysis, which is based on breaking down concepts and analysing them (e.g., Grönroos, 1994, 2007; Grönroos & Gummerus, 2014; Osborne et al., 2013).

Similar trends can be observed in workplace management research. Case studies are a common research methodology addressing complex phenomena in managerial practices. Action-based research is common in understanding social systems at the workplace, e.g., changing behaviours (Russell et al., 2016), improving health and safety at work (McVicar et al., 2013) and similar. Service blueprinting has been used in studies by Coenen et al. (2011) and Von Felten et al. (2012). However, to the authors' knowledge, there is still a limited amount of wide quantitative studies in workplace research. Probably the most well-known are Haynes and Price (2004), Haynes (2009), using causal analysis techniques (such as factor analysis – Principal Component Analysis) for identifying connections between human behaviour and building features. Also, there is a lack of longitudinal research for observing system-level transformations in both service management and workplace management studies.

4 Limitations

There are a lot of similarities between service management theory and those in the field of workplace management, but still service management theory has limitations which could cause challenges in its application to workplace management.

First, most of the processes described in this chapter deal with human-to-human interactions and perceived service quality. However, with technological development, some of the

human-to-human interactions are replaced by human-to-machine interactions. So far, there is a limited amount of research discussing human-to-machine synergies and consequences for the service experience. Technological development also has a strong effect on the development of the workplace, and the connections between perceived satisfaction and/or productivity are unclear.

There is also a lack of holistic studies of complete service ecosystems; holistic studies that cover all four components of the service management theory (value, collaboration, quality, personnel development) as it is applied in all the four ways (role of workplace management, service contracts, policies, management/governance, service management interactions, development of service processes), as described in Sections 1 and 2 in this chapter.

In terms of the methodological approach, service management research applies a wide variety of methods which are similarly used in workplace research. However, service management research lacks longitudinal studies, often explained in relation to the service characteristics (such as heterogeneity) which also could apply to workplace management studies.

5 Theory relevance to practice

First, understanding the critical constructs of the service management theory and implementing service management components would help companies to ensure employee satisfaction and productivity. This approach helps organisations and management to change their views from seeing real estate as a cost burden to an asset, that is, an asset capable of adding value to the organisation more than mere savings on real estate costs.

Many service management components can easily be applied in practice. Starting from improving service encounters between the contact personnel and customers (employees at the office), via improving the overall service delivery process and experience, up to the construction and regulation of contract and governance structures, including the impact they have on the wider society.

Learnings from the service quality concepts (such as e.g., SERVQUAL) can be used to understand customer perception affecting their satisfaction with (and the success of) services. The emphasized role of behaviour and employee motivation in service encounters, and delivery of both outsourced and in-house services, can help with the planning of services. Also, service process planning tools like service blueprinting, combined with service development methods, can provide a strong toolkit for service innovation and improved organisational performance. Moreover, customer-oriented planning (and methods for customer integration) would be beneficial both for FM service delivery and also for workplace experience in general, leading to closer collaboration between HRM, IT, and FM departments.

A mutual understanding of value creation could improve communication between organisations and service providers, leading to improved service experience. Overall, customer experience of any service, combinations of services and the entire service ecosystem, delivered in the workplace, affects customer satisfaction and experience of the total workplace. This effect is the same for many types of services, both with regards to human-to-human or human-to-machine services.

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19

ORGANISATIONAL SOCIALISATION THEORY

Integrating outsourced FM employees into organisations

*Oluwatoyin Yetunde Aderiye**

1 Background

Socialisation is the process of learning the ropes of a position, of training and indoctrination of the individual by the organisation, through the system of values, norms and behaviours considered as recommended/acceptable (Schein, 1988). It is the active creation of a new identity through a personal definition of a situation (Reinharz, 1979) and takes place when an individual transfers from one group to another within a social structure. This means absorption of the prevailing culture in which an individual is found. It has its origins in sociology (Schein, 1988) and is widely applied in other fields beyond management such as health (Phillips et al., 2013), education (Garavan & Murphy, 2001), and a host of others due to the wide applicability of its premise: our need to understand and find a place for ourselves within every new environment. Organisations use the socialisation process to formally welcome newcomers to a role. Informally, socialisation can be learned by watching what those do, who are already established in the environment one wishes to understand.

Socialisation of new employees is the series of initiation rites through which newly recruited employees adapt to their new jobs and to the work environment and create a professional identity for themselves. Commonly referred to as organisational socialisation, it is the process by which new hires acquire the attitudes, behaviours, and knowledge required to participate and function effectively as a member of an organisation (Van Maanen & Schein, 1979). This organisational socialisation provides new recruits with a set pattern of behaviour they can emulate, to enable them to blend into the organisation (Buchanan, 2010). In essence, organisational socialisation is the key to ensuring a seamless entry of newly employed staff (Ge et al., 2010). Where employees achieve seamless socialisation, they are more likely to enjoy their jobs more, understand them better, and perform better, which can lead to improved customer experience. The results of high performance, organisational identification, and job satisfaction are then evident through the model proposed by Ashforth et al. (2007), which reveals that organisations who go through the Newcomer learning process have better performance, strong organisational identification, increased job satisfaction, a lessened intention to quit, and better role innovation.

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Socialisation does not exist in a vacuum. It is a bundle of parts which is used as machinery by organisations to socialise new recruits. Assimilation of new concepts and behaviour is a gradual process which involves both the brain and different aspects of social behaviour in an organisational setting.

Absorption of the prevalent organisational culture that exists in a workplace is the goal of socialisation, so its components are derived from organisational culture itself. These components are displayed here, and Figure 19.1 shows that they all work together with organisational culture as an anchor.

Socialisation components are essentially the several ways in which a new culture is passed on to the new members of the society. The processes, rituals and routines, stories and symbols, norms, and organisational structure can either be taught formally through a socialisation process or picked up informally by the new employee. Punishment and rewards are used to reinforce the knowledge organisations want the employee to retain, or to help remove previously imbibed culture picked up from previous organisations.

Figure 19.1 shows the steps individuals embark on when they first join an organisation. They come in cold to the norms and processes of the organisation, but they commence the socialisation through the combined immersion in the organisational structure and processes, stories and symbols, norms, rituals and routines, and an understanding of punishment and rewards. An even more important step is the need for employees to make it to the other side and be accepted as one of the team. This enables them to contribute to the current and future culture of the organisation.

This process is necessary to preserve the current organisational culture which is the basis on which most organisations are run. The way and manner of business is what has worked in the past and distinguishes them from rival companies, and there is often a need to teach this culture to newcomers. Simple practices like a colour code to show uniformity to a certain manner of speech can be used as artefacts to identify the organisational culture of an employee.

Whilst it is very important to watch what new employees are 'taught', the way they are taught is even more important. Employees can either be taken through a process (institutionalised) or left to go through the process on their own by depending on their natural proactive abilities (individualised). Ashforth et al. (2007) explain that the process the new employee passes through has a high impact on the final 'fit' they achieve in the organisation. The use of investiture as seen in Figure 19.1 to build upon the characteristics the organisation desires, coupled with a previously proven method of socialising new employees, will have a positive effect on

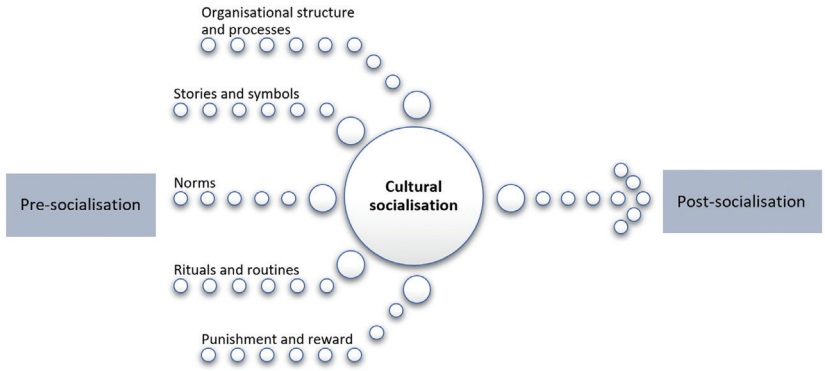

Figure 19.1 Components of socialisation

the ease with which they adjust. Finally, they build the employees' confidence and encourage them to exhibit proactive behaviour, which can only be positive in this light as all instances of self-doubt and uncertainty can be dispelled. The results of high performance, organisational identification, and job satisfaction can be felt. There will be a reduction in intentions to quit where the staff are comfortable in their work roles and the organisation (Ashforth et al., 2007).

1.1 The socialisation process

Socialisation follows a pattern and often begins long before the employee resumes at his duty post, in some cases even before the appointment has been awarded. Often, some employees seek the glamour or perks associated with having a particular job with an in-depth understanding of what they will be required to do. When this occurs, the work environment can either exacerbate or alleviate the feeling of inadequacy. Feeling welcome in an environment will give the recipient time to adjust to it, even in cases where there is a negative aspect. The newly employed staff also decide if it is all worth it. They can confirm this by the level of satisfaction they derive from the job. The various stages of the socialisation process are explained next.

1.1.1 Anticipatory socialisation

Human beings have the capacity to think, understand, and anticipate the older they get. Starting something new is rarely met with a total lack of awareness, especially in cases where there has been some sort of forewarning. Feldman (1976a) explains that the employee forms opinions about the organisation at this stage through discussions with prospective employers and the final decision that is made concerning employment. He postulates two aspects of anticipatory socialisation as realism and congruence. Realism is the extent to which the employee was right about the new job. Congruence is the level of satisfaction the employee derives from the job and his/her ability to successfully carry out the job role. Cases where the anticipation of the new employee is not met often lead to low satisfaction with the job and increased probability of leaving the job (Scholarios et al., 2003).

1.1.2 Accommodation

The encounter stage is where the employee can understand what really goes on in the organisation, how it is run, who runs it, and a general sense of awareness. Here, the actual journey to become a member of the organisation begins. They start the slow morph that makes them a recognisable member of the organisation to outsiders. New staff imbibe a new way of doing things even when they have carried out those tasks in a previous workplace. They learn to become productive members of the team by carrying their own share of the work. They also learn about their new colleagues and begin to form a relationship with them. Bosses, level-colleagues, and subordinates are courted or shown who is boss. The dynamics are set for future interactions, and if a bad impression is made at this point, it might take a while to undo it, if it ever can be undone. In organisations with close-knit teams, this might take longer, and the employee needs to carefully follow the rules to avoid losing their fledging trust.

1.1.3 Role management

The third step in this process is the struggle for balance that the new employee embarks upon. There is a need for better management of all the roles we assume both at work and on the home

front. Family and responsibilities outside both the workplace and the home front also have to be managed. Priorities must be set even in the workplace, as the demand on one's time may come from more than one source at work. Coupled with responsibilities outside the workplace, there is a need for flexible schedules, delegation of duties, and the resolution of both conflicting demands and clashes that occur because of personal issues. This process of balance evens out over time, but it begins during the socialisation process, when new employees begin to understand the requirements of their role.

In the next section, different models that organisations can use in achieving this fit are reviewed.

1.2 Socialisation models

The organisational socialisation process focuses on assisting the newcomer to learn the behaviours, attitudes, and skills necessary to fulfil their new roles and function effectively as a member of an organisation (Fischer, 1986). This socialisation process varies from organisation to organisation and is dependent on their goals/objectives and the role the employee will take up. Several theories currently exist on the best socialisation process for employees (Saks & Ashforth, 1997), and the most appropriate are examined for application to facilities management and compared in the following.

1.2.1 Evaluation of the socialisation models

- Buchanan's three-stage early career model – Buchanan (1974)

Buchanan's early model is a detailed socialisation process which was developed with long-term employees in mind. It is a five-year-plus socialisation process that, though detailed, will need an employee signed unto a long-term contract to execute. It holds that the first year (stage 1) is the most important, as employees have a special desire to conform to the organisational membership and their general outlook is often formed during this period. The second to fourth years (stage 2) are marked by a desire to make a significant contribution to the organisation and solidify their place. The fifth year and beyond (stage 3) involves the maintenance or alteration of firmly established behaviour rather than the formation of fresh ones. It exists to prove that stages 1 and 2 worked for the individual and that the organisation can depend on them to deliver their duties.

- Feldman's three-stage model – Feldman (1976a, 1976b)

The first stage encompasses all that the new employee learned before assuming employment and all the decisions made about the job before commencement. It is marked by realism or reality shock which is the extent to which individuals have a full and accurate picture of what life in the organisation is really like. The second stage occurs when the employee finally understands what happens in the organisation and begins to integrate him-/herself into it. This integration is achieved through the employee's success in learning new tasks at work, success in establishing interpersonal relationships, clarity, and definition of role within the work team, and the degree of congruence between the employee and the supervisory team on achievements.

The third stage is marked by the employees' ability to manage outside-work conflicts and conflicts that arise within the work team as well as their ability to be less upset about these conflicts. This stage delivers the expected outcomes of the socialisation process. General feelings of

satisfaction and the ability to influence activities in the department top the aspects of this stage. Internal job motivation and the extent of commitment to job role are the other two aspects.

- Wanous's integrative approach to socialisation – Wanous (1980)

Wanous's socialisation process, whilst simple, retains a greater level of detail than that of Feldman. The stages show how new employees first understand what they are signed up for and the gradual process they follow to adapt and eventually enjoy. It is easy to see how new employees can decide quickly if the job will suit them or push them to find another. The first stage involves accepting the reality of the organisation. There is the confirmation or disconfirmation of initial expectations. New employees confront the conflicts that arise as a result of their personal values clashing with that of the organisation. Stage two is where the new employee adjusts to the organisation (coping with all the changes thrown at him/her). Here, there is a need to reconcile the perception of the employee's achievement with that of the employee's supervisory team. The third stage enables the new employee to settle in and determine their position in the organisation's web. They can determine what the organisation wants and conform to it. They resolve all internal and external conflicts arising from personal and work commitments and form interpersonal relationships which will change their perceptions of their self-image and produce a new set of values congruent with that of the organisations. The fourth and final stage is where the new employee shows commitment to the organisation and determines if they are truly satisfied in their position, thereby increasing their motivation and their involvement in the organisation.

- Pascale's seven-step approach to socialisation – Pascale (1985)

In 1984 Richard Pascale developed a seven-step approach to socialisation which advocates a middle ground between total individuality and total conformity. The first step proposes a careful selection process for employees to ensure that those that eventually make it into the organisation will fit the job role and organisational culture, and that those who believe they will not fit should leave of their own accord. The second stage prompts the new employee to question previously held beliefs about work ethics, and the organisation to encourage a free acceptance of the new values and beliefs encountered. It also mounts pressure on the new employee to solidify team spirit and the belief that they are a part of the organisation. The third stage makes employees work for all they get. They are promoted only when they have hit or superseded their targets and are made to understand that progress is based on individual performance, which reduces competitive spirit and increases personal motivation. The fourth stage makes the new employee aware of the stringent measures taken to ensure that organisational values are closely monitored and enforced. The fifth stage creates a strong commitment to the organisation, enabling the employee to resolve work- and home-related conflicts with ease. In return, this same commitment assures the employee that all the promises and benefits accrued will be given to him/her when due. The sixth stage promotes the underlying assumptions of the organisation in the form of stories, as discussed earlier in this chapter. This aims to inspire loyalty and ensures the new employees are aware of the culture exactly as the management wants it presented. The final stage embraces the role of powerful role models in moulding the new employee. They have a guide who will explain all they need to know and show them the ropes as they go along. In this model, step 5 is deemed the most important, as the final socialisation of the employee depends on his/her personal beliefs about the organisation.

- Schein's three-stage socialisation model – Schein (1978)

In 1978 Schein developed a three-stage socialisation model which includes the entry, socialisation, and mutual acceptance stages. The first stage expects a prospective employee to seek for a job of their choice and apply for it. Acceptance of their application will compel them to anticipate what their job role will be and their place in the organisation followed by the actual reality. The second stage involves the acceptance of the organisation also termed as 'reality shock' by Feldman (1976a, 1976b). The new employee now has to understand the new role, the reward system and form a fresh identity for themselves. They will deal with interpersonal relationships and decipher what success means in the new setting. There will also be the need to cope with all the changes that may arise as values and beliefs clash. The third stage involves acceptance on both the part of the individual and that of the employee. If this mutual acceptance takes place, the individual will be motivated to perform their best and to continue on in the organisation. The organisation plays its part by rewarding hard work with promotions, a deeper involvement, and an increased salary.

The next section will provide a closer look at the context of outsourcing and the model outline that could fit especially to the rapidly changing world of facilities management.

2 Applicability to workplace studies

The models of socialisation introduced in the previous section can be applied to several different sectors and employees, but the focus of this chapter is on outsourced facilities management employees. Employing outsourced staff is a common occurrence, as it allows the organisation access to specific external skills, enabling it to focus on its core business. It may then be agreed as a strategic move to outsource certain tasks, especially non-core activities, to external service providers to support core organisational goals.

Outsourcing is often the ideal solution for organisations who want maximum output with minimal internal resources. Outsourced functions used to be the very basic non-core activities like cleaning of the offices and premises. It gradually began to involve other departments like administration, infrastructure, communications, marketing, and IT (Booty, 2006). Today, organisations outsource even some of their core business, including their strategic plan for advancing the goals, and some bolder ones outsource disaster recovery. According to research carried out by RICS (2012), the seven most outsourced services are cleaning and janitorial services, landscaping, food services, architectural design, travel services, building engineering, and construction and renovation. When these services would all be outsourced, it could form a large part of services of the organisation, which shows a need for proper integration of the outsourced employees into the client organisation. This means organisations could have a substantial percentage of employees who do not directly work for them. To ensure the culture and citizenship of the internal FM organisation is not diluted, and to ensure outsourced employees are better integrated, they need to undergo the process of socialisation.

Job seekers consider more than the financial benefits and the prestige associated with a job when they apply. They also wish to derive satisfaction in their role, to feel fulfilled and 'belong' in the organisation, and this applies to outsourced employees too. Organisations regularly worry about the suitability of outsourced recruits and how they are adapting to the work environment because of the time, effort, and money spent on recruiting and training (Taormina, 2009). They aim to reduce high turnover rates and low motivation issues by trying to select employees suited to the job. This has led to a rise in person profiling to check the suitability of incoming candidates for the job they seek to do, and while this may not be possible for outsourced employees, a socialisation process will reduce the natural abrasions that may occur and improve compatibility. Hesketh and Myors (1997) state that the person who seeks a job and the organisation that

person wishes to work for both have a large part to play in socialisation and adaptation. There is a higher level of satisfaction when congruence exists between them, where congruence is 'the better . . . fit between an individual and his work' (Feldman, 1976b, p. 71). This level of congruence has been termed person-organisation fit. Person-organisation fit between people and organisations occurs when: (a) at least one entity provides what the other needs, or (b) they share similar fundamental characteristics, or (c) both (Kristof, 1996).

Person-organisation fit is most easily achieved where the behaviour, vision, and characteristics of the employee or jobseeker reflect that of the organisation the person is in or seeks to join. This 'fit' should be the goal of every service provider and client organisation where socialisation of outsourced employees is concerned. Ensuring the satisfaction of both the outsourced employee and the organisation will lead to an ease in adapting outsourced employees into their assigned organisation and reduce the headaches associated with non-congruence. It also leads to a reduction in turnovers, as employees are more content (Kasimati, 2011). The other benefit of a good person-organisation fit is an increase in satisfied clients. Where employees achieve great fit and take on the organisation's values, they are also better able to represent the organisation.

This understanding of the peculiarities that exist within outsourcing of facility management services are thereby helpful in understanding the specific requirements of a socialisation model that can be used for outsourced staff. First is the recognition of three distinct phases that outsourced employees need for socialisation to occur, which is not fully represented in any of the socialisation models in the previous section. These are: Pre-socialisation, In-socialisation, and Post-socialisation. The Pre-socialisation stage occurs before the employee begins work and comprises what they anticipate the organisation and their duties to be like; it is closely linked to the Anticipatory stage referenced earlier, where the employee is unsure of what awaits them in the role. The In-socialisation stage comprises what happens after socialisation has commenced up till the new employee has been integrated into the organisation, which is the Accommodation stage explored earlier. This is where the induction takes place, and the organisation arranges a training schedule for the new employee(s). It ends when the employee understands the culture of the organisation and has accepted their role in it. The Post-socialisation stage is what happens after the employee has been fully integrated into the organisation and connects to the final step of Role management. It is important to the 'cultural fit' that a high integration level is maintained to ensure employee satisfaction and the productivity that accompanies it (Sageer, 2012).

The socialisation models explored before all propose different ways to conduct the socialisation process, but all have a major shortcoming: a stage that maintains and improves the person-organisation fit after the employee has completed the initial process. This stage is needed especially for outsourced employees, who will have two conflicting cultures to maintain from their employer and the client. Without regular training to keep the outsourced employee updated on the expectations of the client and the organisation's culture, a dip is inevitable over time which can lead to a drop in service quality and delivery.

The proposed framework that will be adaptable to the FM sector will need to be flexible and must be able to fit into organisations of any size or sector working with variable budgets. Its main advantage will be first the appropriate socialisation for outsourced staff, but also the inclusion of steps that maintain the level of person-organisation fit to ensure high levels of service quality and delivery. It is also critical for improving the knowledge and understanding of both outsourced and in-house employees on regular industry and professional changes. The framework should be functional whether only one function is outsourced or where all the non-core functions of the organisation are contracted out. In the proposed framework outlined in Figure 19.2, outsourced employees can be brought on board and taken through the

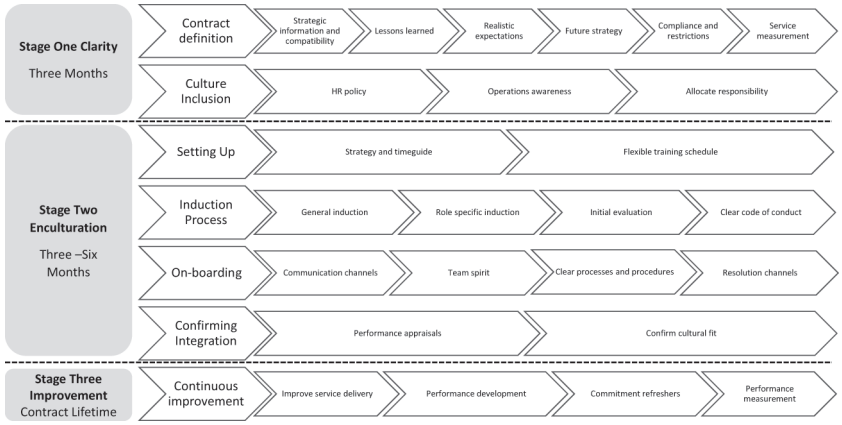

Figure 19.2 FM cultural fit framework (Aderiye, 2015)

three stages of socialisation (clarity, enculturation, and improvement) which correspond to the pre-socialisation, in-socialisation, and post-socialisation stages. This framework was developed through previous research (Aderiye, 2015) and recognises the importance of all three socialisation stages.

Clarity refers to the first stage of the integration process. It concerns what should be done by the organisation even before employees are recruited. No previously reviewed framework adequately represents the preparation facilities managers or organisations in general need to employ when taking on new employees. This should apply to both internal and outsourced staff, and it is even more crucial for outsourced employees as they do not work directly for the organisation. This stage reflects the information exchange that should go on between the client organisation and the service provider before a contract/partnership is set in ink. This information exchange and the agreed-upon rules/decisions that follow are what is referred to in this context as clarity. The expected output from this stage is a clear understanding by each party of their responsibilities before they enter into a contract.

Enculturation refers to the process by which an individual learns the traditional content of a culture and assimilates its practices and values. It is used in this framework to aid the outsourced employee in learning the culture of the client organisation. It discusses what should be done and how to do it successfully. This stage is what is commonly referred to by organisations when integration is discussed. In this framework, it covers the set-up of the process, the start of the process, how it is achieved, and how an organisation can confirm success. It can be the longest part of the integration process depending on the time allotted to it by the parties concerned. The benefits, however, outweigh the costs, as outsourced employees are likely to develop a high sense of responsibility towards the organisation and their customers as they have gradually come to the realisation of their contribution through the process. The expected output of this stage is the total immersion by the outsourced staff in the culture of the organisation.

The improvement stage of the framework should be conducted periodically to sustain integration. It is missing from the socialisation models discussed in the previous section and exists only in the proposed framework. The aim of the stage is simple: to prevent a drop in the quality of service by intermittently training staff (internal and outsourced) on the organisation's goals and the customer's requirements. The expected output of this stage is improvement of the newly embedded culture by the outsourced staff.

Organisational socialisation through the use of an intentional framework such as the one outlined earlier can significantly improve the person-organisation fit and lead to employees that fit better within the culture of the organisation. In applying socialisation theory to workplaces, employers need to remain aware of the type of employee, as different types of employees (outsourced, TUPE, zero-contract, full time, part time) may need different socialisation processes. It is important to be aware that you may encounter several challenges in attempting to socialise some employee categories and to adjust the framework accordingly.

The major gap that the application of organisational socialisation can fill is that of a seamless fit between employees and organisations. Where employees can achieve a seamless fit in organisations, there is increased employee satisfaction, productivity, and customer satisfaction. In an era where the wellbeing of employees is increasingly mainstream, these end results can have a positive effect of employee wellbeing and engender both tangible and intangible positive reactions toward the organisation.

3 Methodology/research approach

The very nature of socialisation as it relates to organisational culture lends itself to the ethnography as a strategy of inquiry. It is generally the preferred method of research, as the word ethnography means inscribe (*graph*) the culture (*ethnos*), and is used to describe and analyse patterns of interactions, roles, ceremonies and rituals, and artefacts of a specific group of people (Marshall & Rossman, 2011). Patton (2002) records that ethnography is the earliest distinct tradition in qualitative inquiry. Ethnography is a research culture with origins in anthropology that allows researchers to explore and examine the cultures and societies that are a fundamental part of the human experience (Murchison, 2010). It focuses on collecting data by participating in the lives of the participants which can be used to answer the questions raised by the study. Marshall and Rossman (2011) agree that ethnography studies human groups because it seeks to understand their culture; therefore, 'culture is a central concept for ethnography'. They are also clear about the types of culture that can be studied through ethnography: groups, communities, organisations, and social movements. This covers the subject of socialisation.

This approach has been employed in the development of the FM cultural fit framework, working with exclusively qualitative means. Data collected are almost always related to the culture of the participants which can be used to form opinions, enable understanding, or solve problems experienced by the participants of that culture. A major characteristic that makes ethnography ideal for organisational socialisation is that the participants develop shared patterns of behaviour, belief, and language seen as a culture-sharing group (Creswell, 2013). This is the basis of culture and organisational socialisation as reviewed in this chapter. Seeking out these patterns of behaviour and using them to create a framework that organisations can utilise in socialising their employees will be the ideal goal. Ethnography is best conducted using qualitative methods such as interviews or focus groups and analysed by thematic analysis. Ethnography lends itself well to qualitative methods, but a weakness of qualitative methods is the subjective interpretation of the data which is applicable to positivist methods. An understanding of behaviour, belief, and common language means it is not always replicable from one organisation to another. Works by Van Maanen (1979) and Ashforth et al. (2007) are good starting points for ethnographic studies on socialisation.

A close second in research approach that may be employed to investigate culture is grounded theory, as it seeks to develop theory that is grounded in data systematically gathered and analysed and has its basis in the premise that there should be a continuous interplay between data collection and analysis (Urquhart et al., 2010). It is a qualitative research design in which the

inquirer generates a general explanation (a theory) of a process, an action, or an interaction shaped by the views of many participants (Creswell, 2013), although it was not used in the development of the framework in this chapter.

This framework is still in its proposal stage, although it was developed through several stages of qualitative research. This means it still needs to be applied to an organisation to test its applicability and the reliability of all the stages and can be taken forward by researchers or anyone interested in testing its suitability. This should be implemented in organisations with outsourced staff to confirm the steps and stages that can be used to socialise an employee from the start to the end of their contract.

Researchers could conduct further research using this framework by employing a long-term comparison study of two organisations, with one organisation implementing the framework and the other conducting business as usual. This could highlight the effectiveness of the framework where the organisations have similar characteristics and are in the same industry.

4 Limitations

It is difficult for any framework to be truly generic and flexible, so this framework would not fit every organisation. This means this framework might not be suitable for short-term contracts, as it would require some time to complete the process, and it would not be beneficial in contracts shorter than a year. It might also not be suitable for organisations with outsourced staff who work on multiple contracts at the same time.

Another critical factor to the implementation is the interest level of the organisations and the staff. This framework should be implemented by the client organisation; where there is no upper management interest, the framework would not be effective. The second level of interest required is staff interest. If the outsourced staff who should go through the socialisation process are not interested, it would be difficult to achieve integration. There are often significant barriers to training within the real estate and facilities management sectors.

The industry, type of organisation, employee type, and average length of service all need to be considered to determine what will be the best approach. This means that there is no one-size-fits-all approach to socialisation theories. These barriers typically revolve around a lack of time, financial constraints, and sometimes, staff reluctance to participate.

5 Theory relevance to practice

Outsourced arrangements can have either a positive or negative impact on the service experience and satisfaction of the customer depending on the socialisation that has been provided for outsourced staff. Personal interaction, responsiveness of the service staff, flexibility of the forward-facing staff, ease of access, and courtesy go a long way in satisfying customers and mollifying upset clients. A properly tailored socialisation process will need to represent all these factors in the measure in which they are needed as determined by the organisation.

The second consideration is to understand how the organisation socialises its new and current employees. The socialisation process holds a lot of promise for organisations, as they can improve the performance of their organisation through the application of socialisation theory to their processes for outsourced employees. The potential benefits of this are manifold, as explained in this chapter, and can make the difference between regular and great employees. This should always be threefold: the relationship building and setting of expectations before the employee commences their first day; the process of on-boarding that the organisation employs, which incorporates all of the components of the customer experience amongst other needs of

the organisation; and the manner in which the organisation maintains the socialisation of their employees after the on-boarding process is complete.

6 Further reading

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20

IDENTIFYING THE MAIN CONSTRUCTS FOR AN INTERDISCIPLINARY WORKPLACE MANAGEMENT FRAMEWORK

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1 Introduction

The 18 theories covered in this book have addressed various workplace management issues. Some focused on explaining the overall organisational systems, relationships between system components, and the position of workplace management within such systems (e.g. the St. Gallen Management Model, see Chapter 4). Others have explained the necessary workplace management processes and their effects on employees and the organisation as a whole (e.g. workplace branding, see Chapter 11; hospitality, see Chapter 17). But despite their differences in focus, all these theories emphasise that alignment between an organisation and its workplace management is critical to add strategic value for the various stakeholders. Several studies describe stakeholders that are relevant to (physical) workplace management (e.g. Coenen et al., 2013; Blakstad et al., 2008). Tagliaro (2018) summed up the key stakeholders as: executives, employees, collaborators, visitors, owners, and those in charge of building operations. Each of them has different interests that need to be addressed by aligning the workplace to the organisation.

The topic of alignment is not new in the organisational management context. For example, in organisational studies, it has been identified that strategy, structure, rewards, processes, and environments need to be aligned (Galbraith, 2014). Alignment has also been studied in the context of workplace management, both from the viewpoint of the corporate real estate portfolio (see, e.g. Heywood & Arkesteijn, 2017; also Chapter 9) and that of human resource management strategies and activities (see, e.g., Huselid & Becker, 1997; Gagné, 2018). However, there is more to workplace alignment than aligning the corporate real estate strategy to the corporate strategy at the strategic level, which so far seems to be the focus of such studies. Organisations are complex systems made of relations between the physical and the social (Becker, 1981). Already in 1973, Steele introduced this notion with the term 'organisational

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space', referring to the idea that the spatial environment influences people in and around the organisation. More recently, Luhman and Cunliffe (2013) defined organisational space as "built environments and the objects and social practices within them" (p. 135). Some even say that organisational space should be understood as physical, mental, and social space going beyond organisational limits (Tissen & Lekanne Deprez, 2008). However, so far organisational space research often approaches physical space as a secondary factor without measuring its effects, and the organisational space concept is seldom the focus of built environment studies. Similarly, in practice many corporate real estate and facilities managers still treat workplace as nothing more than just a physical space (Alexander & Price, 2012), not always paying enough attention to the social or mental aspects.

The previous chapters in this book have addressed many aspects that must be included in workplace alignment related to organisational systems and their components (see Chapters 4 and 5), the relationships between organisational units (see Chapter 10), and the processes within organisational management (see Chapter 7). In addition, workplace management tasks (see Chapters 2, 6, 11, and 15) and processes (see Chapters 12, 13, and 16) are widely covered too. So, a lot of theoretical knowledge has been discussed that could support stakeholder and goal-oriented design of organisational management processes towards improved, more holistic and aligned workplace management. Organisational space, the workplace, clearly requires a holistic treatment of all dimensions (physical, social, and mental). Therefore, scientific insights related to workplace management must be gathered from across different fields and different theories. This book has been an attempt to bring some of these theories and insights together, with this chapter taking a first step towards integrating them into an overall framework. This framework, hopefully, is a first step towards developing a grand Workplace Management theory in future studies.

1.1. A Workplace Management theory

Workplace and workplace management have been defined in the introductory chapter of this book (see Chapter 1). Likewise, Chapter 1 explains that theory can be defined as "a statement of concepts and their interrelationships that shows how/or why a phenomenon occurs" (Corley & Gioia, 2011, p. 12). As workplace by itself requires interdisciplinary understanding, it obviously calls for an interdisciplinary approach to the identification of such concepts, which must be followed by a transdisciplinary approach for testing interrelationships under different conditions. Here we introduce the first step towards the development of a new, grand Workplace Management theory by identifying the focal concepts across all theories presented in this book (see Table 20.1). As these theories stem from a variety of disciplines, the result automatically is an interdisciplinary framework. In its first set-up, the book was supposed to include another theory on performance-based buildings, focused on what a building is required to do rather than how it should be constructed. Although the chapter was withdrawn later in the process, the theory remained part of the analysis for this framework as it had already been performed, and the theory is just as relevant to the field as the others in the book.

To create the framework, the most important tacit knowledge from the theories has been made explicit to capture the essence of each theory. This was followed by the identification of communalities between theories and creation of focal constructs, which then were used to connect the theories into said framework. The next section will explain the empirical approach (a concept mapping study) in greater detail, followed by the results, a discussion of the implications of findings for workplace research and practice, and the necessary further steps to fully develop a holistic Workplace Management theory.

Table 20.1 Theories in the book presented in alphabetical order

Alignment theory
Branding theory
CREM maturity model
Decision-making theories
Hospitality theory
Principal-agent theory
Radical innovation theory
Resilience theory
Service management theory
Socialization theory
Socio-technical transitions
St. Gallen Management Model
Strategy-as-Practice theory
Systems thinking
Toyota Production System
Usability theory
User-centred design thinking
Value Adding Management model

2 Concept mapping approach

To reveal the hidden pattern behind the 19 theories, concept mapping (Kane & Trochim, 2007) was applied, also known as group concept mapping to distinguish it from mind mapping techniques, such as Novakian concept mapping (Kane & Rosas, 2018). The concept mapping approach was also used in the first volume of this book series to create an Employee-Workplace Alignment framework (Appel-Meulenbroek et al., 2021). The development process of the said framework and the framework introduced in this chapter has been identical.

Concept mapping is a machine-driven content analysis method that aggregates and integrates knowledge, creating a structure of ideas, values, or opinions. Having evolved from educational planning and evaluation, it now has been used all over the world in a high diversity of disciplines (Trochim, 2017) for purposes such as text analysis, defining priorities, and developing theoretical frameworks (Kane & Rosas, 2018).

Group concept mapping is a mixed-method approach to extracting knowledge that resides among a group of individuals, the 'wisdom of the crowd'. Technically, the concept mapping process is a combination of brainstorming, card sorting (possibly accompanied by rating), statistical analysis, and data visualisation (Figure 20.1). Rosas and Kane (2012) showed that the method yields strong internal representational validity and very strong sorting reliability estimates.

Since the quested group wisdom was residing in the minds of the book chapter authors living all over the world, the data collection had to be done online. The concept mapping process was led by the research team, consisting of this framework chapter's authors.

2.1 Unit creation by book chapter authors

The first step of the concept mapping procedure included the creation of units that could refer to possible communalities and differences between the theories. To keep the balance between the method's reliability and the sorters' burden, the aim was a maximum of around 100 units, as suggested by Kane and Rosas (2018). The authors of this volume have been requested by

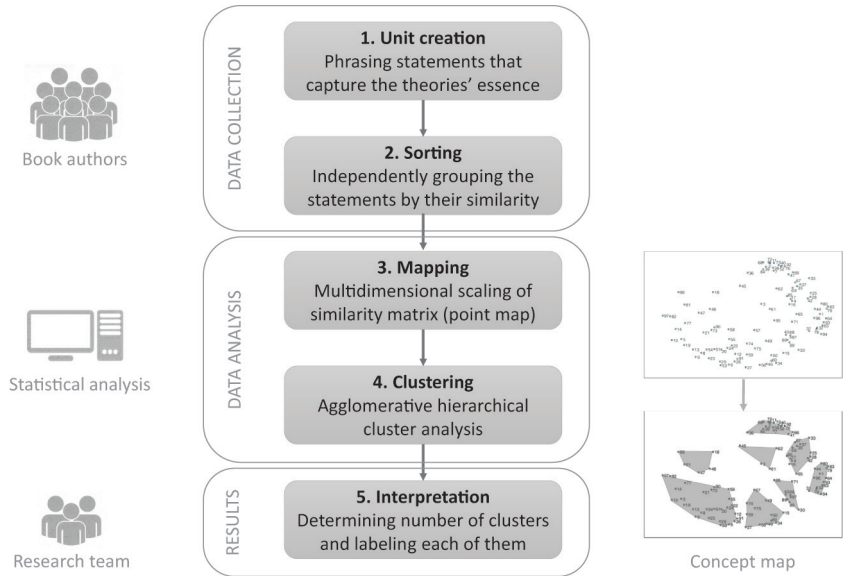

Figure 20.1 Applied concept mapping procedure taking five steps, involving human judgement and computer analysis

email to grasp the essence of their chapter's theory into three to five statements, meeting the following criteria:

- describing essential characteristics or assumptions of the theory, capturing its essential phenomena and relationships,
- making theoretical statements, not phrasing recommendations that follow from the theory, or empirical results,
- containing a maximum of 15 words each (virtually fitting on a Post-it),
- easy to understand for authors from other disciplines,
- clear and comprehensible on its own, even when it is placed between statements about other theories,
- avoiding the theory's name if possible, to reduce recognition of the statement sets.

To further clarify the criteria, the authors were told that the statements "could be, for instance, a definition of the main phenomena, their composition or mutual relationships, the main propositions, assumptions, or values related to the theory, or anything else essential for the theory".

For all the theories, the statements were initially created by the chapter authors. The statements then were discussed between the chapter authors and the three members from the concept mapping research team, until they were clear. The members of the research team individually tested the collected statements by their fit with the aforementioned criteria, discussing the results together. Statements were rephrased if needed to increase their comprehensibility, and similar statements within one theory were deleted. There was no aim for an equal number of statements per theory, since one theory naturally might have more facets than the other. Changes to the original statements were presented to the chapters' authors for approval. In the end a total of 88 units, ranging between three and seven (average = 4.6) statements per theory, was created and stored in an Excel file.

2.2 Grouping the statements

First, the statements were randomised by sorting them alphabetically, after which they were numbered to create the ability to reconnect them to their theory after the sorting. The numbered statements were entered into the remote card sort tool of UsabiliTEST, a Texas-based company providing tools for testing usability and improving information architecture, used by companies and universities worldwide. With this online software, a user test was created for open-ended card sorting, allowing participants to create their own groups according to their logic instead of providing categories beforehand in a closed sort. An open sort is ideal for collecting user-generated ideas for logical content groupings.

The authors were invited to participate in sorting the statements, by sending them an email containing a link to the card sort test which they could not share with others. They were instructed to arrange the cards into groups that made the most sense to them, and that they could create as many groups as they wanted, as long as they did not make a miscellaneous group such as a category 'other' or 'mixed'. They were able to pause the sorting and to continue at a later moment before submitting their contribution to the database. Two weeks before closing the test, a reminder was sent to those who did not yet submit a contribution. To each participant the cards were randomly presented by the system. While authors might still recognise their own statements, tending to put them together, this effect was mitigated by the other sorters' grouping.

A number of at least 11 sorters is required for reliable results, and while having more sorters is better, their added value decreases beyond 20 (Rosas & Kane, 2012). When the card sort test was closed, eight weeks after the invitation was sent, 19 authors had participated in the sorting with an average completion rate of between 90% and 100% of the statements. Sorters would have been excluded from the data analysis if their completion rate was below 20% or if they had created fewer than three groups, as this would not contribute much to the discriminant validity of the concept mapping. One contribution was excluded based on a low completion rate. On average, the included sorters created 10.5 content groups with a mean of 8 statements per group.

2.3 Statistical analysis and concept map generation

First, the raw data from the included sorters were exported from the UsabiliTEST system as an Excel file containing all groups that were created by the sorters and the names they had given them. These data were cleaned by deleting three miscellaneous groups (labelled, e.g., 'temporary group' or 'cannot place these'), since these statements were not grouped based on content similarity and therefore including these groups would distort the analysis. On this cleaned file R-CMap (Bar & Mentch, 2017) was run, a piece of open-source software in R programming language. The first step of the analysis involved mapping (see Figure 20.1, step 3), using non-metric multidimensional scaling to transform the multidimensional data into a two-dimensional representation of the relative distances between the statements. This resulted in a point map, where each point represented a statement and the distance between them represented their content difference (the closer, the more similar). The second step (Figure 20.1, step 4) involved agglomerative hierarchical clustering, subsequently merging the two clusters at shortest distance, determined by the closest pair of points.

Since there was no desired number of clusters to aim for, the dendrogram was viewed to indicate the useful range of cluster amounts to consider. In this tree representation of the Ward clustering process, the length of stems represented the distance between two merged clusters while corresponding to the within-cluster variance. Based on the dendrogram, the cluster analysis iterations ranging from 4 to 11 clusters were studied closely by each member of the research

team to decide at what point the next merging was not logical or did not contribute to clarity of the themes. This resulted in the preference for nine clusters.

3 Results

3.1 Identified clusters and labels

The concept mapping revealed a nine-themed structure underlying the 19 theories (see Figure 20.2). Closer points or clusters on the map signal more similarity. Nonetheless, there might be some discrepancies due to translation to two dimensions for the map. Cluster names were chosen by the research team, based on the statements' content and inspired by group labels that were created by the sorters. Statements in the centre of the cluster were considered of greater weight in the decision process, and distances to other clusters were also taken into account.

Additionally, Figure 20.2 shows the three-cluster solution of analysis, by the lines drawn around the clusters. This shows three main regions of meaning that this Workplace Management framework beholds:

- creating a resilient organisation,
- aligning organisation and workplace strategies,
- creating positive workplace experience.

3.1.1 Creating a resilient organisation

The first two clusters together form the region of meaning called 'Creating a resilient organisation'. This region of meaning focuses on an organisation's ability to anticipate change and

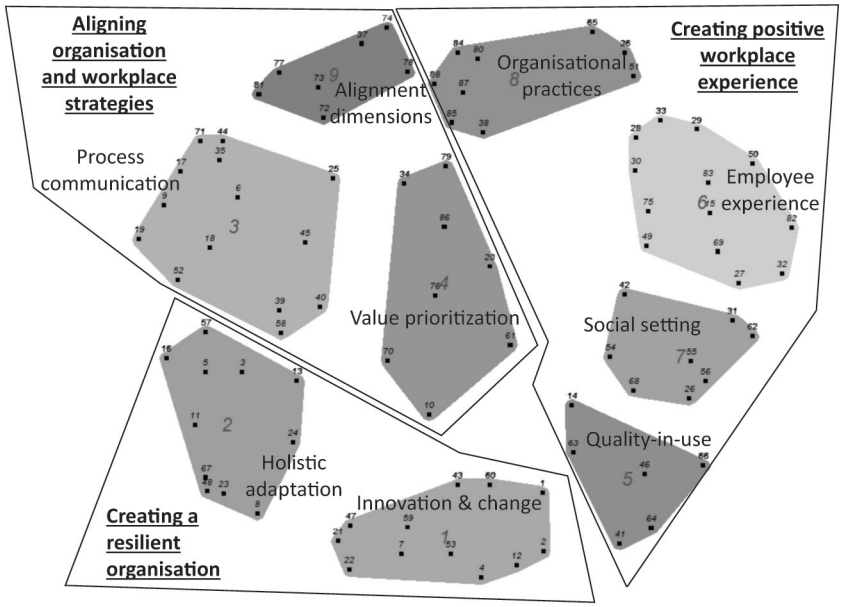

Figure 20.2 Concept map showing clustering of the 88 statements into nine concepts and three regions of meaning

innovate, in order to maintain or even improve organisational performance over time. Such an ability to change and adapt requires strategic decision-making and a holistic view of the organisation and its workplaces.

Cluster one, labelled 'Innovation & change', discusses how different-scale internal and external changes impact the workplace. The 12 statements that form the cluster point out that there are various big and small changes that affect a workplace at different levels and in different time frames, putting technology forward as an important example. These changes impact the prevailing workplace (design) and also organisational performance related to it. The statements also point out that taking a performance-based approach to buildings promotes innovation in both workplace design and construction. Statement 7 summarizes the cluster nicely by saying that "Both external and internal changes impact workplace (design) at different scales, tempos, and magnitudes". Other example statements are: "Technology innovations can transform a workplace by enriching, integrating, expanding or inspiring" (statement 59) and "The differing permanency of building layers allows changes to workplace design in different time frames" (statement 60).

The cluster 'Holistic adaptation' (cluster 2) describes the need to have a holistic approach to change management. Two central statements summarise this cluster well: "Changes in one level of the organisation lead to changes on the other level of the organisation" (statement 11) and "Adding value is a holistic, multi-dimensional and transdisciplinary concept" (statement 5). The organisational system is interconnected and thus requires a holistic coordination. The focus of workplace management should be directed at decision support processes towards common values, objectives, and incentives, to reduce problems that might arise and to help add value to the organisation. Moreover, strategic coordination should be resilient in time. Other example statements of this cluster are "A good strategy includes flexibility criteria for future adaptations" (statement 3), "Risk reduction strategies and plans require a longitudinal view of vulnerability and resilience" (statement 48), and "Strategic outputs of workplace projects depend on effective coordination of interactions between workplace (system) components" (statement 57).

3.1.2 Aligning organisation and workplace strategies

The second region of meaning shows that one of the key activities of workplace management should be achieving alignment between the organisation and the workplace. It emphasises the strategic role of workplace management in the organisation and encompasses both the structure and process of alignment, plus its complexity. It contains three different clusters with 29 statements stemming from the largest number of theories.

The cluster labelled 'Process communication' (cluster 3) consists of 14 statements that indicate that the alignment process requires two-way integration, both vertically and horizontally, throughout the organisation. Alignment between various units of the organisation means that various problems can arise from conflicting interests between stakeholders, governance issues, or lack of trust. However, a suitable process and enhanced communication has the potential to reduce these problems. After all, social interactions also drive organisational strategy. Example statements of this cluster are "Corporate strategy and workplace strategy require two-way integration" (statement 18), "Problems can be simplified by attributing uncertainties and creating a set of alternatives" (statement 45), and "Potential problems between business and CRE units could be reduced through information sharing, co-creation and alignment" (statement 44).

Cluster 9, 'Alignment dimensions', includes seven statements. They explain the alignment components and processes that are necessary for a successful alignment between the organisation and its workplace. The statements show that workplace alignment involves different

components such as alignment between physical space, ICT, people, processes, and culture on different organisational levels. Workplace alignment is also an iterative process of repetitive analyses that involves multiple stakeholders and requires addressing multiple perspectives. Workplace interventions thus need to be strategically aligned to the organisation's goals to ensure they add value before they are implemented. Example statements are "Workplace alignment should occur on different organisational levels" (statement 73) and "Workplace alignment is complex and iterative" (statement 72).

Cluster 4, 'Value prioritization' emphasizes the value generation for the stakeholders. The eight statements comprising this cluster continue to open up the complexity of workplace management and show the need to tailor its tasks to the specific context and desired values of an organisation. Workplace management activities can add value to multiple stakeholders through different activities, which should thus be evaluated based on multiple aspects. Example statements include "Workplace management demands understanding of multiple objects, directions and values" (statement 79), "Workspace management means mastering complexity to sustainably generate value for stakeholders" (statement 86), and "Values can be prioritized depending on urgency, importance, cost, impact, and enhancing or hindering conditions" (statement 70).

3.1.3 Creating workplace experience

The third region of meaning, 'Creating workplace experience', is the most extensive one, including 35 statements. Four clusters form this region of meaning and emphasise workplace management practices and the need to create a positive employee experience, to provide a suitable social setting, and to ensure perceived quality-in-use. This region of meaning promotes a humanistic perspective on organisations and workplace management, emphasising the vital role of all kinds of employees to the success of the organisation.

The 'Organisational practices' cluster (cluster 8) includes nine statements that point out the role of the workplace as an organisation's service to employees, and the necessary steps to achieve a positive workplace experience for all. The cluster emphasizes that workplace management requires an understanding of the organisational and management practices that govern all kinds of human behaviours. Workplace management processes should analyse, plan, implement, and optimise both business and support processes by taking a close look at practices of the main stakeholders. Example statements of this cluster are "Workplace management strategies can be improved by 'systems-thinking' and mapping stakeholders' interests, barriers and priorities" (statement 80), "It's not the service, it's not the needs, it's the way you deliver the service" (statement 36), and "Service-oriented management emphasizes the relationship between human behaviour and organisational practices" (statement 51).

Cluster 6, 'Employee experience', is formed from 13 statements that concentrate on the workplace experience of the end user: an organisation's employees. A positive employee experience is created by enabling them to perform the necessary tasks in an efficient and pleasant way. However, their overall experience depends on multiple tangible and intangible, internal and external factors and their own preferences and personality. All these factors need to be addressed together. Example statements are "User experience should be the primary concern of workplace design and management" (statement 69), "Workplaces should allow the user to execute a task effectively, efficiently and with satisfaction" (statement 83), and "Consumers prefer a product/service that aligns with their own desired personality" (statement 15).

The 'Social setting' cluster (cluster 7) includes eight statements that demonstrate the importance of organising and empowering specifically the (service providing) employees involved in the workplace management. Social interactions are especially important for new recruits or

insourced employees. Well-socialised employees can help to preserve organisational culture, affect organisational decision-making and improve customer (user) experience. Example statements include "Socialisation provides new recruits with a set pattern of behaviour to help them blend into the organisation" (statement 55), "Socialised employees tend to have better interactions with customers, which means an improved customer experience" (statement 56), and "Unplanned social interactions in the workplace can influence decision and actions of strategic importance" (statement 68).

The 'Quality-in-use' cluster (cluster 5), combined from five statements, emphasises workplace management operations. The statements in this cluster highlight the usage phase of the building and workplace environment, stating that the value of the physical space lies in how good it eventually is for its users. However, it is also the most resource-intensive phase of the building that requires suitable management to avoid unnecessary waste in the usage of buildings. Example statements are "Quality-in-use is eventually more important than architectural, technical or planning quality" (statement 46), "There must be a balance between output, process and subjective experience of the environment" (statement 66).

3.2 Relations between theories

Based on the statements in each cluster, it is possible to detect which theories are represented in that cluster and to what extent (see Table 20.2). The table shows that while some of the theories spread out over multiple clusters, others have more than half of their statements congregated in one cluster (e.g. radical innovation, resilience, user-centred design thinking). These theories might concentrate more heavily on a certain phenomenon or a construct and sometimes might be considered as micro-theories (see Chapter 1 on a discussion on types of theories).

Figure 20.3 provides a visualisation of Table 20.2 of the position of the theories related to the regions of meaning. While some theories cover all three regions of meaning, others are focused on one or two of those. The theory of alignment together with the CREM maturity model specifically focus on the organisation and workplace alignment region. Radical innovation theory, Resilience theory and Socio-technical transitions consider the role of innovation, change, and the time aspect and provide assumptions focused on how to create a resilient organisation. Hospitality, Socialisation and User-centred design thinking open up on the human aspect that plays an important role in creating the overall workplace experience and which might not be covered well in other theories that aim to intersect between the regions of meaning. Two theories (Principal-agent and Decision-making) are located on the intersection between 'Aligning organisation and workplace strategies' and 'Creating a resilient organisation'. This seems logical, as both theories approach the issues related to informed decision-making in organisations. Further, the intersection between 'Aligning organisation and workplace strategies' and 'Creating positive workplace experience' regions of meaning holds the largest amount (five) of the theories, namely Strategy-as-Practice theory, St. Gallen Management Model, Toyota Production System, Usability, and Service management. Indeed, these models and theories consider various aspects of workplaces that need to be addressed in order to create the overall experience, and many of those aspects are related to suitable management practices and alignment of operations in the organisation. Only one theory, Performance-based building, is located on the intersection between 'Creating a resilient organisation' and 'Creating positive workplace experience'. This theory concentrates on the building design that, if built according to the performance requirements, can improve both organisational outcome (resilience of the organisation) and personal outcome (experience). However, as there is only one theory in this intersection, this indicates a gap to be addressed in the further

Table 20.2 Theories represented in the nine clusters by fewer than half (●), exactly half (●●), or more than half (●●●) of their three to seven statements.

	Creating a resilient organisation		*Aligning organisation and workplace strategies*			*Creating positive workplace experience*			
	1. Innovation & change	*2. Holistic coordination*	*3. Process communication*	*9. Alignment dimensions*	*4. Value prioritization*	*8. Organisational practices*	*6. Employee experience*	*7. Social setting*	*5. Quality-in-use*
Alignment			●	●	●				
Branding		●	●				●	●	
Decision-making		●	●	●●					
Hospitality						●	●●●	●	
CREM maturity model			●●	●	●				
Performance-based building	●●●								●
Principal-agent		●	●●●						
Radical innovation	●●●								
Resilience		●●●							
Strategy-as-Practice			●●●					●	
Service management					●	●	●		●
Socialization								●●●	
St. Gallen Management Model					●	●●●			
Socio-technical transitions	●●●	●							
Systems thinking		●	●	●		●			
Toyota production system			●						●●●
User-centred design thinking							●●●		
Usability					●		●	●	●
Value Adding Management	●	●		●	●	●			

development of the Workplace Management framework. Lastly, Branding theory, Systems thinking and the Value Adding Management model cover all three regions of meaning and, thus, are placed in the middle of the figure at the intersection of all regions. These theories indeed consider a wide variety of aspects within organisations, management practices, and workplace features, and could thus be considered more of a grand or mid-range theory with broader theoretical perspectives. For example, the Value Adding Management model is a specialised model for facilities and real estate management practices that should be addressed to add value to organisations, emphasising the alignment and flexibility (e.g. resilience) aspects. Overall, all theories seem to be logically placed in the concept mapping process, confirming the validity of the outcome of this method.

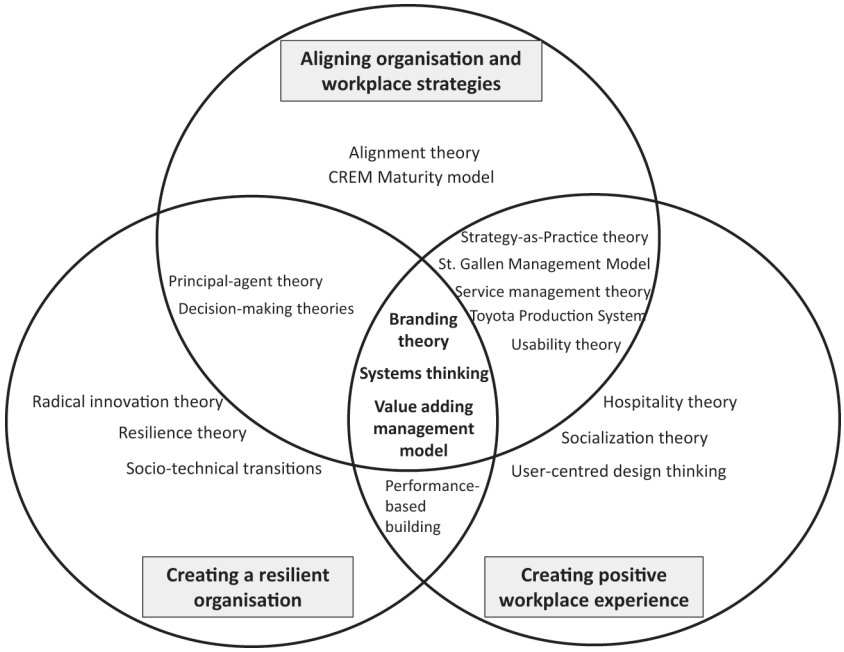

Figure 20.3 Workplace management theories forming three regions of meaning

4 Discussion

4.1 Towards a new grand theory on workplace management

All three regions of meaning from the cluster analysis discuss the role of workplace management in terms of tasks, processes, strategies, and stakeholders. It should optimise workplace experience for all stakeholders through the creation of a resilient organisation and alignment between organisational needs and the workplace strategy and interventions. Also, by creating a better workplace experience and aligning the workplace to organisational strategies, workplace management can create a more resilient organisation. There should thus be a continuous (change) management process of aligning to both internal and external forces and generating value for all different stakeholders. This chapter now starts its first attempt to develop the framework for a holistic grand theory on workplace management. It takes the nine concepts and three regions of meanings as possible constructs of such a theory. Figure 20.4 visualises their connections using two-directional arrows, as the exact relationships are yet to be determined in further research. This will require more research on the connections between the regions and between the concepts in these regions.

Current fast-pace changes in organisations and markets require a continuous change in workplaces to stay aligned, as visible in the 'Creating a resilient organisation' part of this framework. The workplace is a reflection of organisational culture and 'personality' (e.g. Parker, 2016; Harris, 2015), so it needs to realign following organisational changes over time. The skill to adapt to various changes leads to increased resilience of organisations (Duchek, 2020). In her doctoral thesis, Saurin (2012) analysed possible futures for workplaces and already highlighted the need to address the complexity of workplace management together with uncertainty and a constant change. She states that only by understanding that a workplace is a complex system

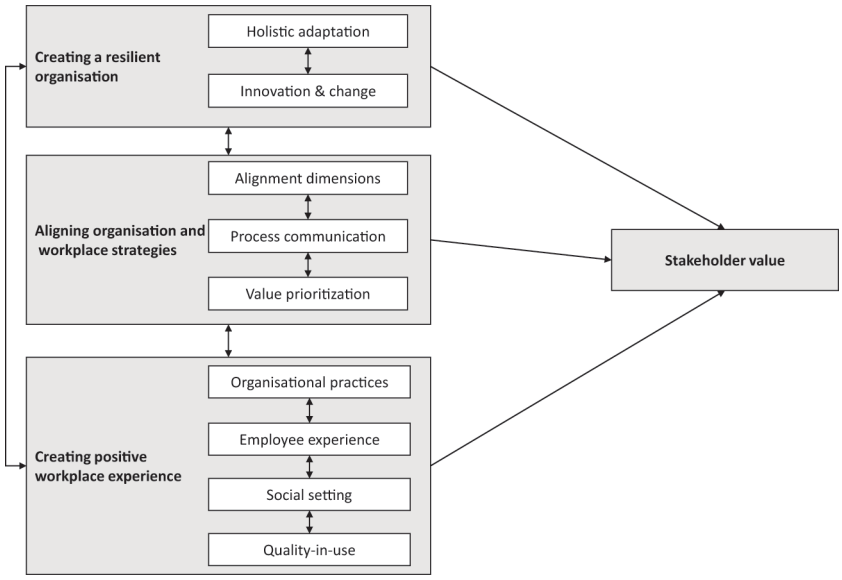

Figure 20.4 Workplace Management framework

that is affected by various forces and interpreted by different individuals, one can successfully prepare for the possible future. However, so far, research on resilience in the workplace appears to either be focused on the organisation itself in times of emergency (e.g. Parsons, 2010), or highly competitive markets (e.g. Borekci et al., 2015), or on resilience of the organisation's employees, referring to keeping them healthy and productive at work (e.g. Robertson et al., 2015). Resilience of workplace-organisation alignment through time is hardly studied. Burnard and Bhamra (2011, p. 5587) defined organisational resilience as:

> the emergent property of organisational systems that relates to the inherent and adaptive qualities and capabilities that enable an organisation's adaptive capacity during turbulent periods. The mechanisms of organisational resilience thereby strive to improve an organisation's situational awareness, reduce organisational vulnerabilities to systemic risk environments and restore efficacy following the events of a disruption.

There is no quick fix or single process towards creating resilience, as this is not an outcome but rather a continuous process towards agility (Gibson & Tarrant, 2010). The few existing studies either address the actual flexibility of the building construction to make (structural) changes (e.g. Geraedts, 2016) or remain very much on a conceptual level (e.g. Gibson, 2001). As Cooke et al. (2019) have identified, CRE portfolios did not yet have the agility for dynamic alignment during the most recent economic recession. The framework thus supports their call for more research on the decision-making process of workplace managers when trying to achieve re-alignment (Cooke et al., 2021) and why this is not successful.

Organisational resilience also depends on the organisational capabilities to innovate (Mafabi et al., 2015). Organisations need to constantly develop and renew their capabilities (structures, processes, and competences) in order to stay competitive (Hamel & Välikangas, 2003). As creativity is critical in this innovation process, organisations need creative environments to enhance the creativity in the organisation (Serrat, 2017). Physical space design can influence creativity

through enhancing or at least not hindering processes and activities in the organisation (Martens, 2011; Vithayathawornwong et al., 2003). Additionally, successful innovation adoption depends on time, the social system, and communication in the innovation decision process (Rogers, 2003). This emphasises the role of change management that needs to consider and address different needs of multiple stakeholders while ensuring a smooth and continuous improvement process, as represented by the 'Process communication' component of the framework. Change management literature shows that employees are critical in the success or failure of change within the organisation. This is due to the fact that they are either the ones that are affected by the change or the ones that implement the change (Fugate et al., 2012). Thus, it is important to make sure that employees are engaged, and that their needs are heard. This can be achieved by involving employees in the change process and addressing their needs (e.g. García-Cabrera & García-Barba Hernández, 2014; Morin et al., 2016; Skogland & Hansen, 2017). In short, workplace management should concentrate on the continuous change management process that addresses the change experienced by an organisation to support an organisation's primary processes. However, more research on workplace change management processes is necessary to identify what works in which context and how workplace managers can enhance knowledge creation processes in the organisation to increase flexibility and resilience of the workplace.

The 'Aligning organisation and workplace strategies' part of the framework puts workplace management forward as a complex adaptive system (CAS). Holland (2006, p. 1) defines complex adaptive systems as "systems that have a large number of components, often called agents, that interact and adapt or learn". Main features of a CAS are that it has a high number of agents who make their own decisions on how to behave. Agents are seen as autonomous objects that have local knowledge and can be replaced without disrupting the whole system (Carmichael & Hadžikadić, 2019). They interact with each other, and the behaviour of the whole system cannot be predicted based on the behaviour of individual agents, thus requiring a holistic understanding of the system (Sullivan, 2011). In addition, agent behaviour changes depending on events taking place. Interactions between agents as well as other internal and external changes thus influence the system's behaviour. Kämpf-Dern and Pfnür (2014) studied corporate real estate management (CREM) as an organisational management function and confirmed that it is a complex system composed of multiple various relationships and interactions. There are internal and external environments as well as inter- and intra-systems that affect CREM (Kämpf-Dern & Pfnür, 2014) on strategic, tactical, and operational levels. Moreover, within the workplace, there are multiple operational levels – physical space, digital environment, and social environment that interact together. All these components might influence the outcome or actions of other parts. Additionally, workplaces have many stakeholders coming both from internal and external environments, such as employees, management, investors, suppliers, and public bodies (Kämpf-Dern & Pfnür, 2014). All of them can be referred to as someone who has a relationship with a certain workplace (Tagliaro, 2018) and, thus, can be considered as system agents. In this manner, workplace has a loose hierarchy of replaceable agents.

The stakeholders (agents) that need to be catered by workplace management often have different interests. These interests might be understood as a value that workplace management needs to bring to the organisation (see also Chapter 12 on the Value Adding Management model). The understanding of value has been changing from mere 'cost savings' to broader performance increases in the organisation's core business, such as increased productivity, improved image of the organisation, and increased employee engagement (e.g. Haynes, 2007; Kämpf-Dern & Konkol, 2017). Nonetheless, De Vries et al. (2008) pointed out that financial performance is still a dominant performance indicator in organisations, and thus many interventions that relate to (physical) workplace are judged through the financial point of view. Concentrating

solely on minimising real estate costs can hurt organisations more in other parts of the system (De Vries et al., 2008). Finding the most suitable workplace solutions for different stakeholders is one of the major tasks for workplace management to achieve alignment between the organisation and the workplace. This alignment must be understood as a change on a system level which is easier to achieve than at the individual (agent) level (Carmichael & Hadžikadić, 2019). Corporate real estate and workplace alignment have been widely studied within the CREM field (see Chapter 9 on the alignment models). Heywood and Arkesteijn (2018) also indicated that it is essential to better understand the relationships between the components and the dynamics of decision-making in the organisation. Thus, deeper studies of the relationships between components (agents) and workplace decision-making dynamics are needed.

The 'Creating workplace experience' part of the framework covers factors affecting overall workplace experience. Workplaces are increasingly considered as a product that is consumed by employees (customers). A related term, 'consumption experience', was introduced in the late 20th century. At that time, Holbrook and Hirschman (1982) discussed how experience (customer response) relates to both environmental and consumer factors. They identified that products, their features, and benefits, together with verbal stimulus and non-verbal cues (such as smell, taste, feeling), and communication affect customer response. In order to capture the customer, businesses need to create a memory for their customers (Pine II & Gilmore, 1998). Both these studies (and many more) point out that experience of consuming any product or service comes not only from the product or service itself, but also from how customers perceive the interactions with business, personnel, and the environment. Grönroos (1984) developed a framework that helps to understand service quality, suggesting that it is specifically perceived by how well the delivered service meets customer expectations. The model separates technical (what a customer gets) and functional (how a customer gets it) quality dimensions, and image (how a customer perceives the provider). Regarding the technical part, workplace experience and satisfaction depend on workplace characteristics such as indoor environmental quality or layout design. There are many studies that analyse which physical workplace factors affect the productivity, satisfaction, and health of employees. Indoor air quality and ventilation, thermal comfort, lighting and daylight, noise and acoustics, office layout, biophilia and views, look and feel, and location and amenities seem to be the common physical environment factors that play a role (Al Horr et al., 2016). Regarding the functional quality (how a customer gets the service experience), the framework shows that in the office workplace, quality also stems from social interactions and organisational practices (see also Chapter 17 on hospitality). This makes employees critical in workplace management success. Multiple studies confirm that employee behaviour affects customers' perceptions of quality and overall satisfaction (e.g. Kattara et al., 2008; Butcher, 2005; Li, 2020). These human behaviours and interactions also relate closely to how workplace characteristics and organisational practices are perceived (the image part of Grönroos's model). Perceived satisfaction with a product or service is widely studied, for example in service management and hospitality management fields. The subjective image of how well the workplace meets an employee's needs strongly determines whether positive employee attitudes and wellbeing are achieved (Edwards & Shipp, 2007). Only when all three types of service quality are positive, could the workplace, from a physical point of view, be understood as a healthy space that supports productive work. How to achieve more optimal alignment between a workplace and individual employee thriving is discussed in more detail in the first book of this series, addressing another 21 different theories specifically on this topic.

A workplace does not consist only of the physical environment but is also defined by the organisation, the job itself, and personal characteristics (Jensen & van der Voordt, 2019). Perceived

productivity, for example, depends on a person's interaction with the workplace as well (Haynes, 2009). Hence, to satisfy the eventual 'real' customer of the organisation, workplace management needs to understand the interactions between organisational practices, employee experience, their social setting, and continuous quality-in-use to create an overall positive workplace experience from aligning a workplace to the organisation. However, the alignment of these dimensions is complex and layered. Even though there is a significant amount of research showing correlations between different dimensions of workplace experience, there are no straightforward answers regarding the relationship between them yet. Hence, more research is needed to understand the causal order of these dimensions and provide more conclusive evidence.

The nine concepts presented in this chapter form the basis for further development of a holistic Workplace Management theory. In general, the concepts indicate that the main tasks of workplace management include alignment of organisational and workplace strategies and creating a resilient organisation and positive workplace experience. This emphasises the need of workplace management to address both organisational practices and human needs on operational, tactical, and strategic levels of the organisation in order to create value for all stakeholders. Often, difficulties appear when the workplace is understood as a physical space or organisational (social) setting only. This framework sees workplace as a combination of physical, social, and mental space. Physical and social space comes forward in several clusters of the framework, and mental space could be understood as the overall employee experience of the workplace. Thus, referring back to Tissen and Lekanne Deprez (2008), workplace management indeed can be seen as that complex system of physical, social, and mental space within (and outside) organisational borders.

4.2 Limitations and future steps

One of the main limitations of the framework in this chapter is that it is based on 19 theories that were selected in an uncontrolled manner. These theories emerged from suggestions within the editors' networks. Thus, the first future step for further development of this framework is to verify whether the identified concepts cover all necessary aspects of a holistic Workplace Management theory. Also, the assumptions extracted from these theories that were used for the concept mapping study could be different if authors from other disciplines would have created them. Furthermore, the interpretation of the assumptions could be different if they would be analysed and sorted by scholars other than the authors of this book. To diminish these limitations, the concepts presented in this framework could be discussed with a group of representatives from different academic fields as well as workplace managers in practice.

In order to develop the theory further, it would be necessary to test or continue testing relationships between the nine identified concepts, as right now we cannot indicate the directions of relationships in the framework. In the discussion, many research gaps have been identified. Figure 20.3 provides insights in which theories could be used for further research if researchers would like to develop specific concepts or understand certain interactions better. As the framework incorporates multiple dimensions, it might be difficult to study all the aspects together (Giddens, 1979); however, a holistic understanding is also needed. Additionally, in order to connect research on the different dimensions, a common scale for testing relations would be helpful too. Currently in workplace management research, the scales vary depending on the study. A common measurement scale would require a complex process (Carpenter, 2018) that has not yet been done either, but that would be worth the effort. After these steps have been implemented, further data collection and empirical testing in different settings would be necessary to specify the conditions under which the Workplace Management theory holds.

Only then could the framework that is presented in this chapter be developed towards a proper grand Workplace Management theory.

5 Implications for practice

This chapter develops workplace management research further, thus, it is oriented mostly towards researchers. However, workplace managers in practice can find the chapter helpful too, by looking at how they address the different aspects in the framework. First, the 'Creating a resilient organisation' part discusses the role of change and innovation in a successful business and the need for constant adaptation of a physical workplace to stay aligned. Still, too often physical workplace transformation is seen as a one-time project with a definite beginning and end, after which only efficient management of operations is needed. Achieving resilience and agility requires a more continuous approach towards the development of workplace management structures, processes, designs, and competences, including the focus on workplace support of both the organisational processes (such as knowledge sharing) and employees as individuals, while creating a social system around the physical (and digital) space.

Also, the 'Aligning organisational and workplace strategies' part is relevant to practitioners. It emphasises the need for workplace management strategy and actions to be aligned to a specific organisation, with its own complex system and unique set of multiple specific stakeholders that workplace managers need to address. Alignment and changes in the workplace should be well communicated with the relevant stakeholders, especially not forgetting the users of the space (employees). Although practitioners are adopting user-centred design thinking and increasingly involve some users early on in the workplace development process, real participatory design with all users has not been adopted by many organisations yet.

Last, the 'Creating positive workplace experience' part is also beneficial to practitioners and it might be the least understood part, due to the fact that it emphasises human behaviour and psychology factors. Often workplace managers are educated in engineering or management fields without acquiring knowledge from the psychology, sociology, or similar human-centred disciplines. It is common that workplace management is left to practitioners stemming from a technical building management side. As a positive workplace experience is not just because of a high-quality physical space, they must learn how to deal with the social context and individual (physical, functional, and psychological) needs. This indicates that workplace managers need to work more closely with HRM and other employee-focused departments, so that employee needs can be addressed together to create a holistic positive workplace experience. Also, workplace managers can incorporate knowledge from the hospitality sector on designing experiences and adjusting their organisational practices to increased service quality.

6 Closing words

Managing office buildings started with only the operational management of physical space, then moved towards managing offices as a financial asset, and now finally includes the recognition that offices can affect user behaviour. Thus, workplace is no longer seen as a pure cost centre but as a value-adding asset of an organisation. Nonetheless, many organisations still do not understand how workplace management should be performed in practice and underestimate the need to connect with other support functions (FM, HR, IT), to align to organisational strategies and capture the full value that workplaces can bring to organisations and their stakeholders. Supporting employees and enabling appropriate work practices can bring more than cost savings on energy or square metres. Often, behavioural and psychosocial outcomes are

missed out in workplace management performance ratings, forgetting that people perceive the environment around themselves and create impressions about the workplace and the organisation that strongly influence their functioning on the job (for both the 'regular' employee and the workplace management team itself). Thus, perhaps we should move beyond discussion on terms as corporate real estate and facilities management towards the more human-focused workplace management term. Hopefully, the Transdisciplinary Workplace Research and Management book series will continue, and new books will present even more theories that are (or can be) applied to further advance the workplace management field.

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INDEX

Note: Page numbers in *italic* indicate a figure and page numbers in **bold** indicate a table on the corresponding page.