The Visible and Invisible Hands in the Workplace: How Spatial Settings and Digital Transformation Impact Contemporary Workplace

Dissertation

zur Erlangung des Grades eines Doktors der Wirtschaftswissenschaft

der Rechts- und Wirtschaftswissenschaftlichen Fakultät

der Universität Bayreuth

Vorgelegt

von

Yixin Qiu

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Abstract

Contemporary workplaces are undergoing enormous changes, including visible and invisible forms of transformation. The visible working environments of modern workplaces incorporate more playful interior design and open-plan office layouts and remove physical boundaries between organizations to accommodate the new workforce and working culture. This trend is especially manifested and fueled by the growing number of the workforce embracing coworking-spaces. A more invisible transformation in the workplace points to the ubiquitous adoption of digital technologies. Digital transformation induces the emergence of the digital workforce, redefines the workplace to be more flexible and connected, and modifies the ways and processes in which work is done. Both forms of transformation are interwoven with the concept of sharing, which creates platforms to share resources and promote connectivity. The extant literature on workplaces investigates the phenomena, discusses the ongoing changes, and presents the advantages of embracing these changes. However, the lack of an overview on the impacts and the mechanisms of the workplace evolution might blur the directions of future research and cloud organizations' strategic decisions concerning workspace design, technology upgrades and talent acquisition.

This thesis aims to shed light on the overall changes in today's workplace and the underlying mechanisms by analyzing the impacts of the sharing economy, spatial settings, and digital transformation. The three parts in this thesis address each of the three mentioned topics, respectively. Part one includes two published research articles and examines how the sharing economy and the induced platforms modify value configurations in organizations, including the operating environment and guiding framework of workplaces. Part two digs into the workplace transformation concerning spatial settings, especially applying coworking-spaces as the research context. Three papers in part two employ distinct theoretical lenses to unravel the structures, processes, and mechanisms of coworking-spaces. Part three seeks to provide a comprehensive and systematic overview of organizational changes from digital transformation through a systematic review of empirical studies on this topic.

By doing so, this thesis contributes to the extant literature on contemporary workplaces by developing a more integrated view, incorporating the general sharing concept, changes in spatial settings, and digital transformation. The findings develop an understanding of changing modern workplaces and provide references for organizations to harness the opportunities.

Zusammenfassung

Die Gestaltung von Arbeitsplätzen durchläuft aktuell enorme Veränderungen, mit sowohl sichtbaren als auch unsichtbaren Formen der Transformation. Das sichtbare Arbeitsumfeld moderner Arbeitsplätze integriert Innenausstattung mit spielerischen Elementen und ein offenes Bürolayout, und beseitigt dadurch physische Grenzen zwischen Organisationen, um sich an die neuen Arbeitskräfte und Arbeitskultur anzupassen. Dieser Trend verstärkt sich insbesondere wegen der wachsenden Zahl von Arbeitskräften, die Coworking Spaces nutzen. Eine unsichtbarere Transformation am Arbeitsplatz ergibt sich durch die Einführung digitaler Technologien. Die digitale Transformation führt zu einer Generation digitaler Arbeitskräfte, definiert einen flexibleren und besser vernetzten Arbeitsplatz und verändert die Art und Weise zu arbeiten. Beide Formen der Transformation basieren auf dem Konzept des Teilens, damit die Transformation die Plattformen für den Austausch von Ressourcen schafft und die Konnektivität fördert. Die vorhandene Literatur zu diesem Thema beschreibt dieses Phänomen, diskutiert die laufenden Veränderungen und stellt die Vorteile der Übernahme dieser Veränderungen vor. Allerdings fehlt aktuell ein globaler Überblick und eine Beschreibung der unterliegenden Mechanismen der Veränderungen am Arbeitsplatz, wodurch die Richtungen zukünftiger Forschung verwischt und strategische Entscheidungen von Organisationen in Bezug auf Arbeitsplatzgestaltung, Technologie-Upgrades und Talentakquise erschwert.

Diese Arbeit zielt darauf ab, die allgemeinen Veränderungen am heutigen Arbeitsplatz und die zugrunde liegenden Mechanismen zu recherchieren, indem die Auswirkungen der Sharing Economy, der räumlichen Ausstattungen und der digitalen Transformation analysiert werden. Die drei Teile dieser Arbeit befassen sich jeweils mit den drei oben genannten Themen. Teil eins enthält zwei veröffentlichte Forschungsartikel und untersucht, wie die Sharing Economy und das induzierte Ökosystem und die Plattformen die Wertekonfigurationen in Organisationen als Betriebsumgebung und Orientierungsrahmen für Arbeitsplätze verändern. Teil zwei befasst sich mit der Transformation am Arbeitsplatz, die sich aus räumlichen Umgebungen ergibt, insbesondere wenn Coworking-Spaces im Forschungskontext betrachtet werden. Die drei Arbeiten in Teil zwei verwenden unterschiedliche theoretische Linsen, um die Struktur, den Prozess und den Mechanismus zu entschlüsseln, nämlich Soziomaterialität, institutionelle Theorie bzw. Dienstleistungsgeschäftsmodell. Teil drei fasst einen umfassenden und systematischen Überblick über organisatorische Veränderungen von der digitalen Transformation durch eine systematische Überprüfung empirischer Studien zusammen.

Die vorliegende Arbeit trägt zur vorhandenen Literatur über aktuelle Arbeitsplätze bei, indem sie eine stärker integrierte Sichtweise mit dem allgemeinen Austauschkonzept, den Änderungen der räumlichen Einstellungen und der digitalen Transformation entwickelt. Die Ergebnisse entwickeln ein Verständnis für den Wandel moderner Arbeitsplätze und liefern Empfehlungen für Organisationen, um die Chancen zu nutzen.

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***Research paper 1: (Chapter 2)**

Reuschl, A.; Tiberius, V.; Filser, M. and Qiu Y. 2021. Value Configurations in Sharing Economy Business Models. *Review of Managerial Science.* In printing. Online at: https://link.springer.com/article/10.1007/s11846-020-00433-w

(VHB-JQ3: B)

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Research paper 2: (Chapter 3)

Bouncken, R. B.; Qiu, Y. and Clauss, T. 2020. Coworking-Space Business Models: Micro-Ecosystems and Platforms - Insights from China. *International Journal of Innovation and Technology Management*. 17(6). Online at: https://doi.org/10.1142/S0219877020500443

(VHB-JQ3: C)

Research paper 3: (Chapter 4)

Bouncken, R. B.; Aslam. M. M. and Qiu, Y. 2021. Coworking spaces: Understanding, using, and managing sociomateriality. *Business Horizons*. 64: 119-130. Online at: https://doi.org/10.1016/j.bushor.2020.09.010

(VHB-JQ3: C)

Research paper 4: (Chapter 5)

Qiu, Y. and Bouncken, R. B. Coworking spaces: Co-Working-Ecosystems: Institutionalization of 'Homes' for Innovation and Venturing. *Companion to Technology Management.* Routledge (Book chapter, accepted).

(VHB-JQ3: N.A.)

***Research paper 5: (Chapter 6)**

Qiu, Y. 2020. Trajectories of Service Business Models – Insights from Collective Consumption of Coworking-spaces. In *2020 Academy of Management Meeting*. Canada, Vancouver. 7-11 August. Online at: https://aom2020.aom.org/meetings/virtual/JkWZhdXmx6q8ofseb

(VHB-JQ3: N.A.)

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*** Research paper 6: (Chapter 7)** Bouncken, R. B. and Qiu, Y. The Impact of Digitalization on Organizations --- a Review on Empirical Studies. *International Journal of Entrepreneurial Venturing.* (accepted)

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This thesis excludes the following publications and conference papers.

***Research paper 7:** Bouncken R. B., Qiu Y., and García F. J. S. 2021. Flexible pattern matching approach: Suggestions for augmenting theory evolvement. *Technological Forecasting & Social Change*. In printing. Online at: https://doi.org/10.1016/j.techfore.2021.120685

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* An earlier version of this paper was accepted by and will be presented in the *2021 Academy of International Management Meeting*. Online.

***Research paper 8:** Bouncken R. B.; Qiu Y.; Sinkovics N. and Kürsten W. 2021. Qualitative research: extending the range with flexible pattern matching. *Review of Managerial Science.* In printing. Online at: https://doi.org/10.1007/s11846-021-00451-2

(VHB-JQ3: B)

* An earlier version of this paper was accepted by and will be presented in the *2021 Academy of International Management Meeting*. Online.

Research paper 9: Barwinski, R.W.; Qiu, Y.; Aslam M.M. and Clauss, T. 2020. Changing with the Time: New Ventures' Quest for Innovation. *Journal of Small Business Strategy.* 30(1): 18-30.

(VHB-JQ3: C)

Research paper 10: Barwinski, R.W.; Görmar, L.; Qiu, Y. and Aslam M.M. 2019. Creating Value in Innovation Hubs: Insights from Coworking-Spaces. In *European International Business Academy 2019 conference.* Leeds, the UK, 13-15 Demcember.

(VHB-JQ3: N.A.)

Research paper 11: Barwinski, R.W.; Qiu, Y.; Aslam M.M. and Görmar L. 2019. Where Should I Go: Entrepreneurs Seeking Innovation Inside or Outside of Innovation Hubs. In *European International Business Academy 2019 Leeds conference.* Leeds, the UK, 13-15 Demcember.

(VHB-JQ3: N.A.)

Chapter 1: Introduction

1.1 Motivation and Research Context

The world of work has witnessed enormous changes in the past decade, greater than any decade in memory (Colbert, Yee, & George, 2016; Steers, Mowday, & Shapiro, 2004). These undergoing changes accommodate the changing nature of work, which is empowered by more flexible and diverse workforces and work arrangements, the flatter structures in organizations, and the emerging types of work and workers (Khazanchi, Sprinkle, Masterson, & Tong, 2018; Okhuysen, Lepak et al., 2013; Steers et al., 2004). There is, for example, a growing group of gig workers, self-employees, and project-oriented teams, switching from traditionally full-time employees. Specifically, the sharing economy provides a fertile land that further extends and accelerates the evolution. By availing access to pooling of resources, products, and services instead of gaining ownership, sharing economy enables organizations to tap into the wisdom of connected talents, resourceful platforms, and flexible structures (Bouncken & Reuschl, 2018; Matzler, Veider, & Kathan, 2015).

Simultaneously, these trends of organizations and workforces also resonate with dramatical alteration of materiality in the workplace. Coworking-spaces and digital transformation are two primary examples of such changes concerning nonhuman agencies in the workplace, significantly influencing human action and interaction (Bouncken, Ratzmann, Barwinski, & Kraus, 2020; Bouncken & Reuschl, 2018; Reischauer & Mair, 2018). Coworking-spaces are modern workplace solutions where heterogeneous individuals, teams, and organizations collocate in contemporary workspaces to share the facilities and settings, to connect with peers, and to achieve improved work performance (Barwinski, Qiu, Aslam, & Clauss, 2020; Garrett, Spreitzer, & Bacevice, 2017; Vidaillet & Bousalham, 2020). Digital transformation refers to the significant changes and improvement in organizations by applying information, computing, communication, and connectivity technologies (Nambisan, Wright, & Feldman, 2019; Vial, 2019). Both changes in physical working spaces (i.e., coworking-spaces) and virtual working platforms (i.e., digital transformation) show the influence from the concept of sharing: Coworking-spaces embraces sharing into physical workplaces and facilities (Bouncken et al., 2020; Bouncken & Reuschl, 2018), and digital transformation promotes and is promoted by sharing and exchange of information, knowledge, and data (Nambisan et al., 2019; Vial, 2019).

The changing physical settings and digital technologies in the workplace attract increasing attention from scholars concerning their interconnectedness with individual performance, culture, and practices in the workplace. In the context of coworking-spaces, researchers find that this contemporary workplace solution with open-plan office design facilitates communication, social interaction, networking, and collaboration between individuals (Bouncken & Aslam, 2019; Bouncken & Reuschl, 2018; Cabral & Winden, 2016; Parrino, 2015; Spinuzzi, 2012), generates a "sense of community" among diverse workers and teams without shared employment affiliation (Blagoev, Costas, & Karreman, 2019; Bouncken et al., 2020; Bouncken & Aslam, 2019; Castilho & Quandt, 2017; Garrett et al., 2017), and boosts sociability, entrepreneurship, innovation and creativity of its users (Capdevila, 2014; King, 2017; Marchegiani & Arcese, 2018; Rese, Görmar, & Herbig, 2021; Rese, Kopplin, & Nielebock, 2020). In a similar vein, studies show that digital transformation entails flatter and opener organizational structures (Castelló, Etter, & Årup Nielsen, 2016; Côrte-Real, Oliveira, & Ruivo, 2017; Mount & Martinez, 2014), increases the innovation and entrepreneurship in organizations and over the whole society (Guinan, Parise, & Langowitz, 2019; Lanzolla, Pesce, & Tucci, 2021; Nambisan et al., 2019), and improves performance through changed individual practices and organizational behavior (Akter, Wamba, Gunasekaran, Dubey, & Childe, 2016; Bredmar, 2017; Huang, Baptista, & Galliers, 2013; Singh & Hess, 2017).

However, the extant literature on contemporary workplaces is sporadic without drawing a systematic and integrated view on the impacts of the changes. The speed with which the sharing economy, coworking concept, and digital transformation have spread suggests that workplaces are undergoing essential and significant alteration that will induce a series of opportunities and challenges to organizations and society (Blagoev et al., 2019; Bouncken et al., 2020; Garrett et al., 2017; Vial, 2019). Especially during the global pandemic, physical workplace and digital technologies play crucial roles in modern workplaces (Carroll & Conboy, 2020; Lee & Trimi, 2021); just the first impacts through visible surroundings, and the second touches through invisible technologies (with visible facilities for the user-end). Organizations, therefore, should understand and manage the ongoing revolution at contemporary workplaces to empower the workforce with an efficient composition and adapt their structures and concepts to the new realities of workplaces. Correspondingly, theoretical advancement would be needed to unravel the underlying mechanisms and thus guide the methods and practices to leverage the potentials of tomorrow's workplace.

This thesis aims to shed light on a systematic overview of the impacts that spatial settings and digital transformation exert on contemporary workplaces. The two critical trends are analogized as a visible hand and an invisible hand in the workplace in this thesis. Three parts, including six research articles, compose the thesis. The first part explores the sharing economy and entailed connectivity as the general context and trends of the current workplaces. The second part digs deeper to understand the impacts from physical settings with coworking-spaces as the research context, specifically on the sociomaterial attribute of interior design and architecture, the institutionalization process, and the trajectories of the organizations derived from the collective consumption context. The third part investigated the influences of digital transformation on workplaces and organizations. The following introduction consists of a literature review on the topic of each part and the research gap that each part aims to address, followed by the structure of the thesis and a brief summary of each research article included in the thesis.

1.2 Contexts and Trends in Contemporary Workplaces

Development in society, job markets, and employee demands has altered workplaces. Sharing economy is one of the essential enablers that drive this evolution. Sharing economy refers to "peer-to-peer based activit[ies] of obtaining, giving, or sharing the access to goods and services, coordinated through community-based online services" (Hamari, Sjöklint, & Ukkonen, 2016; Matzler et al., 2015). As the sharing concept permeates and roots in organizations, today's workplace is constantly reconstituted, reformed, and even redefined such that the configurations and management of employees, the ways to make work done, the notion of "job", and even the nature of work and business itself changes (Okhuysen et al., 2013). For example, when flextime and multilocality in the workplace are challenging the traditional "clock-in" and "clock-out" working style, this change is supported by the sharing platforms where individuals can offer their service on a part-time basis. This change is also fueled by digital technologies that allow for information sharing and exchange quickly and remotely (Matzler et al., 2015; Reischauer & Mair, 2018).

The platforms developed from sharing economy also profoundly impact modern workplaces by linking businesses to insights and resources of crowds. For instance, Kohler (2015) investigated platforms that successfully harness the collective creativity to create and capture value, and identified effective patterns of crowdsourcing-based business models. Bouncken et al. (2020) identified linkage multiplicity and mutual knowledge creation as part of the

configurations that empower innovation and entrepreneurship in shared workspaces. The extant literature presents that platforms create value by connecting agencies and decreasing the cost of information sharing (Acquier, Daudigeos, & Pinkse, 2017). In this way, sharing platforms create well-connected networks that remove the conventional border of workplaces and transform it into an ecosystem (Bouncken & Kraus, 2021; Helfat & Raubitschek, 2018).

1.3 Coworking-spaces and Contemporary Workplaces

Coworking-space is a type of platform that is more specifically adopted in the workplace. It is called "Airbnb of work spaces" by applying the idea of sharing in office spaces (Bouncken et al., 2020; Bouncken & Reuschl, 2018; Castilho & Quandt, 2017; Matzler et al., 2015). That is, coworking-spaces provide shared office facilities and infrastructures so that people can access it based on their needs and thus save budget from paying for the use of the space instead of ownership (Leclercq-Vandelannoitte & Isaac, 2016; Spinuzzi, 2012; Spreitzer, Bacevice, & Garrett, 2015a). Typically, coworking-spaces are equipped with posh interior design and open-plan office layout to cater to the needs of modern workers (Castilho & Quandt, 2017; King, 2017; Spinuzzi, 2012). This expanding market of coworking started among the increasing number of freelancers, home workers, and small entrepreneurial or new venture teams, and later also attracted companies, including Fortune 500 firms, to follow this trend and set up their open or exclusive coworking-spaces (Bouncken, Laudien, Fredrich, & Görmar, 2018; Bouncken & Reuschl, 2018; Spreitzer, Garrett, & Bacevice, 2015b).

The benefits that users can acquire from various forms of coworking-spaces are an important driver that induces its fast development and draws increasing attention of researchers. Studies present the features and influence of coworking practice on different levels and objects. For individuals and small teams, collocation in open workspaces with other individuals serves to ease the social isolation of independent professionals (King, 2017; Spinuzzi, 2012; Spreitzer et al., 2015a), facilitate their social interaction and communication with diverse professionals (Rese et al., 2020; Waters-Lynch & Duff, 2021), stimulate productivity, creativity, and innovation by surroundings (Bouncken et al., 2020; Capdevila, 2014; Khazanchi et al., 2018; Marchegiani & Arcese, 2018). Between individuals and teams, studies show that the assemblage of talents with diverse backgrounds in the same open space enhances knowledge exchange and share (Bouncken & Aslam, 2019; Bouncken et al., 2018; Parrino, 2015; Rese et al., 2020) and facilitate collaboration and joint projects across borders (Castilho & Quandt, 2017; Marchegiani & Arcese, 2018; Spinuzzi, 2012). Among the collocated or connected

heterogeneous individuals, researchers find that a sense of community emerges among the users with diverse backgrounds (Butcher, 2013; Garrett et al., 2017; Spinuzzi, Bodrožić, Scaratti, & Ivaldi, 2019), and semi-formal organizaitonality develops from assembling in shared workspaces (Blagoev et al., 2019).

Coworking-spaces are transforming workplaces, by removing traditional cubicles and embracing open-plan layout, by changing orderly and dull work setting to aesthetic and playful office design, and by connecting talents and resources beyond the conventional boundaries of organizations and affiliation (Bouncken & Aslam, 2019; Leclercq-Vandelannoitte & Isaac, 2016; Parrino, 2015; Spinuzzi, 2012). The changes from adopting the coworking concept are seemingly material. However, the socialmateriality perspective defines that social and material elements are entangled and interwoven in enabling and hindering social practices (Bouncken, Aslam, & Qiu, 2021; Orlikowski & Scott, 2008). Therefore, studies have shown that the impacts of coworking-spaces on workplaces are in fact rather profound since it influences individual practices, interaction patterns, and the outcome of the works (Blagoev et al., 2019; Bouncken et al., 2020; Garrett et al., 2017; King, 2017), which exert considerable influence at today's workplace.

1.4 Digital Technologies and Contemporary Workplaces

The explosive growth and ubiquitous adoption of digital technologies underpin the sharing and coworking trends (Bouncken et al., 2020). Digital transformation per se also fundamentally alters the forms, definition, and nature of workplaces (Colbert et al., 2016). Digital technology indicates the convergence of social, mobile, analytics, and cloud computing technologies that enable and increase information exchange, communication, and connectivity (Fitzgerald, Kruschwitz, Bonnet, & Welch, 2014; Vial, 2019). For example, social media, artificial intelligence, the Internet of things, and big data are well-known and widely-used digital technologies. Digitalization is not digitization, which refers to the technical process of converting and decoupling information from physical carriers (for instance, paperwork) to digital form and binary digits (LegnerEymann et al., 2017; Vial, 2019). Instead, digital transformation refers to a socio-technical phenomenon and process that influence social actors' practices and interaction and fundamentally transformed business and society (Bouncken & Kraus, 2021; Bredmar, 2017; Lee & Trimi, 2021).

Digital transformation changes the nature of work and brings new paradigms into the workplace. The extant literature has investigated the multifaceted workplace evolution related

to digital transformation. First, the ubiquitous use of digital technologies and the Internet promotes the growth of the digital workers, who are heavy users of digital technologies and leverage the techniques to create value at work (Colbert et al., 2016; Legner et al., 2017). The switch from working on physical materials to virtual space or digitized documents not only alter the content and tasks of work but also more or less liberate workers from where and even when it is done (Dittes, Richter, Richter, & Smolnik, 2019; Fitzgerald et al., 2014). For instance, digital workers can accomplish tasks in cyberspace or real offices and thus not be constrained by traditional working hours. Second, in connection with the previous point, studies presented digitalization significantly altered the process and outcome of work. Nowadays, most businesses no longer stick to face-to-face interaction but rather transfer to online meetings and virtual teams by applying virtual collaboration tools (Guinan et al., 2019; Lee & Trimi, 2021). Some scholars suggest that this "moving-to-online" tendency can increase flexibility and connectivity at work (Bouncken & Kraus, 2021; Singh & Hess, 2017; Vial, 2019). However, some researchers also concern that it may sacrifice the spreading of nuanced and tacit knowledge and the development of in-depth relationships among coworkers (Bouncken et al., 2020; Colbert et al., 2016). Third, digitalization also induces new management styles and organizational cultures in the workplace (Bredmar, 2017). To adjust the organizational identity to the digital workforce, organizations implement digital work to attract young talents apart from enhancing competitive advantages (Bredmar, 2017; Dittes et al., 2019; Nambisan et al., 2019). This implementation further entails more autonomy in the workplace, as elaborated in the previous two points, and more open and agile organization structures (Singh & Hess, 2017; Vial, 2019).

1.5 Research Gaps

Although the changes at today's workplace have generated considerable discussion, we still lack an overview of their impacts on users' practice in the workplace and the general configurations of workplaces. This deficiency might cloud the strategic decisions of organizations and miss the opportunities of the sharing and digital age. Moreover, the neglected overall alteration in the workplace can also hinder researchers to systematically understand modern organizational behavior and strategic management in contemporary organizations. Therefore, this thesis aims to shed light on the influence of the ongoing trends toward workplaces. The three parts of the thesis address impacts from sharing economy and connectivity, spatial settings, and digital transformation, respectively.

Part one examines how sharing economy and the induced platforms and connectivity change organizations. Most of the extant studies highlight the revolution that sharing economy brings to the consumption and consumer behavior, but leave the changes in the workplace, which is an indispensable and essential part for each organization, understudied. Accordingly, two articles in part one aims to explore the 1) value configuration of organizations in sharing economy and 2) connectivity of organizations and workplaces derived from the sharing concept.

Part two addresses the profound impacts that spatial settings exert on contemporary workplaces in the context of coworking-spaces. While the current literature studies the benefits of coworking-spaces from multiple levels and aspects, from individual to interpersonal relationship and communal behavior, little attention has been paid to answering the "why" part of this phenomenon. Three research articles in part two aim to shed light on the processes and mechanisms of the coworking practice by taking the perspective of 1) sociomateriality, 2) institutional theory, and 3) business models and trajectories, respectively.

Part three sheds light on the systematic and comprehensive influences that digital technologies bring to organizations and workplaces. The growing number of studies on digital transformation stays scattered on different topics and fields. Therefore, the article in part three seeks to advance our understanding of organizational changes resulted from digitalization through a systematic review of empirical studies on this topic.

1.6 Thesis Structure and Results

This thesis consists of six research articles that seek to explain the changes in contemporary workplaces, starting from its general context and trends followed by the impacts from spatial settings and digital transformation. The six research articles consist of four journal publications, one book chapter, and one conference paper and thus address independent research questions with a separate research design. Figure 1.1 presents the structure of this thesis and provides an overview of the major findings of each article.

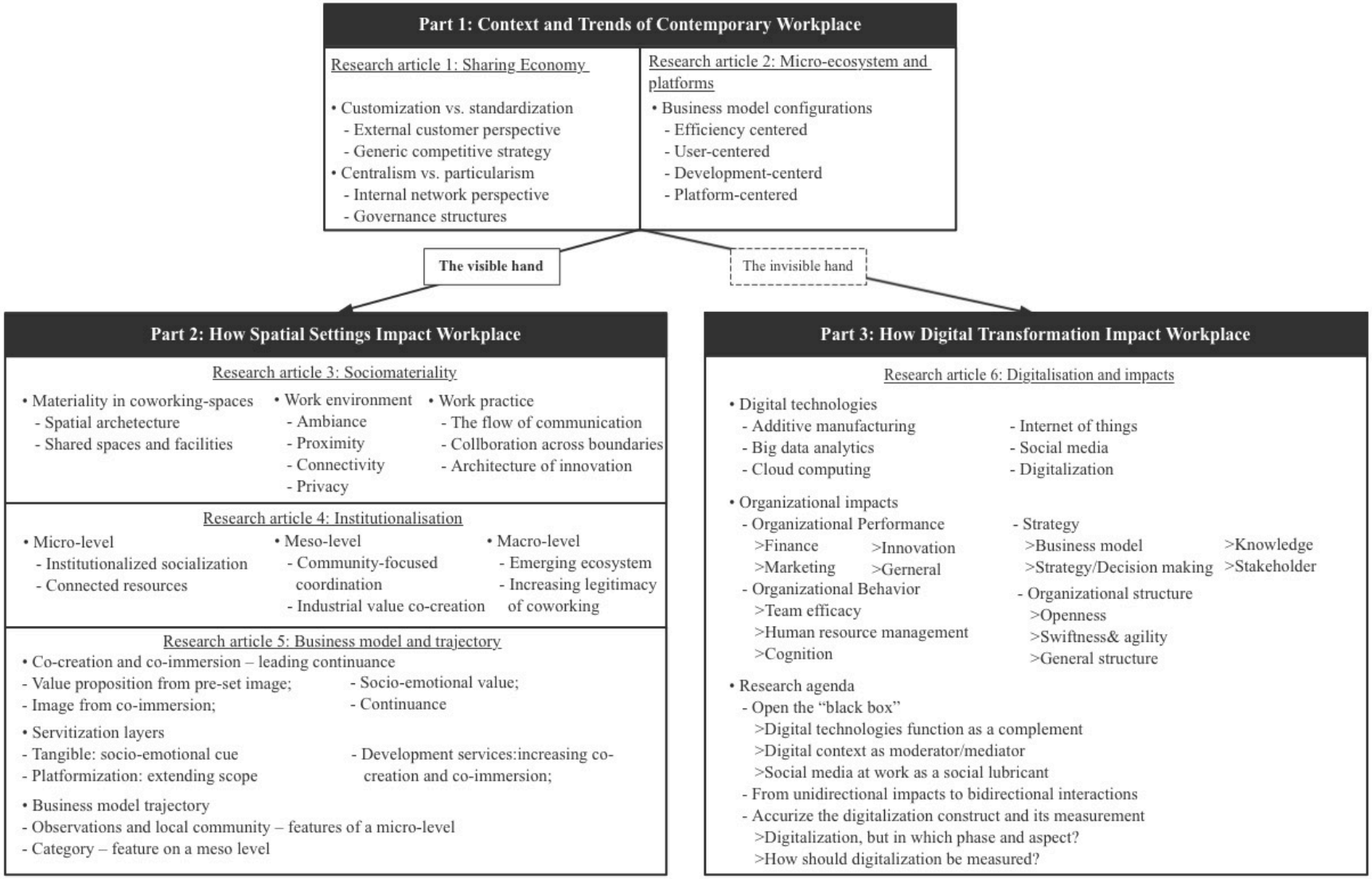

Figure 1.1 Structure of the Thesis.

The first research article in chapter 2 is "*Value Configurations in Sharing Economy Business Models*", published in *Review of Managerial Science*. This research paper analyzes the key differences that are decisive for value configurations in sharing-based business models. Based on a mixed-method approach consisting of a qualitative study and a quantitative study, this paper reveals two crucial dimensions to distinguish the value configurations: 1) customization or standardization of shared goods and 2) the centralization or particularization of property rights over the shared goods. These findings provide references to strategic options for focal firms regarding value configuration design of the two dimensions to optimize value creation and value capture in sharing networks. Besides, firms can use this two-dimensional search grid to explore untapped opportunities in the sharing economy.

The second research article in chapter 3 is "*Coworking-Space Business Models: Micro-Ecosystems and Platforms — Insights from China*", published in the *International Journal of Innovation and Technology Management*. This paper investigates how the coworking practice, as a representation of sharing, impacts business models, especially concerning connectivity. This study identifies four types of business model design based on field research to six Chinese coworking-spaces and 28 interviews with providers and users. These four configurations are efficiency-centered business models, user-centered business models, development-centered business models, and platform-centered business models. These findings exceed the prior conceptualization of business model themes and present the impacts of sharing on modern organizations. Especially, the platform-centered business model relates to connectivity derived from sharing economy, facilitating mini-spatial innovation ecosystems.

The third research article in chapter 4 is "*Coworking spaces: Understanding, using, and managing sociomateriality*", published in *Business Horizons*. This research paper draws upon the sociomateriality perspective and examines the fundamental mechanism and process of how coworking-spaces enhance the motivation and inspiration of employees in companies. This study first unravels the fundamentals of coworking-spaces, namely its materiality concerning interior design and architecture, and then analyzes the incorporated emotional and social meanings that further guide and enable individuals' behavior. The sociomateriality perspective helps map the features of the materiality in coworking-spaces, the ways that it shapes the working environment, and how they together form work practices of employees. These findings suggest that a purposeful design of different areas in coworking-spaces can improve communication, collaboration, and innovation in companies.

The fourth research article in chapter 5 is "*Co-Working-Ecosystems: Institutionalization of 'Homes' for Innovation and Venturing*", accepted by *Routledge Companion to Technology Management*. This article explores the coworking ecosystem generation processes through institutional theory. Diverse qualitative data, including 24 interviews and web-based second-hand data, suggest that coworking-spaces shape coworking ecosystems and promote innovation through institutions at micro-, meso-, and macro-level. Micro-level institutions are shaped by the institutionalized socialization and connected resources in coworking-spaces. Meso-level interaction in communal coordination and industrial value co-creation impacts institutions. Macro-level institutions include the emerging ecosystems and increasing legitimacy of coworking-paces.

The fifth research article in chapter 6 is "*Trajectories of Service Business Models – Insights from Collective Consumption of Coworking-spaces*", presented in the *Academy of Management Annual Meeting 2020*. This study investigates the business model design with collective consumption contexts and the potential impacts therefrom. This research applies a qualitative flexible pattern matching approach with longitudinal research design to analyze coworking-spaces, where collective consumption shapes the business model. The findings show that the different servitization layers of coworking-spaces business models contribute to the distinct scope and depth of co-creation and co-immersion in the space. These recurring and manifested service experiences further shape the trajectory of the service business models through the category and the local spatial service context. This article contributes to service business model research, especially in the field of collective consumption, and suggest firms consider value co-creation as systematic resource integration that goes beyond dyadic business-to-customer relationship.

The sixth research article in chapter 7 is "*The Impact of Digitalization on Organizations --- A Review of the Empirical Literature*", accepted by the *International Journal of Entrepreneurial Venturing*. This paper seeks to advance our understanding of organizational changes resulted from digitalization through a systematic review of empirical studies on this topic. Based on a systematic analysis of 92 identified articles, this article derives a framework with six digital technologies and 15 organizational elements. This framework further enables the investigation into the 92 papers concerning 1) examined statistical relationships 2) investigative perspectives—best practice or contingency. The findings from this review suggest three directions for future research, namely, open the "black box" of how the impacts are generated, from unidirectional impacts to bidirectional interactions, and accurize the digitalization

construct and its measurement. This paper provides a comprehensive overview of the inventory, insights for future study, and references for managers to orchestrate digital transformation in their organizations.

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Part 1: Contexts and Trends of Contemporary Workplace

Chapter 2: Value Configurations in Sharing Economy Business Models

With Andreas Reuschl, Victor Tiberius, and Matthias Filser (2020).

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2.1 Abstract

The sharing economy gains momentum and develops a major economic impact on traditional markets and firms. However, only rudimentary theoretical and empirical insights exist on how sharing networks, i.e., focal firms, shared goods providers, and customers, create and capture value in their sharing-based business models. We conduct a qualitative study to find key differences in sharing-based business models that are decisive for the value configurations. Our results show that (1) customization or standardization of shared goods and (2) the centralization or particularization of property rights over the shared goods are two important dimensions to distinguish value configurations. A second, quantitative study confirms the visibility and relevance of these dimensions to customers. We discuss strategic options for focal firms to design value configurations regarding the two dimensions to optimize value creation and value capture in sharing networks. Firms can use this two-dimensional search grid to explore untapped opportunities in the sharing economy.

2.2 Introduction

The sharing economy comprises all activities related to sharing or granting access to goods and services (Hamari et al., 2016). Sharing is organized in sharing networks. A focal firm manages the platform comprising the shared goods providers and customers. Sharing creates value by allowing customers to utilize products or services without acquiring ownership (Bardhi and Eckhardt, 2012; Belk, 2014; Hartl et al., 2016; Richter et al., 2015). The economic impact of sharing among actors (Zervas et al., 2017) alters the current mechanisms of value creation and value capture in business models as introduced by Richardson (2008) and Teece (2010). Sharing-based business models differ from traditional business models because value creation and value capture also are ‘shared’ among the sharing network members. Many sharing-based business models also differ from current platform business models in that they match not only supply and demand for digital but also physical goods that require “real world” logistics.

However, some sharing-based business models such as sharing WI-FI connections are purely digital.

Research on the sharing economy has gained momentum (Belk, 2014; Filser et al., 2020; Hamari et al., 2016; Hartl et al., 2016; Moehlmann, 2015; Oskam and Boswijk, 2016). It focuses on successful sharing business models like accommodation providers such as Airbnb (Oskam and Boswijk, 2016; Zervas et al., 2017), coworking space providers such as WeWork (Bouncken et al., 2018; Bouncken et al., 2020; Vidaillet and Bousalham, 2020), transportation service providers such as Uber (Cohen and Kietzmann, 2014), car sharing providers such as Car2Go or ShareNow (Bardhi and Eckhardt, 2012; Cohen and Kietzmann, 2014; Wallsten, 2015), the sharing of WI-FI connections, computers, services, food and other goods (Belk, 2014), and many others (Geissinger et al., 2020). As an example for B2B sharing, Apple and Dell 'share' the production facilities of Foxconn (Chan et al., 2013). Information and communication technologies provide the basis for these business models (Belk, 2014; Fjeldstad et al., 2012). Apart from common web-based technologies, the currently evolving 'Internet of Things' (IoT) offers opportunities for new business models (Brettel et al., 2014; Lee et al., 2015; Metallo et al., 2018). It integrates machines and production facilities into the sharing economy (Bardhi and Eckhardt, 2012; Belk, 2014). Beyond mere profit maximization, offering sharing-based products or services can also be seen as a societal engagement (Kruggel et al., 2020). In particular, sharing addresses sustainability concerns (Curtis and Lehner, 2019; Govindan et al., 2020; Hamari et al., 2016; Liu and Chen, 2020; Pies et al., 2020; Ponce et al., 2018; Pouri and Hilty, 2018). Despite the current research intensity regarding the sharing economy, we still lack an in-depth understanding of business models in the sharing economy (Belk, 2014; Cohen and Kietzmann, 2014; Hartl et al., 2016; Pies et al., 2020) and, in particular, of the mechanisms of value creation and value capture configurations. Therefore, our research goal is to identify sharing-specific antecedents of value creation and value capture. To achieve this research goal, we conduct a qualitative study on 18 sharing-based cases (study 1). Our results reveal two independent dimensions of integrated value networks: (1) the degree of customization or standardization of the shared goods and (2) the distribution of property rights over key resources, i.e. their centralization or particularization, especially a focal firm's degree of control over the shared goods. A quantitative study (study 2) among (potential) customers confirms the public visibility of these two dimensions. Based on these insights, we discuss the strategic options a focal firm has to shape optimal value configurations by a suitable arrangement of the two dimensions. These two independent dimensions provide a grid which

allows analyzing the value configuration and thus the strategic positions of firms in the sharing economy. Researchers and firms can use this grid for a strategic analysis that explores not yet occupied market spaces. Focal firms can create novel business models and platforms within these dimensions.

Our research contributes to both the sharing economy literature and research on business models and their value creation and value capture mechanisms. The identification of the two dimensions provides a first guidance for practitioners who create and researchers who investigate sharing networks. Our results help researchers and practitioners to better understand how firms can achieve and enhance the advantages of the sharing economy.

2.3 Theoretical Background

2.3.1 *Sharing economy*

There exists no commonly accepted definition for the sharing economy, since it is still a young phenomenon. Current research streams focus on framing the concept of the sharing economy (Arvidsson, 2018; Bardhi & Eckhardt, 2012; Belk, 2014; Cheng, 2016; Martin, 2016), reasons and motivation for participation (Davidson et al., 2018; Hamari et al., 2016; Möhlmann, 2015) and governing mechanisms (Ert et al., 2016). Recently, emerging research streams with in-depth sharing economy research questions on the internationalization process (Parente et al., 2018), industry specifics for example for apparel (Park and Armstrong, 2017), hotel business (Zervas et al., 2017), or mobility (Cohen and Kietzmann, 2014) outline the growing maturity and acceptance of the research field).

As we focus our research on sharing-based business models, we follow Hamari et al. (2016, p. 2047) and define the sharing economy as "peer-to-peer-based activit[ies] of obtaining, giving, or sharing the access to goods and services, coordinated through community-based online services". This definition allows us to include all forms of web-based sharing activities including incumbents that run sharing economy-like business models (Belk, 2014; de Lange and Valliere, 2020; Hamari et al., 2016). Web-based connectivity enables consumers to connect, exchange information, and coordinate sharing activities without restrictions of time and space, resulting in the development of novel business models (Afuah, 2003). Web-based information and communication technologies enable enhanced value creation as goods and services are shared only for the time needed (Belk, 2014; Hamari et al., 2016). Therefore, the

internet integrates or even generates markets, links their participants across boundaries and contributes to the emergence of globally unified markets (Pohjola, 2002).

The collaborative consumption of goods and services (Hartl et al., 2016) changes consumers' attitudes towards property and ownership. Customers focus on distinct access rights for using goods and services for the limited time span when their utilization rather than acquiring ownership or long-term property rights are needed (Bardhi and Eckhardt, 2012; Belk, 2014; Hartl et al., 2016). Ownership can especially be replaced by permanent access when customers are loyal to the sharing provider (Akhmedova et al., 2020; Jia et al., 2020). This trend also impacts B2B relations as technical improvements allow to 'share' production capacities and thus to integrate production capacities into sharing systems (Belk, 2014; Brettel et al., 2014; Lee et al., 2015).

2.3.2 *Business models, value creation and value capture*

Even though business models have been in existence since mankind discovered trading (Teece, 2010), the emergence of e-commerce and other internet-based products and services has massively intensified research on business models (Amit and Zott, 2001, 2012; Demil et al.,2015; Foss and Saebi, 2017; George and Bock, 2011; Osterwalder, 2004; Zott et al., 2011). For business models, many definitions exist (Zott et al., 2011). Especially in entrepreneurship, busness models have become a popular perspective (Ferreira et al., 2019). Business models can be seen as architectures (Teece, 2010; Timmers, 1998), blueprints (Osterwalder et al., 2005), designs (George and Bock, 2011; Teece, 2010), frameworks (Chesbrough and Rosenbloom, 2002), or representations (Morris et al., 2005) of "how firms do business" (Zott et al., 2011, p. 1037). Business models comprise several components (Zott et al., 2011), dimensions (Osterwalder & Pigneur, 2010) or elements (Baden-Fuller and Mangematin, 2013). For example, Amit and Zott (2011, 2010, 2012) distinguish content, structure and governance (Amit and Zott, 2001, 2010, 2012). Content depicts the activities performed in the activity system, including the exchange of products, services and information between the various network partners as well as the capabilities required to enable the exchange. Structure describes the linkages and the sequencing of these activities, considering size, flexibility and adaptability of networks. Governance describes who performs which activities as well as the locus and nature of control of transactions within the activity system. Another structure is suggested by George and Bock (2011) who, based on a survey among practitioners, distinguish a resource, transaction and value structure. Especially the business model canvas as suggested by

Osterwalder (2010) and Osterwalder and Pigneur (2010), is well established among both scholars and managers. It defines nine dimensions of the business model structure: key partners, key activities, key resources, the value proposition, customer relationships, channels, customer segments, the cost structure, and revenue streams.

In contrast to traditional strategic management which focuses on competitors, the business model approach focuses more strongly on the customer (Demil et al., 2015; Zott et al., 2011). However, superior configurations of business models can generate competitive advantages (Markides and Charitou, 2004). But with its strong customer orientation, a business model's predominant dimension is its value proposition (Chesbrough and Rosenbloom, 2002; Morris et al., 2005). More specifically, the firm has to define how it will create (and deliver) this offered value to the customers. Business models in the sharing economy do not have to offer innovative content, often only the flexibility or the details of content increase in comparison to traditional business models. The predominant role of the value proposition becomes particularly apparent in Teece's (2010, p. 172) definition of business models as a "design or architecture of the value creation, delivery, and capture mechanisms". Therefore, business models refer to the creation and capture of value from the combination of activities (e.g., IT and operations) into solutions, especially when acting in networks (Bouncken and Fredrich, 2016). In exchange for the expected or experienced value (i.e., use or benefit) of the firm's offering, the customer pays for it generating revenue and profit for the firm. Therefore, for a firm to maximize its extent of value capture, it has to offer a value proposition in a way the customer is willing to pay most. These notions are not only valid for individual firms in a market but also for decentralized business models in the shared economy. They relate to the network of the focal firm, key partners and customers because value creation is dependent on the firm's resources and external property. Value delivery depends on providing these external goods or services to the customer. The value captured has to be split among the participants. Activities exceed the mere use of technologies (Chesbrough, 2007) and cross the boundaries of single firms that are often embedded in networks (Amit and Zott, 2001). Thus, the business model approach is well suited for explaining value creation in the sharing economy.Sharing economy business models can be based on platform business models (Clauss et al., 2019; Muzellec et al. 2015; Täuscher and Laudien, 2018). The match between supply and demand of shared goods occurs on platform for which technology plays a constituting role as facilitator for self-linking processes among participants (Thuong and Monideepa, 2009). However, while regular platforms deliver digital goods which hardly cause any storage, delivery costs or waiting time for the customer, many

sharing-oriented business models involve the storage and time-consuming delivery of physical goods that can not only be coordinated digitally.

Business model innovation is associated with the agile and radical redesign of extant business models that is based on dynamic capabilities (Heider et al., 2020; Semke and Tiberius, 2020) and aims at fostering growth, firm performance (Bouncken et al., 2016; Brand et al., 2019) and the emergence of a competitive advantage (Amit and Zott, 2012). Apart from radical business model innovation, firms also implement incremental business model reconfigurations (Clauss et al, 2020). In both respects, sharing-based business models of both start-ups and incumbents have to be considered as innovative business models. Innovative Business models as novel combinations of their components result in value creation, delivery, and capture forms that are new to a market (Teece, 2010). Unique or novel value propositions allow new ways of value creation through new products or services and of value capture by, for example, new payment models such as membership fees or transaction-based payment.

Firms that do not yet participate in the sharing economy but consider doing so can add an innovative business model to their current one(s). For example, while car manufacturers Daimler and BMW, which usually focus on selling cars, have been offering their car sharing providers car2go and DriveNow (that have recently merged to their mutual provider Share Now) for several years, Volkswagen is only about to enter the sharing economy. Apart from sharing the firm's own goods, firms can also cooperate with several partners, which contribute complementary goods or services to increase heterogeneity and extend the activity and customer base, like in the case of Flinkster, also a car sharing provider, which integrates further complementary transportation services into the sharing network and to provide a comprehensive mobility portfolio. Flinkster is a remarkable role model for sharing economy business models that considerably extend firms' traditional scope of action by providing the opportunity to access new markets and customers. Other firms like ShareNow use social networks to access their customer base, create lock-in effects and improve marketing. This form of horizontal integration offers additional synergetic advantages. For example, embedding car sharing communities in or connecting them with social networks can optimize occupancy, create marketing effects or facilitate the development of additional services.

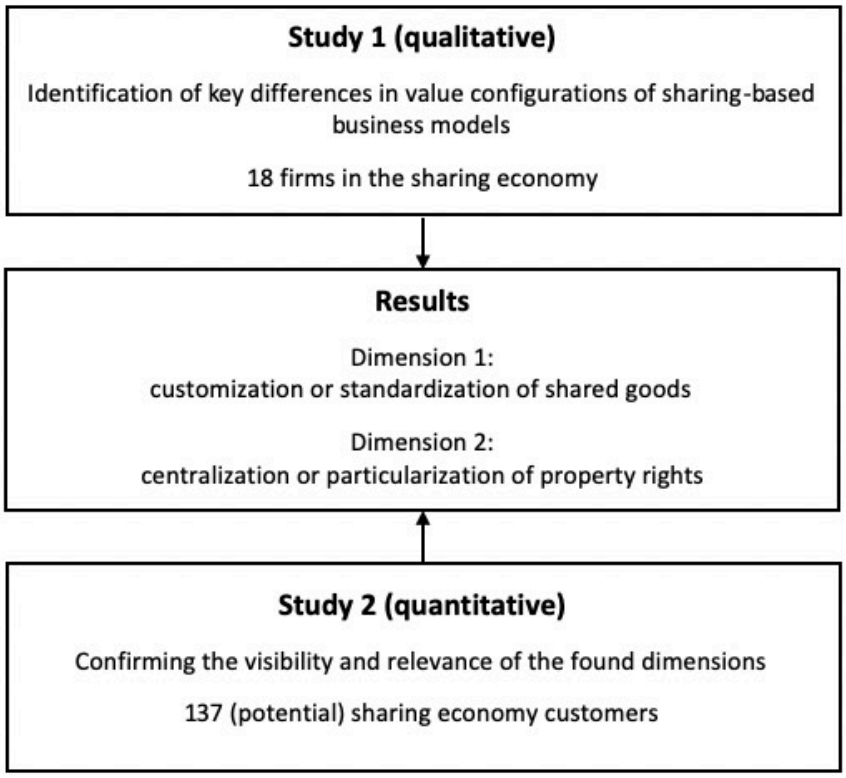

Figure 2.1 Research Methodology.

2.4 Methodology

2.4.1 *Mixed method approach*

We chose a mixed method approach comprising a qualitative and a quantitative study (Creswell, 2003) (Figure 2.1). The qualitative approach aims at gaining in-depth insights about rather unexplored phenomena to generate rather than validate propositions based on small samples (Eisenhardt and Graebner, 2007), while the quantitative approach tries to validate already existing hypotheses based on larger samples. For our research question, no hypotheses exist yet. Therefore, focusing on theory building, our research is inductive in nature (Yin, 2009) and we do not use predefined propositions from literature. With our second study, we aim at validating the prior findings.

2.4.2 *Study 1*

In the first step, we followed the case study literature (Eisenhardt, 1989; Eisenhardt and Graebner, 2007) and selected 18 case firms. To ensure that the cases match our research focus, we selected for-profit case firms that participate in the sharing economy or employ business models that are based on or related to the idea of sharing irrespective of the specific industry. A short overview over the case firms is given in Table 2.1.

We collected publicly available data from the selected firms from internal sources such as webpages, brochures and annual reports and from external sources such as media coverage. Drawing on these archival data, we analyzed the case firms' value configurations. In case of missing information, we contacted the firms to complete our data. As suggested by Eisenhardt (1989) and Ram and Trehan (2009), we applied an iterative data analysis process. First, we condensed the available information and created write-ups for each individual case. These write-ups were analyzed based on an open coding procedure. Next, we compared the individual case results in a cross-case analysis (Eisenhardt. 1989). Third, we re-analyzed the write-ups and applied a numerical weighting ranging from 1 to 10 on the identified categories. Two researchers independently carried out the iterative process of analyzing the case data and four researchers weighted the identified categories to enhance rigidity and to ensure consistency of the findings.

Table 2.1 Case–examples.

Case firm	***Year***	***Website***	***Description***
Airbnb	2008	www.airbnb.com	Airbnb offers a platform for a peer–to–peer network that enables users to share their accommodation.
Car2Go	2008	www.car2go.com	Car2Go (Daimler AG) offers a car sharing network with cars from Smart and Mercedes
DriveNow	2011	www.drive–now.com	DriveNow offers a car sharing network with cars from BMW and Mini.
Enterprise	1957	www.enterprise.com	Founded in the USA, Enterprise is the largest american car rental company. The business model for renting cars is similar to the idea of car sharing.
Europcar	1949	www.europcar.com	Europcar was founded in France and is a major European car rental company. The business model for renting cars is similar to the idea of car sharing.
Flinkster	2009	www.flinkster.de	Flinkster belongs to the German railway company Deutsche Bahn and offers car sharing and car rental services.
Fon	2005	www.fon.com	Fon operates a sharing economy approach for Wi–Fi networks.

Getaround	2009	www.getaround.com	Getaround provides a peer–2–peer car sharing network.
Greenwheels	1995	www.greenwheels.com	Greenwheels is the largest car sharing network in the Netherlands.
Hapimag	1963	www.hapimag.com	Members of Hapimag are shareholders, gain access to vacation properties with investing.
HILTI	1941	www.hilti.com	Hilti offers a rental model for premium tools.
Lending–Club	2006	www.lendingclub.com	LendingClub is a US–based peer–to–peer money lending network.
MyHammer	1999	www.my–hammer.de	Myhammer offers an online network that mediates (handicraft) services.
Turo	2009	www.turo.com	Turo (formerly RelayRides) provides a peer–2–peer car sharing network.
Sixt	1912	www.sixt.com	Sixt was founded in Germany and is a major European car rental company. The business model for renting cars is similar to the idea of car sharing.
TaskRabbit	2008	www.taskrabbit.com	TaskRabbit offers a network for all kinds of services on–demand.
UBER	2009	www.uber.com	Uber offers an application for a peer–to–peer network for taxi services.
Zaarly	2011	www.zaarly.com	Zaarly provides a network where users create own stores and offer goods or services to users.

Our findings show that, from a value configuration perspective, two predominant dimensions seem to apply to all cases: (1) The spectrum of customization to standardization of the value proposition and (2) the spectrum of centralized to particularized property rights, i.e., their distribution, over key resources. These two independent dimensions allow analyzing the value configuration and thus the strategic positions of firms in the sharing economy. Figure 2.2 illustrates the two-dimensional framework and the positioning of the case firms in it, as rated by the researchers.

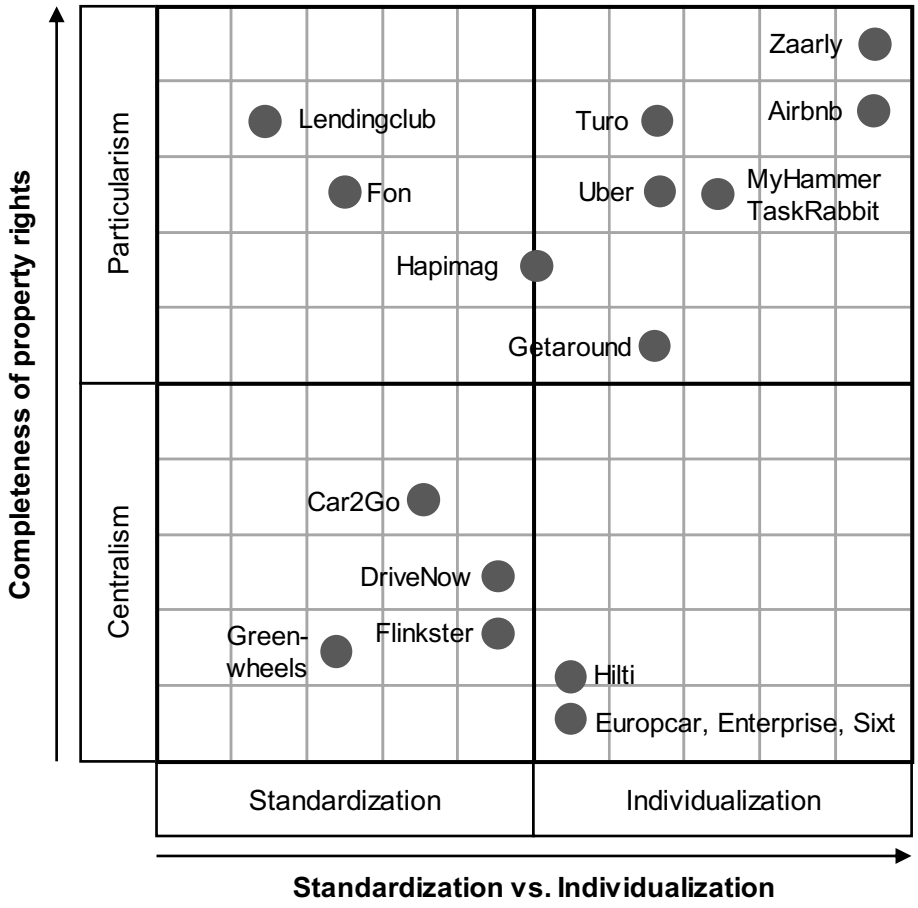

Figure 2.2 Value Configuration Positions of the Case Firms, Rated by Researchers.

2.4.3 *Study 2*

In the second step, we conducted a survey among 137 undergraduate students in management classes. In line with Gupta et al. (2019), we decided to survey undergraduate students because they are highly accustomed to digital business models and have a high propensity to participate in the sharing economy.

Our short questionnaire included questions on the respondent's age, course of study, gender and a list of the case study firms to be rated on the two value configuration dimensions. We

asked the students to indicate if they have already used services from the firms and to rate the experienced property rights (scale from 1 to 5, 1 = fully owned and controlled by provider, 5 = highly decentralised, provider only owns platform) and customization (scale from 1 to 5, 1 = highly standardized, "one fits all offering", 5 = highly customized, divers and unique offering).

We received 68 responses (49.6%) from students at the age between 18 and 30, 29.4% male and 70.6% female respondents. A majority of 88.2% of the respondents indicated that they have already used the services of at least one case firm. One student already used services from seven of the case study firms, the average is 2.43.

The results of our survey highlight the public visibility of the value configuration regarding customization and standardization and distribution property rights to customers. Figure 2.3 illustrates the answers of our 68 survey participants as mean values.

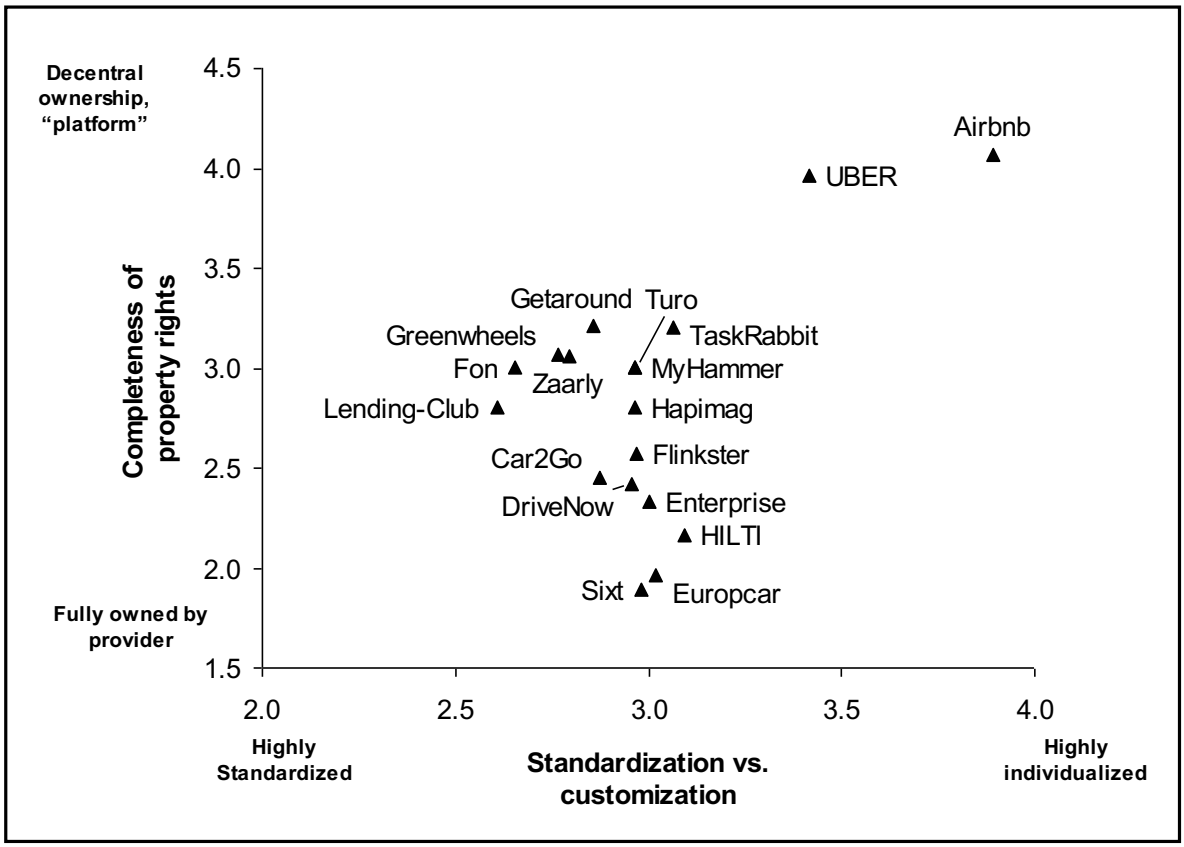

Figure 2.3 Value Configuration Positions of the Case Firms.

Highly successful sharing economy companies like Uber and Airbnb are perceived as platforms that organize the utilization of highly customized goods with decentral ownership. In contrast, strong and successful incumbents like Sixt, Europcar or Enterprise are known to offer goods or services that are fully owned by the firm. Consistently, sharing business models of incumbents (Flinkster, ShareNow) are located between the two extremes.

However, the platform providers Turo, Zaarly, MyHammer and Taskrabbit are not perceived as particularized and customized as we suggested in Figure2.2. A possible and likely explanation for the unexpected localisation of the case firms is that students do not use the offerings of these firms since they are not the right target group. For example, MyHammer and Taskrabbit offer mainly handyman services, Zaarly is not active in Germany and Turo has only very limited availability in Germany.

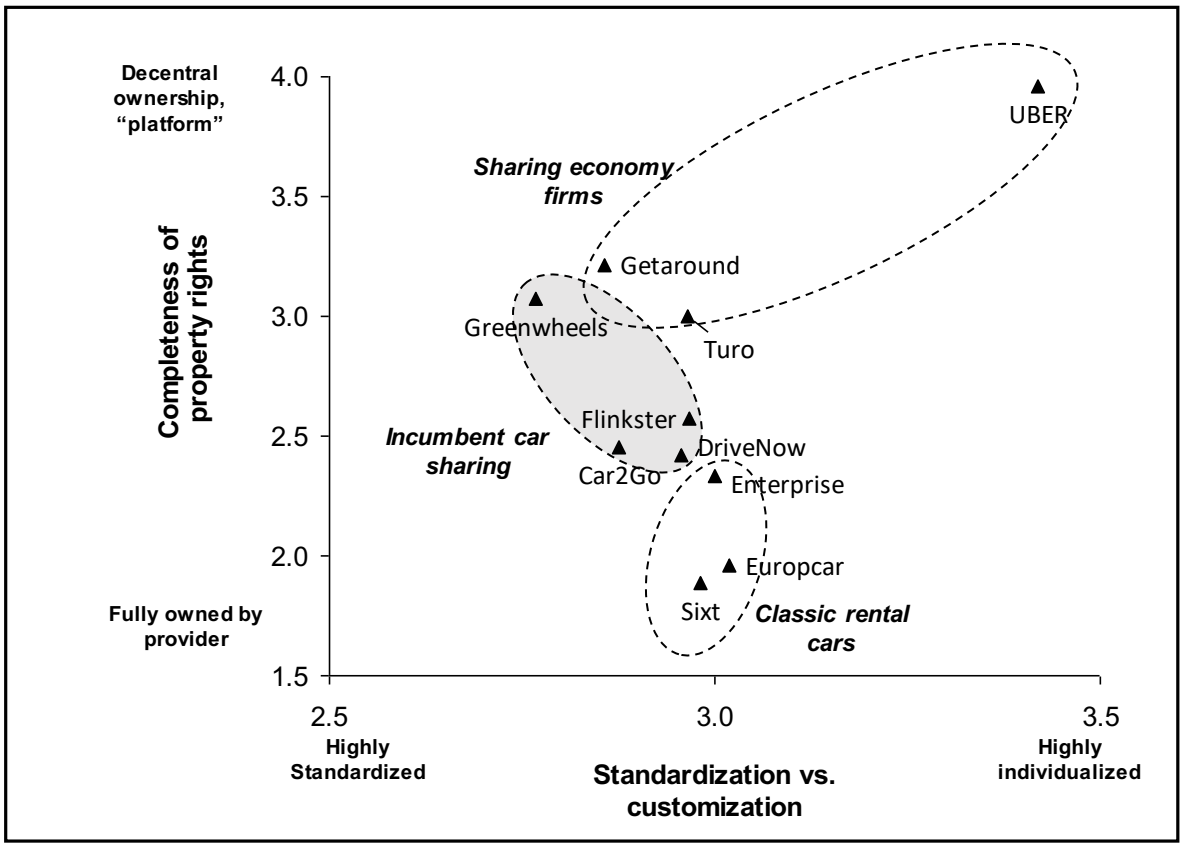

Figure 2.4 Value Configuration Positions of the Carsharing Case Firms.

Focusing on mobility suppliers provides further insights on current value configurations. The business models of the case study firms in Figure 2.4 center on mobility services. However, sharing economy value configurations offer new design themes for the related business models. Uber represents a role model for these novel design themes. Its business model completely concentrates on matching the demand and supply for mobility services. Sharing economy firms like Getaround or Turo follow this business model but also offer cars without chauffeurs. In contrast, classic rental car incumbents fully control the supply side and compete for the existing demand. Car sharing ventures of incumbents take a mixed approach as they have full ownership over the offering but they have a technology enabled offering like a sharing economy firm.

2.5 Findings

2.4.4 *Customization and standardization*

The content in the sharing economy is often less standardized than in traditional business models. For example, while hotel rooms of major hotel chains resemble one another, Airbnb offers a huge variety of private 'hotel rooms', following the ongoing trend for customization. However, our cases indicate that shared goods can be highly customized or standardized. Customization relates to a market, customer and quality orientation while standardization follows the logic of industrialisation or mass production (Sundbo, 2002), and therefore economies of scale. The general tendency towards standardization can be due to price pressure caused by intense competition (Sundbo, 2002). However, standardization can also be a deliberate strategy, namely Porter's (1987) generic competitive strategy of cost leadership while customization relates to a differentiation strategy. Customers who are interested in customization have hedonistic goals, strive for uniqueness and experience a higher perceived control, satisfaction but also a higher perceived risk while customer who are more oriented towards standardization have utilitarian goals and are more interested in saving time and money (Ding and Keh, 2016). Therefore, both strategies meet different customer needs and preferences. Sharing economy firms should identify and target their preferred market segment and target group (Lutz and Newlands, 2018).

From our case firms, former Car2Go initially offered only one standardized car that met the average users' expectations and a set of specific car sharing requirements. Using shared cars is characterized by user's low emotional involvement. Without the intention to acquire a car, users are not interested in customizing it.

In contrast, highly customized goods allow a special emotional experience (Luther et al., 2020). For example, Airbnb provides "boutique-style" accommodation, i.e. rooms, apartments or houses, with their floor plans and furnishings, are unique. The user can book the accommodation that best fits his or her needs and preferences. The interior or the social interaction with the provider of the accommodation or other users can create special and unique experiences. This customized experience is a key value proposition. To allow greater customization, a focal firm such as Airbnb has to provide mechanisms for customers to choose an adequate offering. Unstandardized solutions demand more trust building and access to ratings and feedback from users. Thus, sharing economy firms such as Airbnb that offer unstandardized goods require more detailed information provided tousers. The empirical study

of Gupta et al. (2019) shows that the propensity of sharing products (supply and demand) decreases with the level of intimacy. Therefore, the degree of customization should be investigated further to identify emotional barriers that might impede the attractiveness of shared products.

2.4.5 *Property rights*

Business models in the sharing economy offer governance mechanisms allocating responsibilities for activities (Zott and Amit, 2010). The focal firm, network partners, or consumers carry out activities to co-produce value. Our cases show that the governance structure exceeds mere task allocation as it also covers property rights. Property rights grant the bundle of rights (Coase, 1960) to exploit and alienate a resource (Alchian, 1965; Asher et al., 2005; Demsetz, 1967). They enable the owner to generate high rents (Foss and Foss, 2005) and therefore capture value, especially when protection mechanisms are used (Teixeira and Ferreira, 2019).

At first sight, it might be striking that property rights form an important dimension of business model value configurations, as sharing means waiving ownership and only striving for access to goods. However, this is only true from the customers' perspective. Shared goods are not ownerless (res nullius), public (i.e., everybody's) property, and usually not even common (i.e., jointly owned) property (Bromley, 1991). Rather, only the right to *use* the good is shared, whereas other partial property rights, i.e., the right to earn income from the good, the right to ownership cessation, and the right to enforce property rights (Coase, 1960), belong to specific actors in the sharing network. These property rights which exceed mere usage are not shared.

The distribution of property rights refers to the platform and the shared goods. This influences who in a network consisting of the focal firm, key partners, and customers is able to make property-related decisions (Mumdziev and Windsperger, 2011) and to capture and guard created value. Using, designing, organizing, and controlling the sharing processes requires the consideration of the distribution of property rights among key partners. Property rights can be concentrated on focal firms or spread on diverse individual owners. Even without full ownership, focal firms can have control over design and shape of goods based on contractual property rights. The centralization of property rights has major implications for design, functionality, organization and maintenance of shared goods, affecting long-time use and interests. Cesinger et al. (2016) demonstrate the importance of ownership and non-financial values in family firms. Particularized property rights—not to be confused with partitioned

property rights (Alchian, 1965; Ostrom, 1990)—increase the probability of private owners sharing goods. Besides economic returns, though, they will also care for socio-emotional issues, conflicts and misuse. The experience and satisfaction with sharing is influencing their willingness to continue sharing their property and interacting with users (Moehlmann, 2015).

Car rentals like Europcar, Sixt, or Enterprise completely own the property rights of their standardized products and allow customers to use vehicles for a fee. Customization is only possible in terms of providing additional services or cars with predefined features. Based on the principle of crowdfunding (Kraus et al., 2016), LendingClub organizes a peer-to-peer network that allows members granting and obtaining loans. This illustrates an integrated value network where individuals (high particularism) own and give temporal property rights for a highly standardized content (money). Similarly, Fon organizes a community of individuals that share the standardized content 'access to WI-FI'. Individuals retain property rights over their WI-FI access (high particularism). Airbnb exemplifies a sharing network where individuals contribute customized content to a network without transferring property rights. Airbnb provides the constituting technology that allows network members to initiate contacts and perform business transactions. Thus, Airbnb achieves a position where highly customized content of a large variety of users is integrated into a network that creates value. Zaarly and TaskRabbit also strive to achieve such a position. They provide networks where individuals can offer or demand any kind of service or product to or from other members. Zaarly and TaskRabbit do not gain property rights over the services, they provide the technology to organize networks that allow individuals to act entrepreneurially (Schmengler and Kraus, 2010). BMW's and Daimler's car sharing provider ShareNow offers their own products. Providers retain property rights at the cost of customization. Car sharing platform providers like Turo or Greenwheels waive property rights for achieving higher levels of customization. Belonging to the German railway company Deutsche Bahn, Flinkster offers a variety of cars and vehicles from all major producers and holds the property rights over them. Thus, Flinkster offers a mobility concept that comprises train rides and different cars that meet individual demands. A special case between car sharing platform providers and company bound car sharing is Getaround which offers a network for carsharing like Turo or Greenwheels. However, network members who want to bring in their vehicles have to install a special corporate software and pay monthly fees. Thereby, Getaround achieves at least a partial property right over the cars of its users. This software is part of the constituting technology that enables transactions

in the activity system of Getaround. Table 2.2 lists the customization and completeness of property rights in all the cases.

Therefore, at one extreme, a focal firm has complete property rights over goods, allowing for maximal rigor of influence. In this case, the firm only considers its own interests in the design and coordination of goods. At the other extreme, a focal firm is only a facilitator for sharing. In this case, further factors like specific business logics and socio-emotional interests of private individuals affect sharing dynamics. Particularized ownership demands complex mechanisms for coordination and control of interaction systems and governance solutions to deal with multiple motives of diverse owners.

Table 2.2 Customization Vs. Completeness of Property Rights.

Case firm	*Customization vs. standardization*	*Completeness of property rights*
Airbnb	The content is user created without influence of Airbnb. Thus, there are no limits to the customization of the content.	Airbnb provides the execution of the transactions; property rights are decentralized
Car2Go	The car sharing fleet consists of standardized vehicles. Since 2016, users can choose between four different models though. Availability varies between locations.	Property rights are centralized. However, organization varies between different locations, allowing for particularization.
DriveNow	The car sharing fleet consists of standardized vehicles. Users can choose between 10 models from BMW and Mini Availability varies between locations.	Property rights are centralized. Organization varies slightly between different locations, allowing for particularization.
Enterprise	The offered fleet consists of standardized vehicles. Customization possible through the diversity of vehicles.	Centralized organization, cars are not shared with users but rented to customers
Europcar	The offered fleet consists of standardized vehicles. Customization possible through the diversity of vehicles.	Centralized organization, cars are not shared with users but rented to customers
Flinkster	The offered fleet consists of standardized vehicles, partially with Flinkster branding. Customization possible through the diversity of vehicles and the choice between car sharing and renting.	Centralized organization, cars are not shared between users in some regions, only rented to customers in other regions.
Fon	Wi–Fi networks use standardized protocols for access and data transmission. Differences in the offering can be based on range and speed of the Wi–Fi networks.	Fon provides access to shared Wi–Fi networks. The owners of the Wi–Fi networks remain responsible for the operation.

Getaround	The car sharing fleet consists of users' private cars. Customization is possible through the diversity of offered vehicles and customizations by their owners.	Similar to Airbnb, the vehicles are privately owned and Getaround offers the web–based service to match users and providers of the vehicles. Getaround installs a special software though to allow users to locate and unlock cars.
Greenwheels	The car sharing fleet consists of three standardized vehicles.	Property rights are centralized, Greenwheels organizes the sharing processes, the network and owns the cars
Hapimag	Hapimags user community consists of shareholders with the right to influence the acquisition of new vacation properties. Customization is possible.	The property rights remain within the user community, decisions are reached on the board level though.
HILTI	Hilti offers a range of standardized premium tools for rent. Customization is possible through the high variety of tools.	Property rights are centralized, as Hilti remains the single owner of tools.
Lending–Club	LendingClub collects money from investing users and borrows it to other users. Customization refers to the adjustment of interest rates and credit periods.	LendingClub acts as an intermediary that allows users to invest in loans. Thus, property rights are particularized.
MyHammer	Myhammer creates a marketplace for services. Users offer or demand specific services. Thus, the content can be totally customized.	Myhammer acts as an intermediary platform that allows users to match offer and demand.
Turo	The car sharing fleet consists of standardized vehicles. Users offer their cars according their own time and range preferences, other users rent these private cars.	Propertry rights remain with the owner of a car. Turo only organizes the sharing processes.
Sixt	The offered fleet consists of standardized vehicles. Customization possible through the diversity of vehicles.	Centralized organization, cars are not shared with users but rented to customers.
TaskRabbit	TaskRabbit creates a marketplace for services. Users offer or demand specific customized services. The first one responding to a request receives the contract.	TaskRabbt matches the demand and offer of services on their platform.
Uber	Uber offers ride sharing. In contrast to car sharing, offering users drive their guests to their goal.	Property rights are peculiar. Uber only centralizes transaction processes.
Zaarly	Customization is possible on two ways. Users provide individual content and customize their sites in the network.	Property rights are peculiar. Zaarly only centralizes transaction processes.

2.6 Discussion

The value configuration of a focal firm in the sharing economy, i.e., the characteristics of value creation and value capture, can be defined along the dimensions of customization and individualization on the one side and centralization or particularization of property rights over shared goods on the other side. Our first study revealed these independent dimensions as crucial differences in business models that are decisive for the value configurations in the sharing economy. The second study confirmed their significance from a customer perspective. A strategic analysis of these two value configuration dimensions of sharing-based business models can reveal spaces that are not occupied in the market yet. Therefore, the two-dimensional search grid allows for the exploration of innovative and profitable strategic alternatives for untapped business opportunities (Tiberius, 2019). Focal firms can create novel business models and platforms within these dimensions.

The first dimension—customization or standardization—relates to the value creation in the sharing-based business model as it addresses customers' value expectations ranging from economic, functional, socio-emotional to epistemic values (Sheth et al., 1991). This dimension thus relates to an external perspective of the value configuration. Customization means a better fit with the customers' needs and preferences. Unlike the "one fits all" approach of standardization, for customization many different forms of the shared good exist and the customer can choose the preferred one and, therefore, the selected good generates a higher value for the customer compared to a standardized one. However, also standardized products can generate value by being less costly due to economies of scale. The trade-off between customized and standardized shared goods relate to Porter's (1987) generic competitive strategies of differentiation and cost leadership. For both target groups—customers who want unique goods or customers who want to save money—market segments exist. The internet decreases information asymmetries through comparison possibilities. Thus, quality becomes a decisive feature for the customer demand and for achieving a competitive advantage. However, the concept of quality expands in the context of the sharing economy. While traditional criteria such as performance, data security and processing speed maintain their importance, the uptime and uniqueness of goods are important for shared goods. As most focal firms offering shared goods operate on two-sided markets (Muzellec et al., 2015), not only the lender but also the supplier, both being the focal firm's customers, has to be included in the value creation considerations. For lenders, customization is the normal situation since he or she owns a unique

good for sharing. Only for large lenders who share several goods, standardization can be a cost-saving issue.

The second dimension—centralized or particularized property rights—represents an important internal perspective, as it strongly relates to the necessary governance mechanisms to manage the processes, transactions, and the determination of both value creation and value capture in the business model of a focal firm. The right to command resources defines how value is generated through their use (Claessens and Laeven, 2003; Jandhyala, 2013; Keay and Metcalf, 2011). A focal firm having full property rights over the platform and the shared goods is able to define the value proposition and design of the platform, thereby shaping the characteristics and extent of value creation. A focal firm with centralized property rights can also capture a large proportion of the created value due to their larger sphere of influence compared with a focal firm which owns only the platform but not the shared goods. Our case studies indicate that centralized property rights that are with the focal firm have a dominant coordination function in the business model. Yet, centralized property rights must enable self-regulated coordination among users. Thus, decentralized and self-regulated coordination among users stands on the shoulders of formal governance and can build additional value. The properties of the two found dimensions are summarized in Table 2.3.

Table 2.3 Two Dimensions of Value Configurations in Sharing-Based Business Models.

	Dimension 1	**Dimension 2**
Content	customization ⇔ standardization	centralization ⇔ particularization
Value configuration	value creation	value creation and capture
Perspective	external (customer)	internal (sharing network)
Theoretic foundation	generic competitive strategies of differentiation and cost leadership	Property rights theory / governance structures

2.7 Conclusion

Our paper uses theoretic considerations and case examples to analyze value configurations in the sharing-based business models, i.e., the design of the value creation and value capture system. Our results show that focal firms in the sharing economy create sharing networks with

varying degrees of (1) customization and standardization (external perspective) on the one hand and (2) the distribution of property rights, i.e. centralization or particularization, on the other hand.

Our research contributes to the business model and business model innovation literatures as it adds two dimensions which are decisive for the value configuration especially in the sharing economy. In this respect, our study also contributes to sharing economy research. Sharing-based business models can be generated by positioning on these two dimensions.

The insights from our study also have practical implications. Firms can use the two-dimensional search grid to systematically explore opportunities for sharing-based business models. Firms not engaged in the sharing economy yet can identify market positions that might complement their regular business. Firms acting in competitive market positions in the sharing economy can examine whether shifts on these two dimensions might lead to uncontested market segments.

Despite these contributions, our research comes with limitations. The results are limited by our sample data and the case study research approach. We also do not show relations to (perceived) value distributions within the sharing network or focal firms' performance. Instead, we introduce a new classification of antecedents of value configuration mechanisms and, therefore, provide a first concept for the strategic analysis of sharing-based business models. We encourage future studies to elaborate on the basic theories of the sharing economy and to use larger samples or archival data for further development and testing. Future research should also dig into success factors of business models in sharing networks and into the externalities that contribute to achieving a sustained competitive position. Additionally, a striking research focus should be on the question whether major crises such as the current COVID-19 pandemic (Kraus et al., 2020) will change the sharing economy and its business models.

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Chapter 3: Coworking-Space Business Models: Micro-Ecosystems and Platforms — Insights from China

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3.1 Abstract

The sharing economy gives rise to numerous new business models. A prominent novel one relates to coworking-spaces, where independent individuals and teams share spaces and amenities and engage in social interaction and information exchange. Yet the business models of such spaces are not well known. Our qualitative study identifies four types of business models design of coworking-spaces in China, where coworking-spaces have sharply increased in number and importance. Configurations are efficiency-centered business model, user-centered business model, development-centered business model, and platform-centered business model, which exceed the prior conceptualization of business model themes. Especially the platform-centered business model relates to innovation policy in China, facilitating mini-spatial innovation ecosystems.

3.2 Introduction

The boom in startups and entrepreneurs in recent years has prompted the popularity of a new form of workplaces, coworking-spaces (Bouncken et al., 2018a). Coworking-spaces offer social and workspace to independent individuals, teams, or innovation teams of companies for working individually or collaboratively in a shared environment. In the last decade, the global number of coworking-spaces users rose from a few thousand to about 1.7 million (Foertsch, 2018). Researchers started to harness coworking-spaces as a context to study creativity and entrepreneurship (Bouncken, 2018) a sense of community and organizational structure Bouncken, 2018; Mitev et al., 2019; Blagoev et al., 2019; Bouncken et al., 2019), and regional innovation (Goswami et al., 2018; Jakonen et al., 2017).

Despite the massive attention that coworking-spaces have received, there is little understanding of value creation and capture mechanisms, thus of business models of coworking-spaces (Bouncken et al., 2018b; Bouncken & Reuschl, 2018). The question is, how do coworking-

spaces create value for their users, and how do they capture the value? At first sight, value creation and capture might be focused on renting out of space. Yet, the additional services and especially the social atmosphere suggests that the value creation and value capture is more complex and allows more differentiation of coworking-business models.

This study aims to examine business models of independent coworking-spaces. We assume that business models of coworking-spaces exist in specific configurations. Thus, we aim to analyze value creation and value capture forms and how they might be 'packaged' in different configurations.

We conducted a multiple case study at six purposively selected Chinese coworking-spaces. The metropolises and collective culture in China fertilize the fast growth and diversity of the coworking industry, providing rich data for analyzing the research question. We collected data from multiples sources, including observation, interviews, internal documentation, and marketing materials, and conducted both with-case and cross-case analysis without any prior hypotheses to develop explorative and valid data.

From the analyses, we identified four components of value creation in coworking-spaces: Working & socializing materials, co-living beyond coworking, growth-supporting: campus for startups, resource integration and expansion. The findings also show that through focusing on specific value creation components and taking others as peripheral, coworking-spaces can adopt four types of business model design themes whose business model design elements (i.e., content, structure, governance) also differs.

Our study contributes to a better understanding of the configurations of coworking-spaces in general and in particular those in an Asian context. By taking a business model design perspective, this study also adds to the existing inventory of business model design themes and reveals their difference in design elements along a continuum.

3.3 Theoretical Background

3.3.1 *Business model*

Business models, in general are structural templates of how firms run and develop their business on a holistic system level (Zott et al., 2011). Business models comprise interrelated components of a system that constitutes the firm's architectural backbone (Morrisa et al., 2005). These components together exhibit how an organization creates value for the market and captures value from the market in return (Foss & Saebi, 2017; Shafer et al., 2005). Accordingly, Morrisa

et al. (2005) proposed a six-component framework to represent the underlying logic of venture teams, which focus on value creation and value capture as two key aspects.

Value creation indicates how a company adds perceived value to consumers and how they do business in a way that differentiates them from competitors. Value capture refers to how a company benefits and obtains the maximum possible net present value from the value created by itself and the economy at large (Pitelis & Teece, 2010; Casadesus-Masanell & Ricart, 2010). Neither value creation nor value capture can occur without the support of the other; value capture secures the capital that is needed to fund the creation of value, and the value created to customers provides a basis to capture value from customers or value network.

Recent studies described a business model as an activity system with three design elements: content, structure, and governance of the activities that take place within the organization (Zott & Amit, 2010). The activity system content describes the content of the main and supporting activities that are carried out to create value. The activity system structure describes how particular activities are linked and sequenced. The activity system governance describes the responsibilities, roles, and control mechanisms that define who will carry out certain activities.

Depending on the particular gestalt of the business model design elements, business model design themes can be efficiency-centered or novelty-centered (Zott & Amit, 2007, 2008). In other words, the different configuration of design elements and the way they orchestrate or connect could lead to different activity systems of business models. Efficiency-centered business models aim for greater efficiency through reducing transaction costs (i.e., mainly established content, rigid structures, and tight governance). In comparison, novelty-centered business models aim for exploring new business opportunities and reconfiguration of the business model (i.e., exploring and adopting new content, flexible and open structures loose governance) (Zott et al., 2011; Clauss et al., 2019). In this study, the value creation and capture perspective contribute to unpacking the configuration and mechanism of coworking-spaces, and the activity system perspective helps to frame diverse business models of coworking-spaces. Reciprocally, studying business model concepts of coworking-spaces consolidates the usefulness of this “theoretically underdeveloped concept” for empirical research and provides theoretical building blocks about the mechanism through which it works (Zott et al., 2011).

3.3.2 *Coworking-spaces and their business models*

Coworking-spaces are workplaces physically shared by a group of heterogeneous individuals to work or engage in social interaction (Bouncken et al., 2018a). This new trend emerges with

a rising number of independent workers, who are not affiliated with any company, and easily feel isolated from peers. Coworking-spaces offer their users – who are mostly self-employed, freelancers, entrepreneurs, or micro-enterprises – a combination of work settings that fulfill but beyond the function of conventional workplaces (Butcher, 2013; Capdevila, 2018). In addition to formal interior features, such as desks, facilities, and meeting rooms, coworking-spaces typically share the attributes of shared informal spaces with fancy modern appearances and offer additional amenities, e.g., kitchen, open-plan office, and lounge. This environment forms a mold for coworkers to encounter like-minded people, initiate ad hoc communication, and facilitate knowledge exchange (Gerdenitsch et al., 2016; Bouncken & Barwinski, 2020; Bouncken & Aslam, 2019).

Besides the benefits from basic amenities and geographical proximity, the assemblage of creative workers in coworking-space also involves immaterial value facilitating the development of users' business (Cuérel et al., 2019). Working in the same workspace, knowledge workers with diverse expertise can access extensive social capital personally (Capdevila, 2018; Stryker et al., 2012). This process transforms the physical features of shared workspaces into intangible information resources and thus leads to a sense of community (Hautala & Jauhiainen, 2014; Toker & Gray, 2008). The feature of shared infrastructures and a sense of community shaped the widely accepted value created by coworking-spaces.

While researchers have studied coworking-spaces from multiple perspectives, such as creativity (De Peuter et al., 2017; Bouncken et al., 2020a), innovation (Capdevila, 2014; Bouncken et al., 2020b), entrepreneurship (Bouncken et al., 2018a; Fuzi, 2015), and workspace design (Khazanchi et al., 2018), the extant literature has portrayed coworking-spaces differently. The general picture of coworking-spaces ranges from a workstation (full-time or part-time) (Fost, 2008) to a community assembling independent workers (Garrett et al., 2017) or a locus of resource exchange among entrepreneurial actors (Blagoev et al., 2019). The dissent in the description of coworking-spaces partly comes from relatively little knowledge about the design and construct of coworking-spaces, which obscures its configurations and diversity (Uda, 2013; Bouncken et al., 2018b; Görmar et al., 2020).

The business model perspective provides a comprehensive analytical framework to understand the configurations of coworking-spaces. Coworking-spaces are varied in many aspects; they take different forms, offer diverse physical environments, and target versatile groups (Fuzi, 2015; Ivaldi et al., 2018; Weijs-Perrée et al., 2019). For example, coworking-users can be self-employed, freelancers, microbusinesses, and also incumbent firms (Spinuzzi, 2012; Surman,

2013; Capdevila, 2014). Coworking-spaces additionally can provide a variety of services, including vocational training, coaching, and access to business angels and investors (Bouncken & Reuschl, 2018; Merkel, 2019). In this process, coworking-spaces can supply users with a wide range of value and thus yield profit from various channels. The differences in general business models can be framed with the activity system. In reverse, the coworking context also shapes an interesting and unique environment to complement theoretical blocks and to examine practical functions of business model theory.

3.4 Methodology

We adopt an inductive case study methodology for this research on a novel phenomenon of coworking-spaces that is an underexplored field in management study. Six Chinese coworking-spaces were purposively selected following the principles of appropriateness and adequacy (Gaskell, 2000; Seawright & Gerring, 2008). Data from various sources, including interviews, observation and internal documentation, was collected to develop valid findings. We enhance the transparency and replicability of the study by following the 12 criteria recommended by Aguinis and Solarino (2019).

3.4.1 *Research setting*

Coworking-spaces generally and potentially improve creativity and entrepreneurship in all cultural contexts but especially meet the needs of startups in Asian. Asian countries particularly require intense personal social interaction and context-rich direct communication for their social well-being and their business development (Yeung, 1999). Accordingly, coworking-spaces reduce the isolation of Asian digital and creative workers who often work in home-offices through interactive space design and the sense of community (Merkel, 2015; Aslam & Bouncken, 2019). Coworking-spaces specifically nurture the desire of digital or creative coworkers from collective cultures who otherwise suffer from a lack of social exchange and interconnectedness with people, which might damage their creative potential for business model development and innovation (Gerdenitsch et al., 2016; Moriset, 2014). Coworking-spaces allow users to work beside or with others, exchange ideas and contacts, and thus improve freelancer's or entrepreneur's business model through inspiration and feedback (Kwiatkowski & Buczynski, 2011), specifically in Asian cultures where individuals need rich, direct and high-context communication about both work-topics and non-work topics (Kayan et al., 2006). Besides, office in Asian mega-cities are always overly expensive, so the provision of shared spaces typically in good locations address the need of city workers (Green, 2014).

Being the largest economy in Asia and transiting from "the world's factory" to "a global innovation center", China's economy stimulates the growth of entrepreneurial ventures (Zhang & Zhang, 2017; Choi et al., 2011). This practice fosters innovative business models that bring national impacts (e.g., bike-sharing, group-buying platforms, mobile payment) (Zhang et al., 2015), including coworking-spaces. Along with an enormous growth in the past few years, Chinese coworking-spaces industry receives wide acceptance and is now entering a phase of consolidation (Xiang & McMahon, 2018). Combining this efflorescence with the cultural dependence and institutional features in China, we believe coworking-spaces in China provide a unique setting to study diverse configurations of coworking-spaces in Asia.

3.4.2 *Data collection*

To gain a comprehensive and objective understanding of coworking-spaces, we sought to involve a broad set of diverse coworking-spaces and stakeholders. Thus, we conducted a preliminary field study in March 2018, aiming to gain an overview of the coworking industry and purposively select cases for the study. During the one-month field visit, we collected notes of each coworking-space we visited and interviewed four industrial representatives and policy representatives. The preliminary data helps to yield a list of six coworking-spaces and to develop two semi-structured interview guidelines for providers and users. The sample is suggested and echoed by the four representatives to reach the maximum diversity in user groups, service portfolio, region, and size. Table 3.1 briefly describes the features of each coworking-space and the corresponding interviews conducted therein.

Data collection from the selected cases started in April 2018. We contacted each coworking-space with a request to work in the space, access related documentations, and speak with managers and users. We interviewed no less than one manager and two users in each space until we reach a point of saturation when additional insights stopped to emerge from further data. We asked all informants about their professional background, the relationship with their work in coworking-space, and how they came to the spaces. Specifically, we asked eleven managers the service provision, marketing strategies, features, and business activities of the space, and we asked 17 users the daily activities and interaction in the space, advantages, and disadvantages of working in the space, and contribution to their business. During the visit to each coworking-space, we also worked there for no less than ten working days as a non-participant observer, noting down the design, interaction, and activities and also collecting data

from the intranet of the spaces and other sources. Table 3.2 briefly describes the data and their use in the analysis.

3.4.3 *Data analysis*

Following suggestions from case study literature, we conducted both with-case and cross-case analysis without any prior hypotheses (Eisenhardt & Martin, 2000; Eisenhardt & Graebner, 2007). As the first step, we collected all 748-page data in MAXQDA by case, including field notes, transcripts, and data from other sources. In the next step, we synthesized and organized data from all resources by creating write-ups for each case, from which we got important features of coworking-spaces business models within each case. We did not start further analysis until we have finished the analysis of all the single cases. Additionally, another author, who was out of the field visit team, took the role of "devil's advocate" throughout the whole analysis processes by raising and arguing possibly different ideas, to provide a more objective eye to the evidence (Eisenhardt, 1989).

Table 3.1 Descriptive and Features of Cases.

CWS ID	Size (m2)	User group	Interior style	Service Provision	Informants
A	2100	Entrepreneurs and early-stage venture teams	Young and lively	Working and social spaces, fitness equipment, unmanned snacks stand, breakout area; Office administration, workshops, and entrepreneur academy.	A-M-1; A-M-2; A-U-1; A-U-2; A-U-3.
B	13200	Small-medium-size teams and enterprises	Modern and open with spatial halls	Working and social spaces, reaction facilities, cloud printer, and intelligent office hardware; Office administration.	B-M-1; B-U-1; B-U-2.
C	3100	Venture teams and innovation sectors of companies	Modern style, wooden furniture, intelligent facilities	Working and social spaces, cozy furniture, printer, bar, intelligent projection, pantries; Office administration, workshops for entrepreneurs, community activities, and events.	C-M-1; C-M-2; C-U-1; C-U-2; C-U-3.
D	9700	International and nomad workers	Lively and homey, with a yard between two buildings	Working and social spaces, living area, yard, unmanned supermarket, reaction facilities; Office administration, activities for daily reaction, community activities.	D-M-1; D-U-1; D-U-2.
E	5600	Mostly 10-20-member teams, also small teams	Business style with green plants, high-tech facilities	Working and social spaces, intelligent access control, intelligent whiteboard, remote conference equipment; Office administration.	E-M-1; E-M-2; E-U-1; E-U-2.
F	6300	Entrepreneurial teams, especially those on high tech	Pop art with spatial shared space and open seats	Working and social spaces, sterile 3D printing room, snacks stand, breakout areas, roadshow halls; Office administration, workshops for entrepreneurs, resource sharing and integration, industrial events.	F-M-1; F-M-2; F-U-1; F-U-2; F-U-3.

We then conducted a cross-case analysis, which enables us to compare identified patterns across cases and to capture theoretical relationships. Initially, we compared pairs of case coworking-spaces for differences and similarities for emerging constructs. Charts and tables facilitate the systematic comparison and match among different cases. Using replication logic, we developed an initial theory two months after the field visit, during which the author out of field visit plays a critical role in refining the analysis and providing "out-of-box" opinions. We also reread the original data to align our ideas with the data and ensure the validity of our study.

Table 3.2 Data Sources.

Source	Type of data	Use in analysis
Semi-structured interviews	Four interviews with industrial and policy representatives, March 2018. 11 interviews with providers, April-July 2018; 17 interviews with users, April-July 2018;	Unveiling the business mechanism and process of diverse coworking-spaces. Interviews with representatives generate an overview of the whole industry; interviews with managers and users provide details daily activities and operation therein.
Observation	Working in the six coworking-spaces: March-July 2018 (no less than 50 hours in each); Participating in workshops and events: March-July 2-18 (about 250 hours).	Establishing trust with informants, facilitating the interpretation of informants, accessing more original materials and data, experiencing the daily activities to better assess the veracity of their claims.
Intranet (inner-orga sources)	Intranet documentation, policy, and implementation (no copies were permitted to be made); Intranet social group access on chats, announcements, and activities.	Getting deep into the management team and community of coworking-spaces, and reveal the logic and aim behind the running and activities of coworking-spaces.
Marketing materials	Websites and included contents, description in partners' webpage; Flyers, brochures, publications (about 134 copies).	Integration of information about the marketing image and culture of each coworking-space and the value they proposed to potential customers.

3.5 Findings

The current study aimed to examine the configuration of coworking-space business models. To elaborate on our findings, we first present four components of value creation in coworking-spaces in the following. We then analyze how coworking-spaces capture value based on the configuration of value creation components. These findings further provide a basis to explain four types of business models centering on different components of value creation.

3.5.1 *Four components of value creation in coworking-spaces*

Our observation and data highlight four components that enable coworking-spaces to provide specific values and configure their business models: Working & socializing materials, co-living beyond coworking, growth supporting: campus for startups, resource integration and expansion.

Component I: Working & socializing materials

The primary value creation component of coworking-spaces is the offering of office space, social space, and other supporting amenities. In this way, coworking-spaces create fundamental and specific value from the integration of multi-functional spaces and interaction with peers.

On the most basic level, coworking-spaces provide users with formal business infrastructures (shared or private) and informal social spaces. Sharing a range of office facilities reduces individual's costs because coworkers pay for accessibility rather than ownership. One provider described how they fulfill the needs of their users in the following words: *"They* [referring startup and entrepreneurial teams] *don't really have much money and resource, but they need most infrastructures like big companies. Here we offer access to the major facilities they need but at a lower price than traditional offices."* [B-M-1]. Besides, open-planned and creative space design is another attraction for creative workers. A user stated: *"...when I worked at home, I didn't feel in the mood of working… But here you are aware that you are working and you get motivated by watching the other busy workers."* [B-U-2].

In addition, working with shared infrastructures gains the chances of interaction between users through encounters and unprogrammed communication. In other words, the open-planned spatial design and shared amenities remove barriers and then intensify members' social interaction. An entrepreneur described how he benefits from working in the large shared working space: *"In fact, we* (entrepreneurs) *easily feel lonely. Here* (the coworking-space) *gives us more chances to exchange knowledge, help each other, talk about the status of the industry,*

or just get relaxed from small talks" [E-U-1]. Moreover, our study also indicates that in the process, coworking-space managers can play an intermediary role in connecting members. The chief operating officer of H Space described their events for uniting users: *"We are not in a big size, and most of them* [refers to users] *are young entrepreneurs, so we initiated interesting outdoor events like hiking, running or sometimes festival events."* [B-M-1].

Component II: Co-living beyond coworking

In the second component, coworking-spaces offer additional facilities that shape a daily life center and compatible with the basic value creation element. The new concept of co-living creates value for mobile workers by creating a community life center and facilitating a flexible and communal lifestyle.

Physically, coalescence with co-living extends the function of coworking-space from a workspace to a daily life circle. This combination further brings coworkers much more value than "room sharing". An entrepreneur in D space highlighted work-life balance as the reason of staying: "*I find a balance between my life and work here. I was a typical commuter who took a couple of boring hours on the way everyday…here it is much easier to switch between life and work*" [D-U-1]. In addition to housing, co-living spaces come complete with various life-supporting and recreational facilities. A manager of D space elaborated at length how their comprehensive offering portfolio shapes a vibrant life center for all members: *"…And there are a lot of inspiring or relaxing events, such as yoga training, photograph workshop, tea-ceremony classes … While they can also retreat to their own fully furnished private room at any time."* [D-M-1]. The manager further explains that they aim to *"provide them with as much convenience as possible."*.

The integration of living and working infrastructures in one area also enables coworkers to generate a more flexible lifestyle. Co-living spaces assemble fundamental facilities for essential life scenarios in a relatively smaller living sphere, and thus liberates coworkers from the hustle and bustle of urban life. As the web page of J Space presented: *"We've been working hard on creating a community that consists of coworking, co-living spaces and shared facilities to encourage a more convenient and international lifestyle*." [D-M-1]. Living in the same circle, most of the users in co-living spaces share a common sense in seeking flexibility and social links and thus develop a sense of community. The interactive environment, diversified activities in co-living areas nurtures an atmosphere where they can connect and communicate with each other.

Component III: Growth supporting: campus for startups

The third component of coworking-spaces value creation concerns versatile growth-supporting service. These service provisions can create value through two main channels: coaching and mentoring, and administrative assistance.

Coworking-spaces offer their (potential) users the possibility to get knowledge through coaching and mentoring. Because small teams and creative workers commonly face similar problems, their collocation in coworking-spaces increases the effectiveness and pertinence of venture-related seminars. A space hosts a series of workshops and seminar for their users, and also maximize the possibility of knowledge exchange among them, as a founder residing there elaborated: *"Usually when we have some problems or needs, we present it out to the managers and they will help to look for someone with resources or experience."* [A-U-3]. The mentoring possibility from other coworkers is highlighted by many informants. Professionals in coworking-spaces with diverse backgrounds and provide opportunities for convenient and trust-based knowledge exchange. The case of a startup team showed how collocation enables the learning from other groups: *"We get to know the business of a Japanese E-commerce team from a daily talk …We will find if there is any chance to collaborate."* [C-U-2].

Coworking-spaces can assist users in office management as another part of service provision. Given that small or nascent teams face inherent limitations in allocable human resources, managers or operators of coworking-spaces always act as the shared administrative staff. As one operator described: *"We do some office work for them, like front desk service, the announcement of holidays, staff birthday celebration, even applications of governmental projects."* [A-M-1]. Some coworking-spaces even provide business-related assistance by fully playing their advantages. For example, because of the close relationship with governmental departments, F space set up a policy academy that helps entrepreneurs in searching appropriate financial support and favorable policies. In doing so, the manager of F space pointed out that they *"endeavor to create a better working environment, so that users can be at their best while moving toward their goals."* [F-M-1].

Component IV: Resource integration and expansion

The fourth component of coworking-spaces value creation refers to a platform that links multisided markets. The induced value in resource integration and expansion of coworking-spaces can benefit users from offering links with external actors and connecting them with the local entrepreneurial ecosystem.

Coworking-spaces can aid entrepreneurs in building up relationships with multisided stakeholders, not just limited in the space but also with external actors. As a legitimated "hub of creative workers", coworking-spaces attract players in innovation- and entrepreneurship-related industry to assemble and look for the specific resources they need, such as investors looking for promising startups, big firms searching new skills or technologies. These features opportunize members of coworking-spaces in linking their ideas and projects with specific resources. As a coordinator stated: "*We collaborate with some big firms, especially for their research and development department, through screening proper and potential teams and projects for them.*" [E-M-1]. To a larger extent, coworking-spaces can also create value for external stakeholders from social events and potential collaboration.

By linking entrepreneurial actors with various directly or indirectly related entrepreneurship resources, coworking-spaces can facilitate the development of the local entrepreneurial ecosystem. A manager exemplifies this function as follows: *"there are even some others* (referring to non-users) *came with their projects or ideas, in order to look for experts or investors…Also, some agents or firms proactively reach out to us for collaboration or help."* [F-M-1]. Moreover, the social attributes of coworking-spaces foster the vitality of the local entrepreneurial ecosystem while hosting entrepreneurship-related activities, supporting entrepreneurial development, and diffusing entrepreneurial spirit. E space hosted the annual regional Entrepreneurship Competition and also co-hosted a series of roadmap show with famous venture capitals.

3.5.2 *Value capture strategies based on configuration of value creation*

Together, the diversification in value creation shows distinct design parameters. Coworking-spaces providers, therefore, capture value with different combined value creation components. We identify subscription and premium as value capture strategies from basic offerings and observe catering, service fee, commissions from further provisions.

Value capture from basic offerings – subscription and premium

The first value creation component is the fundamental offerings, namely the physical settings for work since it is the basis for all the other provisions of coworking-spaces. Creating value from other elements – extended offering, additional service, and platform business – are based on the assemblage of creative workers in shared spaces. The majority of commercial coworking-spaces thus apply a subscription-based model and provide a wide range of facilities with 'plug and play' usability (Mitev et al., 2019); it could also cover multiple areas for flexible

workforces. For example, E space had 35 sites in 7 cities at the time of the second field visit. Users can work in all the 35 sites across China once being a member of E space.

Even though the provision of infrastructures is an indispensable component of all coworking-spaces, it is not necessarily the primary value proposition element for each coworking-space. In other words, other components could be at the core for some coworking-spaces to capture value, including co-living, growth supporting education, or platform service.

Value capture from additional offerings – catering, service fee, commission

Apart from the basic offerings, additional offerings expand the value capture source from the aforementioned first component to the other components. Accesses to more diverse amenities or a wider range of services allow coworking-space providers to charge a higher membership fee. Alternatively, an extra fee can be charged for premium products or services. For instance, extended offerings to co-living bring revenues for coworking-space providers from household items and recreational activities.

When coworking providers extend their value capture to component three and four, then it further diversifies their revenue portfolio. The provision of additional service (component III) is always supplied through metered service; namely, users take and pay for what they use when they have access to a wide range of services. Furthermore, the involvement of platform business (component IV) broadens the sphere of consumer group: coworking-spaces users might not be the one paying for the service; instead, providers generate commission from users' collaboration or joint projects with external actors. Since the utility of service and platform can have extra "value add" from the economies of scale effect, providers can alternatively offer freemium models instead of a subscription to expand the user base. For example, E space has certain free seats for "selected" individuals and teams whose business area can be complementary to their resources and resident team, and they also host a series of events with free entrance to attract more related resources.

3.5.3 *Four business model design themes centering on different components*

Our observation and data further present that there is always a core source for value creation in each coworking-space, along with certain value capture strategies. These distinctive features construct their business models. As the coordinator of D space stated: "*there are many coworking-spaces, so you should have your identity and position in the market.*" [D-M-1]. Our

empirical study identifies four types of business models design themes centering on a specific value creation component and following certain value capture strategies.

4.3.1. Efficiency-centered business model

While taking basic offerings (Component I) as the main source, coworking-spaces can focus on the provision of fundamental offerings. Accordingly, providers need less shared spaces for events and activities. The provision of workspaces and facilities indicates a simpler and more routine undertake in coordination processes (content). Focusing on the primary offerings defines that the key activity of a coworking-space is to attract more members, who aim at saving costs and bumping into other peers or opportunities randomly. Thus, the coworking-spaces in this group mostly capture value through subscription and the occupancy of seats (structure). This business structure leads to the relatively independent development of coworking-spaces, because the design, construction, and maintenance of infrastructures involve a limited number of actors. Instead, expanding external networking risks high opportunity cost and fail to complement the core business activities (governance). In summary, the business model focusing on component I is characterized by efficiency-oriented value creation and capture, entailing an "efficiency-centered business model" (Zott & Amit, 2007).

B space and E space fall into this group; their business focuses on providing working spaces and various shared facilities. Whereas B space features spatial open-plan spaces, and E space emphasizes a fancy design with plants and high-tech amenities, such as intellectual access control system.

4.3.2. User-centered business model

While focusing on extended offerings (Component II) as the main source, coworking-spaces can develop more flexible service portfolios by incorporating life-related offerings, such as private apartments, foods, and recreational facilities. More life-supporting spaces thus are shared to meet users' needs and create chances for social interaction (content). The dominant position of co-living in their business brings more heterogeneous sources of revenue, such as from selling foods and beverages, from entrance fees of social events or gym. These additional activities shape a more complicated structure and add value capture sources to subscriptions (structure). The offering of all-inclusive services includes more partners in performing different parts of functions and thus calls for more externality-linked governance (governance). In sum, the critical value creation driver of this business model is the provision tailored to the need of users, leading to the design of a "user-centered business model".

D space is the only space in our study that generates the majority of its revenue from the co-living dimension. In other cases, living service can be a supporting part of other key provisions.

4.3.3. Development-centered business model

Taking service provisions (Component III) as the main source, coworking-spaces mainly target entrepreneurial and startup teams, who search for good conditions for development but lack experience and resources. Therefore, coworking-spaces can create value for them by providing training, coaching, and business-related services, for which many shared meeting rooms and conference rooms are in place (content). Users selected and gathered in these coworking-spaces intending to connect with disparate knowledge sources, acquire insights and feedback, and further enhance their innovation and business outcome. Additional service provision, thereupon, dominates the primary position in value creation and paves new ways to generate revenue from elastic and autonomous service fees, such as flexible pricing for courses and business-related services (structure). This business system involves more actors in transferring knowledge in versatile fields and supporting users in development, and therefore requires close interaction and collaboration with partners (governance). In sum, taking service provision as the primary source, coworking-spaces can facilitate the development of users' business and innovation and thus lead to the design of a "development-centered business model".

Two cases in our study set out to support the growth and development of small-size teams, but with different focuses. A space provided structured seminars and coursed, while C space invited experienced entrepreneurs or venture capitals for sharing and workshops. In these cases, users are more likely to get intellectual stimulation for their innovation from broader knowledge sources.

4.3.4. Platform business model

Taking a platform business model (Component IV), coworking-spaces rely on network connectivity to collect and transfer information among a large number of users and heterogeneous external partners that all deeply integrated into their resource bases. For this reason, hosting social events and activities is their essential business activity for which they need spatial assembly halls or function rooms. This provision potentially matches participants with demands and resources where coworking providers can play the role of an intermediator (content). In addition to all the other provisions, the platform business enables coworking-spaces to capture value from commissions when they bridge decoupled actors for joint projects or resource matching. Thus, the source of revenue is multilateral on service portfolio and

customer group as well (structure). With multiple parties involved in the platform business, the role of coworking-spaces evolves: from a pure provider to a "resource center" where business activities can be requested or initiated by other players (governance). Therefore, we propose that coworking-spaces with an open platform for a multitude of partners follow a more novel-oriented design of a "platform business model" (Zott & Amit, 2007).

F space is frequently reported by Chinese media as a "hub of innovation". They focus on component IV and integrate diverse resources based on their platforms. As the chief operating officer of F space explains: *"We have a variety of partners… such as big companies, industrial associations, investors, succeed entrepreneurial teams. So, in this ecosystem, every member can find the resource they need*" [F-M-1]. Given the wide knowledge sources and their accessibility attached to the platform, this business model gives the most possibility to advance users' innovation process.

Table 3.3 A Contingency Framework for Business Models of Coworking-Spaces.

	Four Components of Value Creation			
Value creation components	**Component I** *Working & socializing materials*	**Component II** *From coworking to coliving*	**Component III** *Growth supporting*	**Component IV** *Platform*
Business model design themes	**Efficiency-centered**	**User-centered**	**Development-centered**	**Platform**
Content	• Enable value capture by offering office-facilities facilitating physical proximity. • Users connect through daily encounters in shared spaces.	• Offer life-related services (e.g., recreation, catering) to users. • Provide a broader range of facilities and activities.	• Connect users with specific resources they need, e.g., coaching, entrepreneurial service. • Provide development-related service.	• Link multisided markets by providing contacts e.g., to investors, experts, agents. • Initiate networking events that gather entrepreneurial actors.
Structure	• Internal service system and cost-centered structure. • Attract users through price and physical design as the main income.	• Gain additional income through the offered services. • Link service provision with the assembled users in the physical space	• More elastic and autonomous pricing. • Diverse offerings and coordination among them.	• Multilateral source of revenue that might get from any relevant stakeholders looking for entrepreneurial resources.
Governance	• More self-dependent instead of collaborative. • Limited partnership with external actors.	• More partners to collaborate in providing work- and life-related assistance.	• Coordination and collaboration with external stakeholders to facilitate the development of users.	• Facilitates the integration of resources of different units. • Platform-based governance that links multisided actors.
as the core	B, E	D	A, C	F
as peripheral	A, C, D, F	A, C	B, D, E, F	C

The configurations of the four types of coworking-spaces business models and cases from China indicate that these business models differ in design elements of their activity system in terms of content, structure, and governance. More specifically, focusing on a more interactive component requires more diversity in products and services, more multilateral revenue, and stronger collaborative capabilities. For users, their innovation process would also benefit from the diverse set of internal service portfolio and external collaboration opportunities. Table 3.3 displays the content, structure, and governance of each business model.

3.6 Discussions

3.6.1 *Nature of Chinese coworking-spaces and their business models*

Our findings show that there are four value creation components in Chinese coworking-spaces: Working & socializing materials, co-living beyond coworking, growth supporting: campus for startups, resource integration, and expansion. Prior literature studying western coworking-spaces highlights the convenience sharing and community attributes of coworking-spaces (Green, 2014; Garrett et al., 2017; Spinuzzi et al., 2019), which refer to the component I and component III in our results. Bouncken (2018) and Fabbri & Charue-Duboc (2014) touch on the networking function of coworking-spaces by elucidating how it facilitates access to external resources (Bouncken & Reuschl, 2018; Fabbri & Charue-Duboc, 2014), while its connection with the local entrepreneurial ecosystem is not discussed (component IV). The provision of living spaces and catering (component II) is quite absent in existing literature studying coworking-spaces in western contexts. In other words, component II and component IV are more featured in Chinese coworking-spaces. For extended offering portfolios, including living spaces and catering, it is more easily accepted and integrated into Eastern culture where people live in a collective community (Bouncken & Winkler, 2010). Regarding the critical role coworking-spaces play in the local entrepreneurial ecosystem, the main reason is a massive intervention and push from the government sectors (Yao, 2018). In conclusion, multiple reasons in cultural background, political environment, and economy lead to these differences.

This paper further investigated how the value creation and value capture strategies constitute different business models with distinct activity systems. Efficiency-centered and novelty-centered business models are implicitly acknowledged in the extant literature. At the same time, few studies examine the practical relevance of them and explore the possibility of other design themes (Zott & Amit, 2007). Practically, we matched the features of an efficiency-centered business model with coworking-spaces focusing on basic offerings and a novelty-centered

business model with coworking-spaces focusing on platform. These findings contribute to a comprehensive picture of coworking-spaces and also add to current knowledge of business model themes.

3.6.2 *Business model along with a continuum in coworking-spaces*

This paper identifies four types of business models design themes of coworking-spaces; they are efficiency-centered business model, user-centered business model, development-centered business model, platform-centered business model. This finding is in line with the results of prior studies on the features of coworking-spaces regarding assemblage of diverse users through spaces sharing (Waters-Lynch et al., 2016; Bates, 2011), constructing a community where knowledge exchange and innovation happens (Surman, 2013; Mitev et al., 2019), connection with resources (Fuzi, 2015; Capdevila, 2014; Kraus et al., 2018). Whereas this paper further extends the established body of business models and coworking-spaces with the linkage to value creation and value capture and also the clarified differences between business models.

We further conclude the differences between business models and illustrate them along a continuum concerning 1) content: level of connectivity, 2) structure: level of diversification in revenue, 3) governance: level of collaborative capability. In more detail, when coworking-spaces focus on higher layers of value creation, they build up links among relevant actors with greater breadth and depth, obtain more diverse ways to get revenue, and have closer collaboration with partners (Stryker et al., 2012). Figure 3.1 depicts a continuum along with the design elements of business models.

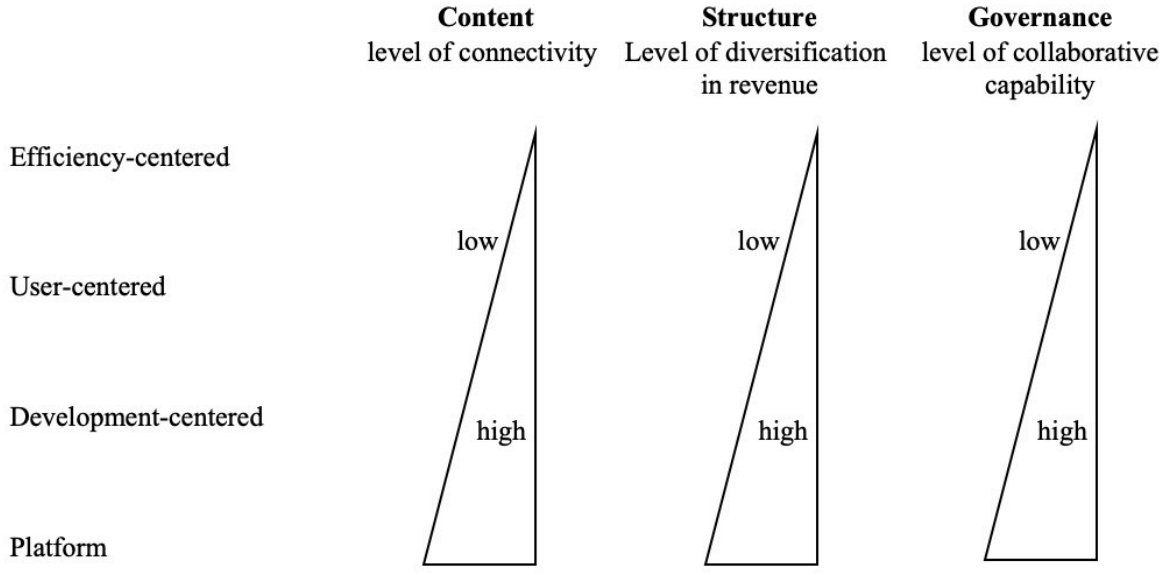

Figure 3.1 Business Model Design Themes Design Elements along a Continuum.

3.6.3 *Contribution and limitations*

By investigating the configuration of Chinese coworking-spaces through a business model perspective, this paper contributes to the emerging literature stream on coworking-spaces, business model, and regional innovation. First, we add to the emerging literature stream of coworking-spaces by providing a clearly defined construct of coworking-spaces. Existing literature on coworking-spaces has primarily focused on the phenomenon (Leclercq-Vandelannoitte & Isaac, 2016; Bouncken & Reuschl, 2018) and the impacts it brings (Capdevila, 2014; Mitev et al., 2019), but rarely on mechanism of coworking-spaces providers and their diversity (Bouncken et al., 2018b). The examination of typology in coworking-spaces suggests that coworking-spaces itself varies in terms of business models, so it can play different function as described in coworking-spaces literature, namely co-location of diverse coworkers (Fost, 2008), co-constructing a sense of community (Butcher, 2013) or accelerating the development of a local innovation (Goswami et al., 2018). A refined construct of coworking-spaces helps related studies to define the research context better and identify more relevant cases.

Second, we add to theories related to business model design, value creation, and value capture strategy. Our findings reveal four design themes of business models in coworking-spaces, which add user-centered and development-centered business model design themes into the existing inventory of business model design themes (Zott & Amit, 2010). Furthermore, the critical role of a key value creation component is in line with a stream of business model literature that highlights the importance of value creation and its alignment with value capture and value proposition (Ghezzi et al., 2015; Bouncken et al., 2015; Bouncken & Fredrich, 2016). Furthermore, the analysis of the design elements of different business models shows that their content, structure, and governance change along a continuum. This insight adds an analytical dimension to explore design themes of business models which were simply taken as "orchestrate and connect the elements of an activity system" (Zott & Amit, 2010; Ghezzi et al., 2015).

Third, our study adds to regional innovation literature by responding to the call for scrutinizing regional innovation processes through space perspective (Binz et al., 2014; Stryker et al., 2012). Our findings suggest that coworking-spaces adopting different business models contribute to regional innovation from different aspects. More specifically, efficiency-centered or user-centered coworking-spaces support the interaction and development of creative workers (Surman, 2013; Sleuwaegen & Boiardi, 2014). The adoption of a development-centered or

platform business model further involves more innovation- and entrepreneurship-related agencies out of the spatial boundary (Goswami et al., 2018). Over the past decade, physical proximity as an impactor of regional innovation processes has drawn increasing interest from researchers, but mostly on a large scale (Toker & Gray, 2008). Our study presents how the proximity at workspace level through shared infrastructures and services portfolio contributes to the development of local entrepreneurship and innovation.

While our results shed light on the mechanism of coworking-spaces, how it boosts local innovation in China, and the business model trajectory of coworking-spaces, we need more research to corroborate the findings and expand our understanding in several ways. First, this study drew on six Chinese samples as representatives. We encourage tests of our framework in other Asian countries. Second, considering environmental factors would possibly offer more fine-grained insights into the drivers of business model design. For example, the characters of a district, the economic status, configuration of users, and political environment. Third, even though in this study, for exploring the possible configuration and business models, we adopt a qualitative research design, further research testing this framework with quantitative data sets is also required.

3.7 Conclusion

Coworking-spaces have many advantages for individuals, freelancers, entrepreneurs, startups, incumbent firms, and even investors, especially in the Asian context where individuals are very open to the new trends of digitalization and sharing economy. Our empirical study emphasizes that coworking-spaces providers can configure their diverse business models with four value creation components and several associated value capture approaches. We further identify that focusing on different components leads to four types of business models design themes, whose difference can be understood along a continuum in terms of 1) content, 2) structure, 3) governance, from rather basic efficiency-centered to platform business model. Our findings suggest that except physical offerings, coworking-spaces are also able to provide communal, organizational, and even ecosystemic function, so providers should design their business model strategically in line with their focus and value creation strategies. Theoretically, the study contributes to business model literature by adding novel business model design themes and identifying the continuum of design elements in distinct design themes.

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Part 2: How Spatial Settings Impact Workplaces

Chapter 4: Coworking spaces: Understanding, Using, and Managing Sociomateriality

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4.1 Abstract

Companies increasingly embrace the new work forms associated with coworking-spaces. Coworking-spaces started with the idea of a melting pot of open social interaction, collaboration, entrepreneurship, and innovation for freelancers, new ventures, or solo-entrepreneurs. Companies may use coworking-spaces for invigorating targets and for further motivating and inspiring their employees. Fundamental to achieving those targets is the coworking-space's interior design and architecture, thus its materiality that incorporates emotional and social meanings which might further revive companies. Our sociomateriality perspective helps to analyze conditions in coworking-spaces and guides suggestions on how companies revitalize by using coworking-spaces. Purposeful design of the different social and work areas in coworking-spaces can improve communication, collaboration, and innovation in companies.

4.2 Motivation: Need of Designing New Workspaces

For the last two decades, companies have increasingly been changing their physical office designs from traditional cellular structures towards new and more contemporary designed open-plan offices. Companies so intend to enhance the flow of communication, the collaboration across boundaries, and innovation stimulated by design and architecture (Allen & Henn, 2007; Doorley & Witthoft, 2011; Khazanchi et al., 2018). The changes in companies tie in with general societal trends of sharing and the post-bureaucratic turn (Waters-Lynch & Duff, 2019). Companies might use ideas that come with the emergence of accelerators, fab labs, and coworking-spaces where freelancers, entrepreneurs, startups, and employees (even of different companies) share stimulating social and professional exchanges (Bergman & Mcmullen, 2020; Bouncken & Reuschl, 2018; Kohler, 2016). Companies employ coworking-spaces for

facilitating not only internal interactions but also the those of their employees with talent or expertise outside their boundaries (Gabor & Lindsay, 2018; Spreitzer, Garrett, et al., 2015).

Companies from diverse industries, including technology giants (Microsoft, Google, SAP), telecoms (Orange, AT&T), e-commerce (Amazon), automakers (MINI), and insurance companies (State Farm), have been investing to design own mostly internal coworking-spaces (Gabor & Lindsay, 2018). Companies are also renting desks from independent coworking-spaces for their employees (Spreitzer, Garrett, et al., 2015). The global survey on coworking-spaces by Deskmag shows that out of two million people, working in more than 22,000 coworking-spaces, every fourth member is employed whose membership fee is being paid by their respective employers or clients (Foertsch, 2017, 2019).

Yet, besides the obviously key role of coworking-spaces there is still little knowledge about how to best use and how to design coworking-spaces. In accordance with this void, studies and general media news indicate disappointment of companies and of users with the coworking-space trend (Barrett & McCarthy, 2018; Seet, 2018; Symons, 2017). It is not only that targets are not met. Not well managed coworking-spaces increase in social isolation and stress (Bouncken et al., 2018). For example, Shopify (a multinational e-commerce company) built a coworking-spaces to increase collaboration among different partners. Soon, after a few months, it closed the coworking-space because it failed to attract sufficient partners. The marketing manager of the company described: “What we learned, though, is that there is more to a coworking space than the actual physical space. It’s a motley blend of many different elements that need to come together just right in order to really and truly provide a great coworking experience for residents” (Symons, 2017).

Our study argues that, in essence, coworking-spaces need to facilitate inspiration and serendipity by open interaction and collaboration in a stimulating interior and architecture. As outset the sociomateriality approach (Leonardi, 2012; Orlikowski, 2007), the design of the interior and architecture comes with socio-emotional meanings that can facilitate the openness, inspiration, collaboration, and serendipity.

The term sociomateriality highlights the importance of the interconnectedness of social and material elements that shape the practices (Leonardi, 2012; Orlikowski, 2007). The materiality in coworking-spaces consists of spatial aspects (e.g., spatial design, physical layouts, color schemes), visible artifacts (e.g., shared infrastructure including office desks, chairs, computers), and less visible artifacts (e.g., information systems, online forums). The actions and interactions of people with materiality in coworking-spaces facilitate or restrict sociomaterial practices (e.g.

collaboration, creativity, and innovation). Materiality in coworking-spaces defines social actions, and changes in materiality lead to changes in work practices. For example, employees of a company sitting and working together in an open-plan office of a coworking-space can not only directly see and contact each other but can also interact with other independent professionals. They can discuss their queries, share their knowledge, and solve their problems together. In contrast to that, the interactions and knowledge sharing patterns would be different among the same employees when they would be sitting alone in their private offices or cubicles.

We propose that utilizing the learnings of sociomateriality, coworking-spaces might better facilitate creativity and innovation rather than just providing cost reduced office spaces or alternative office rent models, as we see with the reorganization of WeWork. The challenge for companies is to understand and accordingly adapt the effects of the material interior design and its socio-emotional effects (sociomateriality) in coworking-spaces. Hence, this study will explain how companies can better use coworking-spaces by following the insights from sociomateriality.

In this article, we explain materiality in coworking-spaces and how it can shape work practices assisted by two case studies. The unique spatial architecture sets the 'body language' of the coworking-space. It develops the culture, behaviors, and practices of users. Our results direct attention of managers to the ambiance, proximity, connectivity, and privacy by socio-materiality in coworking-spaces. It is shaped in:

- *Working areas:* The places where users can work in a professional working environment.
- *Socialization areas:* The shared spaces for users to interact and have a break from work.
- *Support structures:* The places that provide services for the users of coworking-spaces.

Our findings show companies can improve the flow of communication by using multiple functional areas to enhance face to face interactions, diligently designing the space layouts for spontaneous encounters, and employing digital tools for disseminating information. For example, to enhance collaboration among employees and with the externals, companies should spatially collocate individuals with complementary skills. Companies can foster innovation by designing such coworking-spaces, where people can develop affiliations with space, can interact and share ideas with others, and can have infrastructures, resources, and technologies for the realization of their ideas. Our study also lists guidelines for companies to leverage sociomateriality at coworking-spaces.

4.3 What are Coworking-Spaces?

Coworking-spaces describe various forms of contemporarily designed open workspaces that provide shared office facilities and infrastructures to people from diverse professional backgrounds, such as freelancers, entrepreneurs, startups, micro-enterprises, and employees of Fortune 500 companies (Bouncken & Reuschl, 2018; Waters-Lynch et al., 2016). Often coworking-spaces follow self-made or posh interior design logics (Waters-Lynch & Duff, 2019). Most coworking-spaces run by service providers (e.g., Impact Hub, Office Evolution) are open to all professions and businesses. Apart from the provision of shared office facilities, independent coworking-spaces aim to enhance flexibility, networking, collaboration, and creativity (Clayton et al., 2018). In addition, companies (e.g., Google, SAP) and consultancy agencies (e.g., PWC) take on this trend and run their coworking-spaces to enhance coordination in projects as well as to expand their innovation pipeline (Bouncken & Reuschl, 2018). Such corporate coworking-spaces can be used by other professionals who do not necessarily work for the same company. For example, freelancers can work alongside the employees of Orange telecom in its coworking-space, namely Villa Bonne Nouvelle or VBN. Other companies' operated coworking-spaces can be restricted to their employees and clients (e.g., TenneT).

Despite their differences in operators, participants, and business models, coworking-spaces share the image of modern design-oriented collaborative workspaces often following self-made aesthetics (Waters-Lynch & Duff, 2019). Table 4.1 lists the characteristics of the coworking-spaces distinguishing them from traditional offices.

Table 4.1 Design Differences between Coworking-spaces and Traditional Offices.

	Coworking-spaces	Traditional Offices
Layouts	- Open-plan and private office spaces with multiple socialization and networking areas - Options to have assigned and unassigned workspaces	- Enclosed office layouts - Mostly private offices and cubicles with assigned workspaces
Design styles	- Innovative interior designs with saturated color schemes, stylized furniture, and multifaceted seat arrangements - Aesthetic and playful office settings	- Usually dull and monotonous working environment - Orderly work settings
Functional areas	- Diverse functional areas to create a flexible and motivational working environment - More common areas spread around the working areas to promote spontaneous interactions	- Focus on working areas and support structures with very few recreational areas - Department based working areas that concentrate on one function to ensure efficiency
Facilities	- Basic facilities are always included in the membership (e.g., desks, internet) - Additional facilities on payment (e.g., gym, cafeteria)	- Ownership of facilities and infrastructures
Digital tools	- To support space functions, e.g., booking of meeting room - To support communication among users	- To support work and projects

Architectures of coworking-spaces consist of open-plan offices, quiet and private areas (e.g., phone booths, private offices, meeting areas) and common areas (e.g., café, kitchen, bar lounge). More aesthetic logics, architectural oriented, and the serendipitous working environment of coworking-spaces shall sway away the image of traditional dull and monotonous offices. It turns towards stylish settings that brings ties among users to promote inspiration, productivity, and creativity (Marchegiani & Arcese, 2018; Spreitzer, Bacevice, et al., 2015). Coworking-spaces have complex and interweaving relationships of modern architectural designs and the practices of users (Allen & Henn, 2007; Doorley & Witthoft, 2011; Khazanchi et al., 2018). For example, a coworking-space might have multiple layouts, themes, designs, facilities, technologies, which can influence interpersonal distance, density, and communication patterns among collocated users. In essence, architecture and its meanings in coworking-spaces matters for companies to obtain desired outcomes, thus materiality and its meaning matters as set out in the sociomateriality perspective.

The sociomateriality perspective emphasizes that work practices in organizations are always and everywhere sociomaterial due to the 'constitutive entanglement' of social and material elements (Orlikowski, 2007). The term constitutive entanglement refers to the notion that social and material elements are inseparable (Orlikowski, 2007). It means that all the practices in any organization, which generally considered as social (e.g., decision making, strategy making, creativity), are results of some sort of materiality.

The literature on sociomateriality defines social as the human agency (e.g., individuals, groups, teams, and firms) (Leonardi & Barley, 2010). Materiality in workspaces consists of all the visible (e.g., desks, chairs, computers, printers) and less-visible (e.g., electricity, Wi-Fi networks) artifacts. Materiality and social interactions can form practices, which describe a set of coordinated activities of individuals or groups in doing work in a particular organization or group context (Leonardi, 2012). Practically, sociomaterial practices in organizations cover every action and interaction that take place inside organizations. Practices guide the way tasks are performed, objects are handled, or interactions take place all come under the umbrella of sociomaterial practices (Bjørn & Osterlund, 2014; Reckwitz, 2002). Leonardi (2011, 2012) proposes that understanding sociomaterial practices demands empirically observing the interactions of human and material agencies. Effective use of coworking-spaces demands a better understanding of their sociomateriality.

4.4 Materiality in Coworking-Spaces

To map the sociomateriality and implications for the use of coworking-spaces, we employ two contrasting cases of coworking-spaces. Both are located in the central business district of Beijing, i.e., Design-studio and Focus-point (pseudonyms). We purposefully selected these coworking-spaces: First, a majority of companies, instead of building their own, rely on independent coworking-spaces for establishing linkages with the talent outside their companies' boundaries. Design-studio and Focus-point are both independent coworking-spaces and host not only independent professionals such as freelancers or entrepreneurs but also several startups, small firms, and employees of Fortune 500 companies. Second, despite similar characteristics of users, both coworking-spaces differ greatly in material aspects, i.e., interior designs, layouts, functional areas, and facilities. We believe the distinctiveness in materiality and homogeneity in the characteristics of social actors present them as two excellent cases to understand sociomateriality and its influence on the work practices.

Design-studio is a large coworking-space spread over an area of approximately 1500 sqm. on the top floor of a 28-story building. Design-studio hosts around 200 users ranging from independent professionals or entrepreneurial teams to large companies. Design-studio does not provide any private offices neither to independent professionals nor to companies. Focus-point is also situated in the same locality and spreads over four floors of a multistory building with an area of 1300 sqm. Unlike Design-studio, Focus-point offers a wide range of work and social spaces for users. Focus-point offers two medium-sized open-plan offices on each floor, where users from diverse backgrounds can work together. A small socialization area is available on each floor. Focus-point also offered 14 different-size private offices to small teams and companies. All these open, private, and social areas are connected with the long narrow corridors on each floor. Design-space focuses on the provision of an open environment and aims to foster interaction, collaboration, and innovation. Though Focus-point also aims to achieve the aforementioned objectives, it also gives a lot of importance to the privacy of its members. By using the example of these two different coworking-spaces, we explain how different sorts of materiality shape the ambiance, proximity, connectivity, and privacy of the users that facilitate or restrict work practices such as communication, collaboration, and innovation. We begin with the materiality of coworking-spaces, followed by how materiality shapes the work environment. Then, we explain the formation of work practices.

4.4.1 *Spatial architecture*

Spatial architecture is mostly considered from an aesthetic view. We define the spatial architecture in a coworking-space as a physical space as well as 'social fact,' which throws light on how people fit together with space (Allen & Henn, 2007). In each coworking-space, the unique spatial architecture sets the 'body language' of the space. People develop their culture, behaviors, and practices by inspiration from the spatial architecture of their coworking-space. Thus, companies can, by tweaking the architecture of coworking-spaces, bolster their desired outcomes (Doorley & Witthoft, 2011). We divide the physical design of a coworking-space into three different zones, i.e., working areas, socialization areas, and support structures.

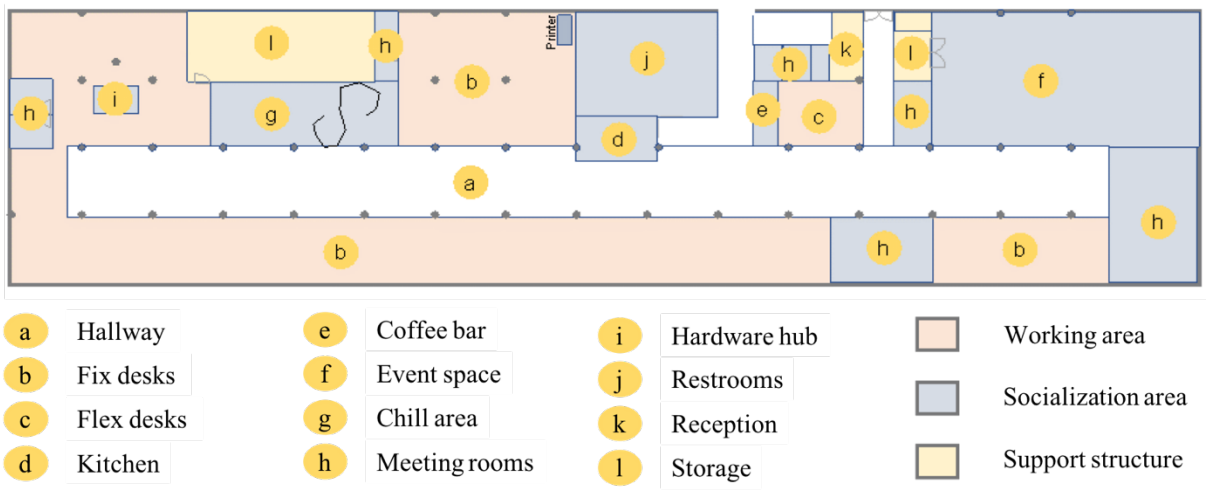

Figure 4.1 The Layout of Design-studio.

Figure 4.1 shows the layout of Design-studio. Its working areas feature open-plan offices. These open and interactive working areas broaden the visual fields of users and facilitate mutual awareness. Socialization areas define the unique identity of coworking-spaces. Typical examples of socialization areas are event spaces, labs, lounges, kitchen, cafés, and meeting rooms. Design-studio also offers support structures, including a reception, storage areas, and locker rooms. In contrast, Focus-point is spread over four floors with different sizes of shared and private offices for individuals and teams. These offices are connected at each floor through long corridors attached to small socialization rooms.

4.4.2 *Shared facilities and infrastructures*

Shared facilities and infrastructures offer accessibility to all or eligible members of coworking-spaces. Through sharing, users reduce cost, gain flexibility in work style, and increase interactions with other individuals. Coworking-spaces offer three types of shared facilities and infrastructures:

- *Utilities:* The essential office equipment and infrastructures that almost every coworking-space provides to all users, including desks, computers, photocopiers, and the internet.
- *Luxuries:* Extra facilities that coworking-spaces offer to the users to create an enjoyable atmosphere. For example, fully equipped and serviced kitchen, indoor sports facilities, free food, and drinks.
- *Specialties:* Specific spaces and equipment for a group of users in a particular profession. For example, hardware labs for technological users, studio for photographers.

Design-studio offers all three types of facilities, especially the presence of a hardware lab that enables users with a technology background for joint experimentation. Focus-point relies mostly on utilities. Spontaneous, unplanned, and face to face interactions happen more frequently in the places of shared infrastructure, e.g., near printers, photocopiers, or coffee machines. These zones facilitate brief and casual interactions among independent users and offer opportunities to get to know each other. Materiality affects the working environment of a coworking-space and facilitates or restricts what people do.

4.5 Materiality Shapes the Work Environment

4.5.1 *Ambiance*

The ambiance describes the ethereal features of an environment, e.g., lighting, walls color, furniture, and general look and feel (Doorley & Witthoft, 2011). In coworking-spaces, spatial architecture and amenities are key factors that set the ambiance. To provide a creative work environment for users, coworking-spaces use unique spatial layouts, saturated color, stylized furniture, and multifaceted seat orientation. Figure 4.2 shows a glimpse of the inspirational architectural design of a lounge in Design-studio. Points 1, 2, and 3 in Figure 4.2 depict multiple schemes of decorations in the space catering to various needs of users. Points 1 and 3 indicate bright colors and unique designs in the lounge, creating an inspirational ambiance. Point 2 shows a more modest lighting scheme in the working area to balance interaction and distraction. Point 4 presents comfortable, cozy, and casual chairs and sofas for getting rest.

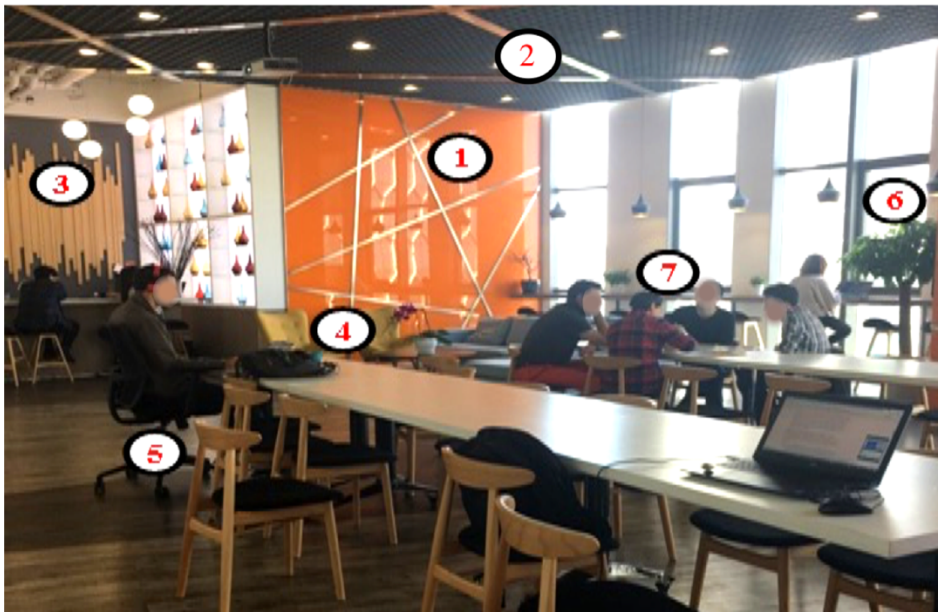

Figure 4.2 Ambiance of Design-studio.

Points 5, 6, and 7 present different working situations. At points 5 and 6, two users are working alone on desks, locating and facing away from the common area. While a group is involved in collaborative work at point 7, just next to the socialization area. Design-studio, thus, through spatial architecture, manages all these different situations skillfully. Any change in the spatial architecture of Design-studio might lead to changes in the work practices of users. For example, if at Point 6, suitable working chairs or desks are not available, then it would restrict people from working in the lounge of Design-studio.

4.5.2 *Proximity*

Proximity describes the physical closeness or distance between two individuals. Coworking-spaces, in general, provide great physical proximity and create functional heterogeneity due to the provision of shared facilities as well as infrastructures in socialization areas. Coworking-spaces that have open-plan offices offer more face to face communication opportunities for the users with different professional backgrounds as compared to those spaces which offer cubicles or private offices. Proximity directly influences density inside coworking-spaces and further defines the sparse or crowded feeling of a space when users act, interact, and communicate.

A sparse environment provides freedom in movement. Whereas a concentrated environment eases the process of collaboration but can also lead to crowding. Figure 4.2 shows the sparse environment of Design-studio, while Figure 4.3 indicates the crowded working environment of Focus-point. Point 1 in Figure 4.3-b exhibits that the horizontal distance between desks is approximately 1.5 meters, while Point 2 shows the vertical distance is around 1.2 meters. Seven people in this room size of 15 to 18 square meters might be useful for working on a joint project, which requires intensive mutual dependence as proximity is very high. However, such high proximity is counterproductive for creative thinking as the images, sounds, and working of other surrounding people will saturate the thinking. Design-studio provides a sparse environment where users of the space can change the proximity from high (point 7) for collaboration to low (point 5) for concentration.

Figure 4.3 Socialization and Working Areas of Focus-point

4.5.3 *Connectivity*

Connectivity in coworking-spaces refers to the link established between individuals and collectives (e.g., groups, teams, and firms) through materiality. The spatial architecture enables physical connectivity, while integrated technology creates virtual connectivity. Physical connectivity promotes face to face communication. This type of close contact plays a crucial role in developing interpersonal relationships. Virtual connectivity enables efficient information search and exchange. The connection in the virtual world provides a more relaxed and efficient way to build contact with potential partners. In joint working, both types of connectivity contribute to communication and coordination.

Spatial architecture and integrated technology can influence different levels of connectivity among individuals, groups, organizations, or within a team. Design-studio only consists of a large-scale working area in the form of open-plan offices (see Figure 4.1 for the layout plan). In this case, all the shared working and social structures are on the same floor, which maximizes opportunities for users to have unplanned encounters. In contrast, the working areas in Focus-point consist of private team offices (see Figure 4.3-b) that increase connectivity within a team but restrict linkages with other users. Virtual connectivity in coworking-spaces takes place through integrated digital technology. Social media platforms, like Slack, enable members of a coworking-space to interact and share knowledge.

4.5.4 *Privacy*

Privacy protects the unwarranted accessibility of information and regulates the boundaries between self and others. The spatial design and facilities in coworking-spaces have significant effects on the privacy of users by deciding what is exposed to the others. Users tend to communicate and share more insights with other individuals when their desired privacy is protected.

Each coworking-space offers a varying degree of aural and visual privacy. Transparent meeting rooms and small booths with low partition provide only auditory or visual privacy. They can provide private offices. Figure 4.3-b shows an extremely protected working environment in Focus-point. Coworking-spaces can provide a combination of open and private offices so that users can choose their work environment. Adding operable partition in shared spaces also enables control of visual privacy.

4.6 Formation of Work Practices

Companies should understand that the interaction of social actors with material artifacts can lead to perplex and capricious outcomes. For example, open spatial architecture can facilitate the flow of communication but can also lead to distractions. Table 4.2 briefly outlined how sociomateriality in coworking-spaces shapes favorable and unfavorable consequences for users. We further highlight the key points in Table 4.3 that companies should consider while designing and nurturing or selecting their coworking-spaces for fostering communication, collaboration, and innovation.

4.6.1 *The flow of communication*

Coworking-spaces facilitate communication among individuals, groups, and teams through spatial architecture, shared facilities, and digital technologies necessarily. A simple greeting or a handshake works as an icebreaker in socialization areas of coworking-spaces for possibly fruitful conversations later. The materiality in coworking-spaces influences the flow of communication. We outline three major insights leading to suggestions for coordinating, informing, and inspiring communication.

Table 4.2 Formation of Work Practices in Coworking-spaces.

Work Practices / Inter-weave / Materiality	Communication	Collaboration	Innovation
Spatial architecture	Interactions vs. distractions - Open-plan offices induce face to face interactions among users through enhancing proximity and connectivity - Overstimulation of interactions can be distracted - Multiple functional areas create flexibility and provide privacy control	Diverse vs. like-minded connections - The collocation of users with diverse skills backgrounds fosters the connections with complementary skills - Sharing an office with the same team or firm reduce novelty and promote like-mindedness - Skills diversity enhances the chances for collaboration	Focus vs. flare - Serendipitous environment boost creativity and imagination - A continuous stream of new ideas and inspiration in the environment might be challenging to focus on one idea at a time
Shared facilities and infrastructure	Encounters vs. distortions - Shared facilities and infrastructures engender spontaneous interactions - Shared facilities near working areas can bring distortions - Diligently designing of layouts and careful placement of shared resources can reduce distortions	Joint experimentations vs. tensions - Shared facilities and infrastructures promote joint experimentation among different individuals, groups, and teams - Unwanted tensions might arise due to the non-availability of shared resources, e.g., waiting time to access resources	Inspiration vs. realization - Cozy social areas evoke inspirational conversations around new ideas - People can get feedback from other users of the same facilities - Non-availability of shared resources and technologies could thwart the realization of new ideas

- *Use multiple functional areas to enhance social interactions:* Open-plan offices increase physical proximity among users, enabling them to communicate with other professionals within walking distance for coordinating the activities. However, it can also distract users from focusing on their work due to the overstimulation of interactions. In contrast, private offices offer more privacy control and enable strong coordination among the members of a team. However, as in Figure 4.3-b, private offices restrict interaction with the other users. We suggest that coworking-spaces can offer multiple functional areas (e.g., a combination of open-plan offices and private offices) to enhance communication as well as privacy control.
- *Design layouts diligently to promote spontaneous encounters:* Shared infrastructures and facilities temporarily converge users from diverse disciplines and promote spontaneous interactions. For example, people can casually interact near the coffee machine or photocopier. The presence of shared facilities and infrastructures nearby offices might also be annoying and a source of continuous disturbance for the people working therein.

Therefore, coworking-spaces need to diligently design office layouts for promoting encounters among different users while simultaneously taking steps to avoid distractions, e.g., use of sound-absorbing materials.

- *Employ digital tools for disseminating information:* Coworking-spaces can use digital tools (e.g. Slack, Facebook groups) for distributing information and can facilitate users to interact with others (later) regardless of the constraints of time and space. However, coworking-space should not over-emphasis on social media platforms for spreading messages and information, as it might reduce face to face communication among users.

Table 4.3 Do's and Don'ts towards Communication, Collaboration, and Innovation.

Work Practices	Do's	Don'ts
Flow of communication	• Use multiple functional areas to enhance social interactions • Design layouts diligently to promote spontaneous encounters • Employ digital tools for disseminating information	• Overstimulation of interactions can be distracted • Shared facilities near working areas can cause distortions • Overemphasis on a digital tool might reduce face to face communication
Collaboration across boundaries	• Place individuals with diverse skills to foster complementarity in connections • Use shared infrastructures to promote joint experimentation	• Sharing office with the same team reduce novelty and promote like-mindedness • Unavailability, inadequate maintenance, or malfunctioning of infrastructure might invite unwanted stress.
Architecture of innovation	• Allow people to develop affiliations with space through personalization • Create a balance between focus and flare by offering different working and socialization areas • Provide infrastructure, resources, and technology for the realization of ideas	• Personalization of shared resources can cause conflicts. • A continuous stream of ideas might be challenging • Unavailability of technology or support structures can hinder the realization of ideas

4.6.2 *Collaboration across boundaries*

The opportunities for collaboration among users from different professional backgrounds without any shared employment affiliation distinguishes a coworking-space from a conventional workspace. The sociomateriality in coworking-spaces influences communication patterns (e.g., face to face or virtual, communication duration, and content of communication) among users and determines the scope of collaboration. We suggest:

- *Place individuals with diverse skills to foster complementarity connections:* Open-plan offices in coworking-spaces provide more physical proximity and connectivity as compared to private offices. At a team level, open-plan offices reduce hierarchies and engender flatter structures. The reduced layers and barriers increase the flow of communication across hierarchies and encourage employees to openly share their ideas (Hua, 2010; Peponis et al.,

2007). At an individual level, sharing an office with the people from different organizations or backgrounds enhance the chances for collaboration to one fourth more than those who do not (Agrawal et al., 2008). Similarly, the co-presence of users at socialization and service areas encourages communication, enhance the chances for the exchange of ideas (Kabo et al., 2015).

- *Use shared infrastructures to promote joint experimentations and skills sharing:* Shared infrastructures (e.g., hardware lab) in a coworking-spaces encourage users from diverse firms or backgrounds for joint experimentation, mutual learning, and skills sharing. However, the unavailability of shared infrastructure due to the malfunctioning of shared resources (e.g., 3D printers) or long waiting time to access the resource due to multiple users—can invite unwanted stress and tensions. Therefore, coworking-spaces shall ensure that all these shared resources are readily available or adequately maintained for the users.

4.6.3 *Architecture of innovation*

Spatial architecture or settings incite various actions among individuals (Doorley & Witthoft, 2011). For example, collaborative and serendipitous working areas promote inspirational conversations. The presence of large social areas with cozy furniture, proper lighting, and fully equipped kitchens or cafés support long sittings and discussions. To stimulate creativity, companies can take the following steps in their coworking-spaces:

- *Allow people to develop affiliations with space through personalization:* Most people have a strong desire for ownership, and they want to exhibit their ownership by personalizing their workspaces (Byron & Laurence, 2015). Coworking-spaces offer two types of shared workspaces, i.e., assigned and unassigned desks. Assigned desks or workplaces fulfill the psychological ownership of the users, allowing users to personalize their workplaces for maximized inspiration by placing pictures, diplomas, or certificates. Unassigned workplaces or offices restrict users to customize the workplaces and reduce users' ability to develop affiliation or belongingness with the workspace (Khazanchi et al., 2018).
- *Create a balance between focus and flare:* coworking-spaces need to create a balance between focus and flare, which require a balance between collaborative and private spaces. In collaborative areas, users can brainstorm, share, and exchange ideas and can come up with a novel solution. In private areas, users can concentrate or focus on their work alone or with other team members.

- *Provide infrastructures, resources, and technology for the realization of ideas:* Realization is the process of bringing ideas into reality. Coworking-spaces through support structures can enable users to develop their ethereal ideas to physical shape. Support structures, e.g., a hardware lab inside a coworking-space, can help users to build their prototypes through 3D printers, seek feedback from other users and refine their finish products.

4.7 Leveraging Sociomateriality at Coworking-Spaces

Large companies start making or sending their employees to other independent coworking-spaces to improve collaboration and broaden their innovation pipelines. By understanding and managing sociomateriality, companies can better design their coworking-spaces or select such a coworking-space that fits their demands. Table 4.4 highlights managerial guidelines to leverage sociomateriality in coworking-spaces.

Table 4.4 Managerial Guideline to Leverage Sociomateriality in Coworking-spaces.

Points to consider to leverage sociomateriality at coworking-spaces	
Consider all the work practices as sociomaterial	• View all the work practices (e.g., communication, collaboration, and innovation) as the consequence of the interaction of social and material elements. • Consider the positive and negative consequences of materiality — for example, the pros and cons of open-plan offices.
Create a fit between users' need and material aspects of space	• Observe and understand users' practices when they interact with materiality in the workspace — for example, users' behavior near the coffee machine. • Collect and analyze insights from digital tools — for example, casual online discussions among users about space facilities. • Compare and evaluate the value promise and value delivery of a coworking-space — for example, the number of successful ventures over a year or the number of patents filed by the users of a space.
Do not hesitate to experiment with small changes in materiality	• Understand that materiality engenders different practices when it comes in contact with different people — for example, open-plan offices might attract users who look for social interactions but could be distracting for others who want to work. • Start with the small changes in materiality and ask for users' feedback— for example, changing in color scheme. • Stay abreast of the changes in materiality and their consequences on the work practices for desired results — for example, the reaction of people in response to a new artifact such as operable boundaries.

- *Consider all the Work Practices as Sociomaterial:*

Companies should consider all the work practices as the consequence of the intermingling of social and material elements. This understanding is essential, as it puts materiality in the limelight, which most of the managers ignore when considering to develop practices that are mostly misunderstood as only social. For example, sense of community is a prominent feature of coworking-spaces. Many companies send their employees to independent coworking-spaces with the expectations to establish linkages with the communities of coworking-spaces. The first step towards building a community in a coworking-space necessitates—people get to know each other. To achieve this purpose, community managers rely heavily on social events such as community breakfast, meal sharing, or beer evening. However, these events are less likely to get the interests of the people, if managers fail to consider material aspects such as the area of the event space, overall ambiance, or arrangement of tables and chairs. Considering and viewing material attributes as an integral part of social aspects would reinforce the idea in managers' minds that materiality is a part of everyday organizing.

Secondly, we advise companies to consider the positive and negative consequences of materiality. Table 4.2 explains how spatial architecture, shared facilities, and infrastructures influence the patterns of communication, collaboration, and innovation. Most companies focus on a positive aspect and do not consider the negative consequences of materiality. For example, some coworking-spaces try to create a very inspiring design by using different color themes, casual furniture, and multiple lighting arrangements for fostering creativity. However, focusing on aesthetics without considering the comfort of users might fail to deliver the desired results. Therefore, considering both sides of materiality and its role in shaping work practices might help companies to select such a coworking-space that effectively serves their objectives. It might also help companies in accordingly designing or changing their coworking-spaces, e.g., layouts, arrangements of desks, placement of shared infrastructure, or employing new technology.

- *Create a fit between users' needs and material aspects of space:*

The spatial architecture intentionally or unintentionally sets the body language of the space. The designs of working and social areas, space layouts, and arrangements of desks facilitate people to develop their cultures, behaviors, and practices. The shared facilities and infrastructures provide a support structure while the implementation of digital tools enhance efficiency. We suggest that creating a fit between social and material aspects would enable companies to foster positive consequences. This fit can be achieved through three different

means: First, by observing and understanding the users' behaviors and practices in their workspaces when they come in contact with materiality. For example, managers can observe the practices of users near coffee machines—how often they use the machine, how long they need to wait, do they interact, and how long. All these observations would help managers to decide the changes or improvements in materiality as if there is any need for another coffee machine or if there needs to place some chairs if people want to talk longer. Second, digital tools can be specifically helpful for managers in this quest. Social networking forums, e.g., Slack or Facebook group and coworking management tools, e.g., Optix or Coworkify, can provide specific insights about the aspects in which a particular space is lacking. Third, companies can compare the value promise and value delivery of their coworking-space. For example, if a company wants to send their employees to a coworking-space for fostering innovation, then managers can analyze the work environment if it is serendipitous enough or the availability of shared infrastructures and technology for the realization of ideas.

- *Do not hesitate to experiment with small changes:*

Companies need to understand that there is no one size fits all when dealing with the sociomateriality. The same materiality engenders different practices when it comes in contact with different people. For example, an open-plan office might attract such users who are looking for new social connections, but it could be distracting for others who want to focus on their work. Therefore, companies can diligently choose such coworking-spaces, which might help them to achieve their objectives. In the same way, companies can continuously invoke experimentation with the physical designs of coworking-spaces. Companies can make only small changes that can bring more significant results. For example, the availability of operable partitions can use to provide visual privacy or might declare certain open-plan offices as quiet zones. Alternatively, managers can foster certain norms and values in their coworking-space, such as a quiet period during the morning or clean desk policy. Nevertheless, managers should stay abreast of the changes in materiality and their consequences on the work practices of the users to know if the desired results are achieved. Managers can also seek feedback from the users and can directly effectuate the changes desired by users.

4.8 Summary

Coworking-spaces, as a new spatial solution, bring materiality in workplaces into the spotlight. Companies can use materiality in coworking-spaces of spatial architecture (working, social, and support structures) and shared facilities and infrastructures (utilities, luxuries, and

specialties). The synergic interaction of sociomaterial elements influences the properties of the spaces by influencing the ambiance, proximity, connectivity, and privacy. Changing the materiality in coworking-spaces can improve communication, collaboration, and innovation. We suggest that companies can leverage from coworking-spaces by considering all work practices as sociomaterial, achieving a fit between users' needs and materiality, and endeavoring experimentation with the small changes.

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Chapter 5: Co-Working-Ecosystems: Institutionalization of 'Homes' for Innovation and Venturing

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5.1 Abstract

Innovation, technology, and venturing increasingly flourishes in the emerging institutional settings of shared workspaces and makerspaces, which grant their users/members high autonomy while providing opportunities for multiplex social exchange within the space and using first- and second-order linkages to other organizations within an ecosystem. Previous research has individually analyzed coworking-spaces, makerspaces, and ecosystems. As these elements are connected, the current study develops the concept of coworking ecosystems. Our qualitative study examines the institutionalization of coworking ecosystems by micro-level (institutionalized socialization and connected resources), meso-level (community-focused coordination and Industrial value co-creation), and macro-level processes (emerging ecosystem and increasing legitimacy of coworking).

5.2 Introduction

Firms and researchers have been interested in understanding avenues for supporting innovation and technology development and how they emerge and become institutionalized. Two prominent and connected trends and 'homes' for innovation and technology development are makerspaces and coworking-spaces (Halbinger 2018; Spinuzzi 2012). Makerspaces are a sharing concept that provides diverse equipment for individual and organizational creators together with a social community of sharing ideas, concepts, and working collaboratively on projects (Browder, Aldrich, and Bradley 2019; Halbinger 2018). Makerspaces are often included in the venues of coworking-spaces. Coworking-spaces emerged as a contemporary workplace solution for individuals and teams to use office equipment and makerspace elements while allowing individuals and ventures to work together and/or alone in shared venues (Bouncken and Aslam 2019; Bouncken and Reuschl 2018; Spinuzzi 2012). Accordingly, coworking-spaces institutionalize the potential direct multiplex collaboration among creatives and experts (Bouncken, Qiu, and Clauss 2020; Bouncken et al. 2018). "Riding the wave" of this sharing trend, a new category of shared work venues become institutionalized and with it

a new trend for venturing, innovation and technology development. The coworking movements also attracts corporates (e.g., Google, Facebook) to mimic the idea of shared innovation, venturing, and technology development spaces for their employees and for including external service partners (Bouncken, Aslam, and Qiu 2020; Bouncken et al. 2018). Recently several manufacturing companies and consultants (e.g., Audi, Bayer Bosch, BMW, GE, Merck, Microsoft, London Fashion, PwC) adopted the idea and additionally developed coworking-ecosystems (CWE) in which small firms, start-ups, freelancers, projects, or spin-offs from incumbents collaborate within a shared venue but also outside the boundary of the venue, at least temporarily. In CWE, individual and organizational users (of coworking-spaces) not only collaborate in the space but also provide linkages to first and second-order externals outside the space to form continuous or temporary collaborations on the development or the implementation of innovation. Thus, coworking-spaces form an internal ecosystem that connects to external ecosystem players. Furthermore, coworking-spaces provide the nucleus of the ecosystem that support innovation, technology development, and venturing, which stretches out to externals for the creational stages and the implementational stages of innovation and technology development and for allowing the business processes to happen. Hence, coworking-ecosystems can institutionalize a combination of elements related to entrepreneurship-, innovation-, and business-ecosystems. CWE includes not only physical spaces for working and socializing for collaboration but also labs, workshops that are carried out in the space or on firms' sites. In CWE, players can experiment with new technologies and business models in multiple locations. While CWE might stretch over several physical venues of coworking-space and other places, it involves broader actors out of the space, and reaches massive social impact, and thus manifests the development of a new category and the institutionalization of new forms of innovation, technology development, and venturing. However, as we introduce the idea of a coworking ecosystem here, the process of the institutionalization and the CWE logics are not well understood. The required better understanding can help individuals and firms to better maneuver for creating and implementing innovation, technology, and progress with their new ventures.

Therefore, the purpose of our study is to conceptualize our idea of coworking ecosystems and examine the institutionalization of them. In doing so we explain an emerging path for innovation, technology development, and venturing. We draw on the institutional theory, which explains the underlying institutionalization mechanisms that guide the behavior and interaction

of actors. CWE also provide a context to investigate the dynamic iteration between actors and institutional changes.

Our study adopts a qualitative design with the Grounded Theory. We find that the institutionalization of CWE involves synergic institutional changes across different levels, driven by micro-, meso- and macro-levels mechanisms. Micro-level mechanisms include institutionalized socialization and connected resources. Meso-level mechanisms are community-focused coordination and Industrial value co-creation. Macro-level mechanisms include emerging ecosystems and the increasing legitimacy of coworking spaces. The mechanisms of different levels are also interrelated and interdependent. Accordingly, our study contributes to the theory development in the field of coworking and makerspaces, connecting it with institutional theory. To institutional theory, we provide insights on the connection of different levels and explain the development of a new form of work among individuals from different organizational and professional backgrounds. For further understanding of the progress of innovations and ventures, we propose future research ideas on organizational identity, which connects the different levels of coworking spaces. Identities are shaped in a layered context of the identity of the coworking-space provider (e.g., narratives and identity claims) and the social interactions of players of the ecosystem that might operate within a space or beyond its physical borders. The progress of the innovation, technology development, and the ventures depend on the interplay of different social, professional, organizational, and potentially technology-related identification processes.

5.3 Theoretic Background

5.3.1 *Institutional theory*

Institutions in institutional theory refer to “humanly devised rules, norms, and beliefs that enable and constrain action and make social life predictable and meaningful” (Siltaloppi, Koskela-Huotari, and Vargo 2016; Vargo and Lusch 2016). This definition highlights that institutions can enable and constrain interactions among actors. Institutional theory assumes that organizations develop similar institutions when they influence each other and are affected by common environments (DiMaggio and Powell 1983). of the emergence of institutions by isomorphism culminates in three core forms: (1) coercive isomorphism, (2) normative isomorphism, and (3) mimetic isomorphism (DiMaggio and Powell 1983: 150). Coercive isomorphism results from formal and informal pressures. Coercion occurs when players have limited access to resources or need to follow compliance rules (Beckert 2010). Coercive

isomorphism can pull actors towards commonality yet also inspire new ones that get common over time. Normative isomorphism defines what social context sees as appropriate or morally correct (Suchman 1995). Mimetic isomorphism that can appear in uncertain situations, focuses on diffusion and changes that occur by the imitation and bring legitimacy (DiMaggio and Powell 1983). Legitimacy can be defined as an actor's perception or assumption that actions will be "desirable, proper, or appropriate" (Suchman 1995, p. 574). Together, institutions determine the underlying "rules for the game" for certain fields (Jaakkola and Alexander 2014). Institutional theory emphasizes the prevalence of existing models – the institutions (Clemens and Cook 1999). Yet, individuals' and organizations' activities also bear on the existing institutions.

5.3.2 *Institution and innovation in ecosystems*

Innovation as technology development and venturing requires the combination and integration of knowledge and resources from multiple actors. In these processes, institutions function as a coordinating mechanism in shaping multiple actors' behavior for resource integration, so that individuals become connected and allied as long as they share similar values, views, or ideas on solutions and visions (Chandler et al. 2018; Koskela-Huotari et al. 2016; Siltaloppi, Koskela-Huotari, and Vargo 2016; Vargo and Lusch 2016). Recently, Vargo and Lusch (2011) propose a service ecosystem view to explore the role of institutions in innovation (Lusch and Vargo 2014; Vargo, Wieland, and Akaka 2015). Service ecosystems are defined as relatively self-contained, self-adjusting systems of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange, highlighting that institution influence the interactions that contribute to the evaluation, creation, and co-creation of value among multiple actors innovation (Lusch and Vargo 2014; Vargo, Wieland, and Akaka 2015).

From the service ecosystem view, innovations are not only about technology, but the diffusion process is embedded in society and institutions, because existing institutions need to be in situ for new technologies and practices to be developed, accepted, and adopted. However, it is not a one-way influence. Instead, innovation always comes with a dynamic interaction with institutions that points towards maintenance, disruption, and change of institutions (Lawrence, Suddaby, and Leca 2009; Vargo, Wieland, and Akaka 2015). Specifically, innovation includes to novel solutions for new or existing problems, and thus the diffusion or the spread of innovation might encounter the rigidity of existing technology and institutions (Vargo, Akaka,

and Wieland 2020). Moreover, its further adoption and integration within a certain social context set new rules and structures regarding exchanging resources and interacting actors, to better suit the new practice required by the innovation (Edvardsson, Edvinsson, and Nystrom 1993; Edvardsson, Tronvoll, and Gruber 2011). Therefore, while institutions enable and constrain the diffusion of innovations and actors' behavior, institutions are also shaped and reconstituted by the ongoing process of confronting new and old norms, values, and beliefs.

While institutions are core to innovation development, it is helpful to take the service ecosystem view in studying how institution drives action, interaction, and innovation among relevant but diverse and loosely coupled actors and resources. The rising phenomenon of coworking-spaces, where individuals with different backgrounds and expertise interact, fosters innovation and cross-team collaboration, and thus allows studying the mechanism between institutions and innovation in ecosystems.

5.3.3 *The emergence of coworking-spaces as an ecosystem promoting innovation*

Coworking-space are designed for working but also for socializing among multiple and diverse actors (Bouncken, Qiu, and Clauss 2020; Bouncken, Aslam, and Qiu 2020). The combination of private and shared facilities in an overall shared venue allows for balancing focus and flare. It facilitates the spread and acceptance of inventions through observation and interaction (Bouncken et al. 2020; Capdevila 2014; Gandini 2015; Spinuzzi 2012). Basically, coworking-spaces provide a workspace (e.g., desks and IT-infrastructure) and a social space, fostering communication through shared facilities with aesthetic and playful elements. Independent coworking-spaces regulate access to space membership or fees (e. g. hourly/daily/monthly) (Gandini 2015). Also corporates, then so-called corporate coworking spaces offer rooms and facilities with more open-planned spaces and innovative interior design mainly to corporate employees for stimulating autonomy, experimental space, as well as finding and changing team-mates (Spinuzzi 2012).

Recently, studies start investigating the wide influence of coworking-spaces services and its ecosystem patterns towards coworking-spaces as ecosystems (Bouncken, Qiu, and Clauss 2020; Yang, Bisson, and Sanborn Bonnie 2019). Dutt et al. (2015) argue that these shared offices are a focal form of open system intermediaries as they offer activities connecting other actors. In this way, Coworking-spaces, as a form of open system intermediaries, bear the potential to create institutions. They further explicated market infrastructure development and business capability development as two classes of activities that are creative and developmental forms

of institutional building in this kind of open system intermediaries. Market infrastructure development indicates that services and facilities are in place to support business, and business capability development refers to activities that enable organizations and teams to develop, adapt, and improve their capabilities. Coworking-spaces bolster market infrastructure development by providing materiality and various services to meet the fundamental needs of business development, especially for small start-ups with limited resources. Coworking spaces have strong educational functions, e.g. because resident teams and individuals can attend trainings, learn from others in the same space, or further develop with others knowledge from the workshops, events, and other activities organized or provided by coworking spaces.

Combining institutional theory and the features of coworking-spaces, CWE potentially promote innovation and institutionalization processes of both material and social elements. Coworking-spaces feature contemporary designed open-plan offices, including but not restricted to open-planned spatial design, creative artifacts, common areas, and playful settings. Rodner et al. (2019) argued that spatial manipulation impacts how materials and symbolic resources are circumscribed and acquired to influence institutions. Hence, coworking-spaces, with their original intention to facilitate interaction among individuals can boost individual creativity and collaborative projects via physical proximity and social interaction among heterogeneous talents. For example, a shared lounge with cozy sofas and the provision of beverages and snacks in the vicinity can attract coworking-users to have a breakout from work and start small talks, and then information exchange and observation might facilitate the generation, spread, acceptance, and adoption of new ideas, accelerating institution change. Resources provided in this micro-institutional context can improve innovation, especially in industries that require high R&D resources (De Clercq, Lim, and Oh 2013). From this aspect, material features of coworking-spaces contribute to its social attributes. Other social attributes of coworking spaces come from the wide range of services and activities, and the considerable acceptance of coworking-space itself as an “innovation hub” (Bouncken et al. 2020; Bouncken, Aslam, and Qiu 2020; Capdevila 2014). Drawing on the literature on coworking-spaces (e.g., Bouncken, Qiu, and Clauss 2020; Bouncken, Clauss, and Reuschl 2016; Capdevila 2014; Spinuzzi 2012) and ecosystems (e.g., Chandler et al. 2018; Vargo, Wieland, and Akaka 2015), we define coworking ecosystems as systems that consists of diverse actors connected by physical, social and institutional attributes of coworking-spaces, which work within one coworking venue but also become connected via first and second order linkages of coworking users. The members of the coworking ecosystems are not only connected by at least temporary coworking-space

use, but also by shared values, interacting under shared institutional logics while co-evolving and collectively changing the existing institutions to achieve resource integration and value co-creation.

The fast rise of coworking-spaces in Silicon Valley and in urban centers around the world shows how fast institutionalization can happen. Why is this so? For example, incumbent firms might exert direct and indirect coercing on suppliers or clients and 'induce' them into their spaces (Bouncken, Kraus et al. 2020). In doing so, incumbents expand the influence and legitimacy of coworking-spaces to a broader sphere. Yet, how do these forces influence the institutionalization and coordination of CWE? The institutional theory and its new realm of the service ecosystem perspective highlight the importance of investigating the underlying mechanism of innovation bloom in CWE (Chandler et al. 2018; Koskela-Huotari et al. 2016). The underlying study of this book chapter aims to investigate this process.

5.4 Method

Only a limited number of theoretical and empirical studies explain coworking-ecosystems (Bouncken, Clauss, and Reuschl 2016; Capdevila 2014). Thus, an inductive approach following the Grounded Theory is well suited for investigating CWE and how institutions facilitate innovation and legitimation therein (Gioia, Corley, and Hamilton 2013; Strauss and Corbin 1990; Cassell and Symon 2004; Langley and Abdallah 2011). We first contacted three coworking industry experts to get a list of coworking-spaces (Barwinski et al. 2020; Bouncken, Qiu, and Clauss 2020), influence, and involved actors decide its nature as an ecosystem. The three initial interviews yielded us a list of 94 selected coworking-spaces. We contacted all of them and convinced 21 (22.3%) to participate in interviews that took between 18 and 48 minutes (35.15 minutes on average). The informants were either involved in the management of coworking-spaces or its users. We supplemented our 21 cases with web-based secondary data, including official websites and media reports, and field notes while visiting the coworking-spaces to triangulate evidence (Eisenhardt 1989). Table 5.1 lists the data materials we collected and used for the data analysis.

Table 5.1 Data Materials.

Source	Type of data	ID No.
In-depth interviews	Interview with Coworking-space providers (14)	Interview 01-14
	Interview with Coworking-space users (7)	Interview 15-21
	Interview with Coworking-space experts (3)	Interview 22-24
Field notes	Field notes (21: one note document for each Coworking-space)	Note 01-21
Media Report	Press report (89)	Press report 01-89
	Industrial report (5)	Industrial report 01-05
	Internet articles (176)	Internet articles 001-176

We carefully transcribed the interviews, collected the secondary data, and integrated all 361-page data in MAXQDA. In the next step, we analyzed this extended database by following the coding process suggested by Gioia, Corley, and Hamilton (2013). We carefully and independently read all the notes and interviews. Then we coded the data segment by segment akin to the notion of open coding of Strauss and Corbin (1998). These codes were proposed by the data rather than following any existing literature or theory (Corbin and Strauss 1990; Strauss and Corbin 1998). We compared our codes and clustered them based on emerging ideas and relationships between data to define first-order concepts (Corley and Gioia 2011; Gioia, Corley, and Hamilton 2013). These concepts were further used to create aggregated second-order themes. We continually considered existing literature and related our second order theme with the existing literature. Finally, higher-level dimensions were defined based on emerging relationships between themes.

5.5 Findings

Our findings suggest that coworking-spaces shape coworking-ecosystems and promote innovation through institutions at micro-, meso-, and macro-level. Micro-level institutions are shaped by the institutionalized socialization and connected resources in coworking space. Meso-level interaction in communal coordination and industrial value co-creation impacts institutions. The emerging ecosystems and increasing legitimacy of coworking-spaces form the macro-level institution. In the following, we explicate the mechanisms in different levels, from micro-level, followed by meso- and macro-level.

5.5.1 *Micro level*

Micro-level mechanism reveals how coworking-spaces play a role in shaping actors' behavior and interaction among actors. Individuals act and react based on the atmosphere and tacit rules derived from the design and operation of coworking spaces, and at the same time, actors actively influence and build institutions in coworking spaces through institutionalized socialization and connected resources.

*Institutionalized socialization***.** Coworking-spaces basically involve diverse individuals or teams working in the (partly) shared and contemporary designed workplace. Thus, CWE that have low hierarchy or legitimation systems and attract users that appreciate this non-hierarchical workplace. Hence in general, CWE assemble users who more or less share similar ideas, views, or beliefs about working. Together with the open-planned design, common areas, and share facilities in coworking-spaces, coworking-spaces increase personal encounters and chances for chit-chat and talk among like-minded people. Interviewee 15 illustrated how working in coworking-spaces changes his tendency in greeting people:

> *"It is pleasing to work here, you know. Every time when I meet someone in the lounge or kitchen, you just say "Hi!" or "Have a good day!". But it sounds a bit weird if I do it just on the street." [Interview 15]*

Furthermore, we find the institutional change at micro-level also leads to a collective impact. On the one hand, the socialization behavior gets imitated and spread, and in the end, becomes a norm of the members working in the space. On the other hand, the institutionalized socialization also becomes "social solidarity" that conform to each coworking user to the normative expectation to demonstrate their "membership". Most of our informant has reported that small talks and greetings generate them positive emotions at work and also facilitate establishing relationships with other users. Interviewee 20 describes his experience with the first visit to the space and the expectation from the first impression:

> *"I came here the first time to visit a friend, and I was working from home. Then I saw here so many people were interacting, talking, discussing. It seems that everyone looks very open and friendly, and I feel it is the right way to get inspiration and sparkles from ideas exchange. Then I started to think: when tough stuff comes up in my project, it would be helpful if someone would provide some insights as an outsider." [Interview 20]*

Connected resources. Coworking-spaces physically collocate diverse individuals and teams in the same space and also invisibly link the resources attached with each user. From actors' co-presence and social interaction in the shared space, they can further build trustable relationship and exchange information with each other. The spatial collocation even enables resource exchange unwittingly. For example, coworking users can get information or knowledge on the business and expertise of others from observation, or success stories might induce diffusion and inspiration in the space. Actors might start with some informal interaction, enter knowledge change, help each other, and then move into joint work-, team-, project, and firm-relationships that shapes new patterns of institutions. Interviewee 18 stated how the others in the coworking space help him and his work:

> *"The talking with other people motivates me in one aspect, and in another, it inspires me. You know the idea exchange with different perspectives brings you new ideas. This is helpful for my work and myself." [Interview 18]*

Our findings also indicate that coworking-spaces managers play an intermediary role in building up connection and collaboration among members. Most coworking-space regularly initiate activities or events where users can interact casually and informally. This practice triggers a collaborative culture among users and increases the chance that they might find complementary or potential resources for their business. As Interviewee 16 explains:

> *"People (referring to users of the coworking-space) often meet when there's an activity going on. This space initiates an afternoon tea activity every Friday and invites every member to participate…It is a perfect atmosphere to talk about some business-related topic." [Interview 16]*

5.5.2 *Meso level*

Meso-level mechanism indicates that coworking-spaces and the entailed CWE also change organizational and collective behavior. The institutional impacts are neither constraints in and among individuals nor confined in the spatial sphere of the physical space. The further diffusion and adoption of new institutions further contribute to community-focused coordination and Industrial value co-creation.

Community-focused coordination. Although players in coworking-spaces follow individual targets that are less prone to normative isomorphism, CWE develop and draws upon communities. A CWE community emerges from a tangible environment, interior, location (e.g.,

a quarter of a city), the rules set by the provider, actors and their moral sets, social interactions, and shared beliefs and mutual goals. Space is embedded in a geographic location with a specific community (Lee and Lounsbury 2015), influencing a moral base of what is right (Marquis, Glynn, and Davis 2007). With the common sense in sharing space, seeking flexibility, and searching social links, most of the users in coworking-spaces work in creative-related fields, such as entrepreneurs, start-ups, freelancers, and independent creative workers. Their socialization and information exchange trigger a collectively shared identity that, in turn, generates new institutional arrangements. Most providers echo in the communal attribute of their coworking-spaces and the new rule of behavior attached:

> *"So, we transfer what we have learned about running a space with these three main pillars, which are community plus content plus space. We do a co-creation workshop with them, so they identify their own community." [Interview 08]*

> *"We have a CEO community and a community of the whole space. It is not something you can make it established in a couple of days, but they have their needs, so they are continuously looking for available resources, and we facilitate them in connecting with complementary resources." [Interview 05]*

The establishment of a community is the point that transit the perception of "I" to "We" in coworking-spaces and lays the foundation for CWE. This transition brings a collective perspective to the action and interaction of actors and nests actors with diverse goals and backgrounds affecting each other in various but coherent ways with respect to their shared identity and institutions.

Industrial value co-creation. CWE have formalized and clear market positions. As a community of creative workers and with the integrated resources, it also attracts attention from actors and stakeholders outside of the space. In this way, CWE change the institutionalized rules of resource integration and entails more collaborative projects and innovations. Initially, coworking-spaces and its users incorporate this novel workplace solution and generate new sets of rules for behavior, where the actors' behavior and institutions dynamic evolve. In this process, the changing institutions are also not constrained to the spatial sphere of coworking-spaces. The word-of-mouth effect and the public image of coworking-spaces also attract outside actors who seek support or resources from the generated institutional norms within CWE. As a result, CWE integrate resources in the related industries, and institutions derived from CWE are an essential component in the process of resource integration and value co-creation among

them. Some interviewees highlight the benefit of leveraging industrial resources while embedded in CWE.

> *"We all know that here is more about connection than other coworking-spaces, so to meet some right people here is something that attracts me. Like to know some potential partners or peers in the same industry, and then we can support each other or handle some issues together, or at least as a friend." [Interview 20]*

> *"I know many experienced or serial entrepreneurs come here. They do not necessarily collaborate with me in my project or participate in my business, but their experience in how to develop it, how to manage the project, what are the obstacle I might face would be a big help for me." [Interview 16]*

Our field study also shows that some CWE are focusing on one industry. For example, the focal unit of a lab-based CWE developed hulls for start-up-projects, including proto-type-structures for financing and IP-rights. It also covers prototype-constellations for equity investment or acquisitions. The focal unit of a consulting based CWE uses three-generic and coached project-types-hulls which deliver inherent rules with normative influences. Managers in these coworking-spaces stated the reason and how it benefits the industry while changing the existing institutions.

> *"I think that we'll see many, many more coworking-spaces focused on industries like advanced manufacturing or access to CNC [Computer Numerical Control] milling machines or laser cutters or 3D printers. They all need shared machinery like pattern cutting machines and knitting machines for fashion or commissary kitchens for food with freezers [...]." [Interview 03]*

> *"We have a partial preference towards teams in the emerging industries and can potentially complement or interact with our current resource network. Because our collaboration with many big firms and industries is already established, we hope the resided projects can promote our development of the platform and vice versa." [Interview 08]*

5.5.3 *Macro level*

Macro-level mechanisms include emerging ecosystems and the increasing legitimacy of coworking spaces. Both extend the sphere of institutionalization derived from CWE to a broader sphere and lead to more profound social changes.

*Emerging ecosystems***.** Generally, our findings show that coworking-space providers increasingly network with externals, including incumbents, research institutions, and start-ups while developing their CWE. The ecosystem is initially based upon the physical environment provided by a focal organization, and then forms a localized hub that constitutes the core of a CWE, which reaches and involves broader actors with its service, activities, and events. Especially interviewee 04 clearly summarized the development towards an ecosystem:

> *"I think our space is already a mini ecosystem: there are diverse teams, and each team can look for collaboration here. Also, we as management team is trying to broaden their connection with external resources like we have close collaboration with big firms and innovation-related institutions. So many external projects or firms also come to us and look for the resources they need." [Interview 04]*

Consequently, through matching actors and integrating their needs and resources, coworking-spaces create new channels for the loosely coupled actors to connect, collaborate, and work jointly. These channels, on the one hand, brings linked resources together for more efficient knowledge exchange, and on the other hand, offer innovative ideas opportunities to develop while accessing complement resources, and thus, lead to blooming innovation in the ecosystem. Interviewee 06 exemplified the process with their interaction with big firms as important resources for members:

> *"We have close interaction with many big firms because you know big firms are also looking for innovation. When the needs of the big firms and projects of our users fit, we help to connect them." [Interview 06]*

As a hub of creative people and innovative projects, CWE change the accessible resources of related actors and the way they act, connect, react and collaborate, with its physical space as a basis for interaction. CWE bring institutional changes to all the actors engaged in the innovation process and innovation itself.

Increasing legitimacy. Coworking-spaces and their induced ecosystems are increasingly accepted. While all the actors benefit from at least temporarily using the spatial design, networking opportunities, socializing events of coworking spaces, they also bring the value and entrepreneurial spirit into their environment. Furthermore, even for those who are not directly related to the CWE, the success of members or joint projects, the participation in activities organized by or in coworking-spaces can also spread and intensify entrepreneurship in

categories, industries, or regional clusters. As interviewee 19 articulated the legitimated image of the CWE as the reason for joining:

> *"You know the founder [of the coworking-space] is a big name in the industry, and he initiated a very successful project here? I heard about it long time ago. And the space is more internet-oriented, so it has quite rich resources in the internet industry. I feel there would be more opportunities." [Interview 19]*

As the institutional context of CWE promotes innovation, innovation also evolves and triggers institutional changes. Actors draw on existing institutions and generate new institutional arrangements. The iteration entails the legitimacy of CWE and emerges shared value and conception among multiple actors. Interviewee 09 stated the concept of CWE in the following words:

> *"Coworking in the future will be a business that will […] be more and more dynamic. Unless you don't put on it something that is an added value that goes beyond the coworking itself. It's actually sharing a value not just sharing space, and actually not only for working together, but to connect." [Interview 09]*

5.6 Conclusion

CWE institutionalize a new 'home' for innovation, technology development, and venturing. The users working alone and together in a space and also connect with others outside the space. Mechanisms across micro-, meso- and macro-level functions move beyond the connection of individuals in a physical sphere. Institutional theory stresses that the connection of institutions across various levels is key to innovation. Our findings further explicate the process and mechanism in each level and between levels. The current study contributes to research and advocates future research in three main areas.

First, we contribute to research on coworking-spaces (Bouncken, Clauss, and Reuschl 2016; Bouncken et al. 2018), extending it towards our concept of coworking-ecosystems. While we inform about the connection of different levels for understanding the institutional development in this ecosystem, further research on coercive and normative forces is essential. For example, incumbent firms could regulate or destroy autonomy and community because of their more rigid structures.

Second, we connect the phenomenon based coworking-research with a theoretical foundation of the institutional theory. While the different layers explain the system, we specifically

advocate further research on organizational identity emergence in coworking-spaces. Organizational identity research and institutional theory have become increasingly connected for explaining innovation and venturing in the past years (Fisher, Kotha, and Lahiri 2016; Mitchell and Boyle 2020). The identity of a venture strongly explains its growth and how strongly it departs from common expectations in a category, thus how strongly it brings out distinctive and innovative solutions. The question of optimal distinctiveness and normative legitimacy was particularly put forward by cultural entrepreneurship (Täuscher, Bouncken, and Pesch 2020; Tracey, Dalpiaz, and Phillips 2018). Coworking spaces provide an interesting area where the normative influences of cultural entrepreneurship come into play and where communalities and identities shape the interaction. Coworking ecosystems shape a context where identities of different individuals and ventures in the space might be connected with the identity of the coworking-space (provider). The identity of the provider as crafted in their narratives (identity claims) will influence the users of coworking spaces in their selection of the space and, in addition to their behavior in the space. Thus, individual and organizational identities of the users develop within a context of autonomous social interaction with other users (individual and organizational) that are influenced by the organization identity of the coworking-provider. Previous research showed that professional backgrounds shape identification processes (Battilana and Dorado 2010) and also technology use (Bouncken and Barwinski 2020). Hence, the identities of the users might be influenced by social, professional, and technology identity hooks, and thus innovation and venturing are shaped by the diverse identity processes.

Third, research on CWE, institutionalization and identity are proliferating. As the knowledge progresses, new qualitative research methods that are inductive and deductive gain in importance. In particular, we recommend future study to adopt a flexible pattern matching approach that features the iteration between theories and data and thus combines both inductive and deductive logic, and thus enables “disciplined imagination” in exploratory research design (Sinkovics 2018). This approach especially enhances the depth, but also the rigidity and validity of qualitative studies. Some recent studies adopting this approach receives increasing attention from top journals (Bouncken and Barwinski 2020; Gatignon and Capron 2020; Sinkovics et al. 2019). The use of existing theory and qualitative data in an iterative process allows finding more nuances in case studies for better understanding the social processes and their institutional embeddedness for innovation and technology development.

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Chapter 6: Trajectories of Service Business Models – Insights from Collective Consumption of Coworking-spaces

With Ricarda B. Bouncken (2020).

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6.1 Abstract

Services, especially pure services that contain collective consumption contexts need to consider in their business model design the co-creation of customers who are co-present in the service space. While there is little understanding of such service business models, our study applies a qualitative flexible pattern matching approach. The unit of analysis are coworking-spaces, where the collective consumption shapes the business model. Our longitudinal results show that business models base on socio-emotional laden physical objects that are augmented by different servitization layers. Our longitudinal analysis shapes our theory contribution finding trajectories of the service business models. Trajectories evolve through customers who have recurring and manifested service experiences related to the category and the local spatial service context. Change of the consumer-enabled business model can only occur by nudging rather than by meticulous planning.

6.2 Introduction

Service business models attract increasing attention in research. Services play a key role of firms changing their business models, e.g. by servitization that describes added service offerings of manufacturing firms (Kastalli and Van Looy 2013; Neely 2008; Vandermerwe and Rada 1988). Besides the important topic, research is largely silent on how the co-creation of co-present customers of pure services influences the shape and the change of service system business models (Brodie et al. 2019; Vargo and Lusch 2008; Vargo and Akaka 2012). The concept of business model, which has strongly proliferated in research over the past decade, builds a template for changing the value creation, proposition, and capture of firms (Timmers 1998; Baden-Fuller and Morgan 2010; Massa, Tucci, and Afuah 2017). Specifics of pure services are very nuanced in co-consumption contexts, which include several consumers and service personell in product/service consumption (Colm, Ordanini, and Parasuraman 2017).

Thus, the purpose of our research is to analyze how the co-creation and co-presence of different customers in the service encounter that shapes collective consumption contexts influence the

design and change of service business models.

We build on research of business models, service systems, and collective consumption (Brodie et al. 2019; Edvardsson, Tronvoll, and Gruber 2011; Brodie et al. 2019; Grönroos and Ravald 2011; Witell and Löfgren 2013). The collective consumption context (Caru and Cova 2015; Kelleher et al. 2019; Närvänen, Gummesson, and Kuusela 2014; Rihova et al. 2013) refers to a long tradition of service research on the integration of the consumer into the production process of services (Brodie et al. 2019; Vargo and Lusch 2008; Vargo and Akaka 2012). The inherent prosumption and co-creation is about physical, cognitive, and socio-psychological integration processes rather than single purchase points (Xie, Bagozzi, & Troye, 2008).

Our methodological design is a qualitative flexible pattern matching approach. It allows for developing propositions on the basis of existing theory and then exploring how the propositions are matched by empirical insights to further develop theory (Sinkovics 2018; Sinkovics et al. 2019). Our empirical study focuses on coworking-spaces that represent a strongly growing and contemporary service category in which the collective consumption determines the business model (Waters-Lynch and Duff 2019). Coworking-spaces offer shared office- and social-space in which they provide additional services related to food, leisure, events, entrepreneurship, or education e.g. by start-up coaching, education, joint work-shops (Bouncken and Reuschl 2018). Customers are co-present in the same physical setting that has open-plan workplaces, shared facilities, and further work or leisure related facilities. Customers interact with service personnel in certain spaces (e.g. reception, cafeteria, trainers, and coaches). They also work beside other customers and enter more intense exchanges with (some of) them.

Interviews with actors from the customer and provider side at different times build our primary data sources. In addition, narratives from websites of coworking-providers and press releases were used as secondary data sources. Data was triangulated in a flexible pattern matching methodology (Sinkovics 2018; Sinkovics et al. 2019). From the triangulation we support, modify, and advance our theoretic development.

Our findings show that value creation and value proposition largely occur synchronously in collective consumption. Similar to business models of manufacturers, business models can have different servitization layers of added services and stronger (co-) immersion of customers. Findings further show that collective consumption and the tangibles that build the basis of the business model are associated with economic values but also with socio-emotional values. The latter stems from tangibles that bring social-emotional a meaning, guide interaction, and channel a vibe created among customers in the service place. Socio-emotional meaning evolves

over time through co-creation and co-immersion of customers and reinforced patterns. In addition, we find strong trajectories of service business models, potentially related to the aforementioned socio-emotional attachments and reinforcement that limit business model change. Service business models are user-enabled business models rather than provider-led models.

Our study contributes to service business model research in three areas. First, we support previous research on value co-creation in service business models (Brodie et al. 2019; Visnjic, Wiengarten, and Neely 2016; Witell and Löfgren 2013), particularly stressing the socio-emotional value in collective consumption (Caru and Cova 2015; Colm, Ordanini, and Parasuraman 2017). Second and mainly, we contribute the idea of trajectories to service business model research. The trajectories contrast previous research on business models that have been considered as rather experimental and tactical (Casadesus-Masanell and Ricart 2010), based on deliberate planning (Markides 2013; Osterwalder and Pigneur 2010), and which have been analyzed without considering the spatial/local community (Vaskelainen and Münzel 2018). Third, and related to the former, we find limited managerial navigation in customer-enabled business models. While largely dependent on the exchanges of customers in service processes, providers can only nudge changes of their customer-enabled business models, e.g. by modifications of artifacts that channel socio-emotional meaning systems. Alternatively, service providers might employ service changes that strongly influence the cognitive-economic consideration of their customers.

6.3 Theoretical Framework: Collective Consumption Models

6.3.1 *Value processes in service business models*

A service perspective importantly accounts for the phenomenon that firm's business models tend to become more "service-oriented" than "product-only" (Brodie et al. 2019; Visnjic, Wiengarten, and Neely 2016; Witell and Löfgren 2013) and that business models relate to systemic participation of different actors in value processes that move beyond the focal firm alone (Amit and Zott 2001; Wieland, Hartmann, and Vargo 2017). Business models are regarded to as structural, holistic, and systemic templates of how firms propose, create, and capture value (Teece 2010; Bocken, Rana, and Short 2015; Sjödin et al. 2020; Tallman, Luo, and Buckley 2018). At the forefront of business model research, Timmers (1998) explicitly included services systems as "an architecture for the product, service and information flows, including a description of the various business actors and their roles" (p.4).

Services build an important driver of manufacturer's business model change by weaving services into their product offerings (Bask, Tinnilä, and Rajahonka 2010; Visnjic, Wiengarten, and Neely 2016; Witell and Löfgren 2013), particularly by servitization (Chase 1981; Oliva and Kallenberg 2003; Raja et al. 2013; Kastalli and Van Looy 2013). The service ecosystem perspective (Vargo and Lusch 2011) allows considering the whole range of service business models by the integration of customers (Brodie et al. 2019; Visnjic, Wiengarten, and Neely 2016; Kindström 2010). It informs about the systemic participation of different actors (e.g. customers, firms, or other stakeholders) and their co-creation in value processes (Wieland, Hartmann, and Vargo 2017). Hence, service ecosystems draw upon the original idea of business models that stretch the boundaries of a focal firm (Amit and Zott 2001), a notion that has not been consequently pursued by previous business model research in management (Bouncken and Fredrich 2016).

Co-creation explains that others are actively integrated into the service provision (Prahalad and Ramaswamy 2000; Tax, Colgate, and Bowen 2006; Vargo and Lusch 2004). Co-creation in service systems connects diverse actors on multiple levels (micro, meso, and macro) (Caru and Cova 2015; Chandler and Vargo 2011; Figueiredo and Scaraboto 2016; Meynhardt, Chandler, and Strathoff 2016; McColl-Kennedy et al. 2012) and in processes rather than single purchase events (Xie, Bagozzi, and Troye 2008). Therefore, a service perspective overcomes the unidirectional view of business model research which assumes producers as value creators and customers as value receivers where processes rather than events build the model (Fehrer, Woratschek, and Brodie 2018; Fehrer, Woratschek, and Brodie 2018; Jaakkola and Alexander 2014; Wilden et al. 2017).

Services processes might need tangibles (e.g. buildings, interior, IT systems, equipment), but the value added in services comes from the intangible co-creation in particular (Maglio and Spohrer 2013; Lusch, Vargo, and O'Brien 2007; Schau, Muñiz, and Arnould 2009; Vargo and Lusch 2008). Co-creation can include a co-presence of customers in service encounters, marked in pure services by the terms 'prosumer' or 'prosumption' (Parasuraman, Zeithaml, and Berry 1985; Zeithaml, Parasuraman, and Berry 1985; Witell et al. 2011; Xie, Bagozzi, and Troye 2008). Besides from pre-paid subscription models, service firms capture value by use, so again by the integration of the customer (Sjödin et al. 2020). Service firms can use narratives and visualizations to propose their value, yet the value proposition strongly depends on user experience shaped by co-creation (Cova and Dalli 2009; Grönroos and Voima 2013; Guo et al. 2013). This simultaneity of value proposition and creation is particularly strong in pure services

because they contain many intangible value elements and are based on the integration of the clients in the 'production' (Mills and Morris 1986; Martin and Pranter 1989). The overlap might be lower when co-creation is mediated by technology, e.g. in a virtual space. Therefore, value co-creation and its proposition is systematically interconnected rather than sequentially separable although services can propose their value added by making claims or using technologies. This interconnectedness contrasts business models of manufacturing firms that might have separate processes of value proposition, creation, and capture.

Proposition 1: Collective consumption services have a high degree of interconnected processes of value co-creation and value proposition, where value co-creation is the key to the business model.

6.3.2 *Various value forms in collective consumption services*

In services, different stakeholders actively participate in value co-creation processes (Storbacka et al. 2016; Bettencourt 1997) and in complex forms of values and exchanges (Vargo and Lusch 2011; Meynhardt, Chandler, and Strathoff 2016). There is a long prominence in service research upon the spatial, physical, knowledge, or emotional integration of the consumer and differences according to varying service forms or industries (Colm, Ordanini, and Parasuraman 2017). The integration varies, e.g. IT-services focus on the informational integration that is independent from the specific location of the client and the provider (Colm, Ordanini, and Parasuraman 2017). Service providers might involve the customer physically, mentally, or emotionally in their activities, e.g. by self-service or in providing ideas (Mills and Morris 1986; Bettencourt 1997). Services with the need of physical co-presence (e.g. hairdressers, physicians) demand a direct physical and informational integration of customers and providers so that value covers cognitive and behavioral origins in active doing, interaction, and/or collaboration (McColl-Kennedy et al. 2012; Sweeney, Danaher, and McColl-Kennedy 2015), even public sources or private sources (e.g., self, friends, and family) (Vargo and Lusch 2011; Kelleher et al. 2020; Jaakkola and Alexander 2014; Michel, Brown, and Gallan 2008).

Especially, in collective consumption contexts, the value creation refers to interactions of customers with fellow customers, e.g. dining, travel, and entertainment services (Colm, Ordanini, and Parasuraman 2017). For example, value might relate to joint activities of sports or education and thus socio-emotional or educational value. Actors from the provider- and customer-side (e.g. consumers and service personnel) who are co-present (physically and/or

virtually) need to coordinate each other for the co-creation of value (Kelleher et al. 2019)[1]. Service might contain different intensities and forms of collective consumption (Kelleher et al. 2019), and the collective consumption itself might vary in economic, physical, social, or emotional value components. Health care, for example, includes several services on the sole integration of the patient (treatments, consultation, etc.), and other services related to a collective consumption which demand coordination or even direct interaction of different patients (e.g. shared rooms or chit-chat) (Kelleher et al. 2019; McColl-Kennedy et al. 2012). However, with greater collective consumption, different customers share and shape the service (Caru and Cova 2015), influence each other, (Vargo, Maglio, and Akaka 2008), and need to fit in the specific value context (Grönroos and Ravald 2011). The context includes individual, relational, collective goals (Epp and Price 2011), and the social system (Chandler and Vargo 2011; Jaakkola and Alexander 2014). For example, consumers in the same location can observe each other at least partially. Observations might come with interesting moments and learning. Learning allows understanding the flow of service and thus helps less experienced customers (Colm, Ordanini, and Parasuraman 2017). Novel customers might experience values by enhanced observations of processes and procedures of expert customers. Experienced customers might perceive greater value, because processes and procedures known to them become institutionalized practices (Vargo, Wieland, and Akaka 2015). Yet, observations might indicate unequal treatment of different customers and so create negative feelings of envy or unfairness (Colm, Ordanini, and Parasuraman 2017).

Friendliness or other atmospherically important factors bring a ‘vibe’, thus influencing value creation, proposition, and capture in collective consumption contexts. For example, a lively space provides various stimuli from other customers and entertainment. A positive, warm, and social service context provides a feeling of welcome, protection, and inclusion (Caru and Cova 2015). It might increase the motivation for more intense interaction. The atmosphere is dependent on several actors in the spatial context and their fit (e.g. in a restaurant, hotel, in an incubator, shopping mall) (Colm, Ordanini, and Parasuraman 2017; Kelleher et al. 2019; Zomerdijk and Voss 2010). Consumers might be pleased by the others but also annoyed by other’s territory behavior, noise, and priority in the collective service experience (Caru and Cova 2015). Influences are ambiguous. Dor example, when fit is low more crowded spaces

[1] Physical or technological platforms can serve as the location of collective consumption. Online communities and brands can have elements of collective consumption, but the core is the face-to-face interaction in social relationships of different consumers in a social and spatial sphere (Närvänen, E., Gummesson, E., and Kuusela, H. (2014), "The collective consumption network." *Managing Service Quality*, 24(6), 545-564.).

might have reduced value although empty spaces often indicate low quality (Colm, Ordanini, and Parasuraman 2017). Alternatively, a service space with few customers might indicate privacy and short waiting time.

Hence, services have economic, physical, social, or emotional value components (Caru and Cova 2015) that relate to spatial and behavioral spill-overs among customers (Colm, Ordanini, and Parasuraman 2017). Customers in collective consumption can be just individually co-present in the space and have low co-immersion by short term, non-essential encounters ('proactive social interactions', Colm, Ordanini, and Parasuraman 2017). Low co-immersion indicates short term and not essentially personal interaction with other consumers, i.e. conversations with fellow customers who take a break from traveling alone to share travel experiences of helping each other with luggage. Instead, high co-immersion describes interactions with other consumers that are essential through physical, knowledge, and emotional interaction (Grönroos and Voima 2013). For example, team sports need high immersion as do postmodern alternative social arrangements that combine social, emotional, and economic value (Caru and Cova 2015; Waters-Lynch and Duff 2019). Examples are makerspaces or coworking-spaces, where users co-immerse in intense personal discussions, possibly joint teams. However, value is manifold and is shaped in a social arena.

Proposition 2. Business models in collective consumption contexts depend on interconnected economic and socio-emotional value processes of several co-present and co-immersed actors.

6.4 Empirical Setting of Collective Consumption: Coworking-spaces

Our study was interested in analyzing business model design and change shaped by collective consumption, which is rich in systemic social, emotional, and economic value co-creation of co-present actors. Coworking-spaces describe such a service context (Bouncken et al. 2020; Waters-Lynch and Duff 2019). Coworking-spaces offer office space and social space in which diverse actors, often from different institutional backgrounds, can work and socialize (Gerdenitsch et al. 2016). Users are self-employed, freelancers, start-ups, or small ventures, but also employees of corporates (Bouncken and Reuschl 2018). Physically, coworking-spaces differ from the regular formal office elements (e.g. cubicle, separated offices, rigid working hours) using open-plan spaces with more informal and shared areas (e.g. open-plan office, kitchen, and lounge). The shared facilities increase the transparency and face-to-face encounters of individuals (Orel 2019). Coworking-spaces might arrange their interior to create an interactive, albeit varying, service surroundings (Bouncken and Reuschl 2018; Gandini 2015;

Leclercq-Vandelannoitte and Isaac 2016). Besides, coworking-spaces offer different forms of hospitality services (e.g. kitchen, cafeteria, restaurant, co-living), social and educational services. Providers commonly offer services related to socializing events, education services, e.g. workshops, mentoring, and consultancy (Spinuzzi 2012). Value capture of coworking-space providers might come from pay per use, hourly, daily, weekly, or monthly rent or "some kind of subscription-based models" (i.e. Mitev et al. 2019). Users might encounter like-minded people and easily initiate personal ad hoc communication (Garrett, Spreitzer, and Bacevice 2017; Khazanchi et al. 2018; Toker and Gray 2008). Thus, the coworking setting is well suited for analyzing the co-creation in collective consumption contexts of service business models.

6.5 Methodology

Flexible pattern matching and research design

The analyze of how co-creation and co-presence of customers shapes collective consumption service business models, requires unpacking the multilateral interaction between and among customers, service provision, and business models. Qualitative research is particularly powerful for gaining rich data, revealing multifaceted situations and causal mechanisms (Graebner, Martin, and Roundy 2012). We adopt a flexible pattern matching approflexach that enables us "to link (and compare) a predicted pattern that is derived from theory (see propositions 1 and 2), with observed patterns" (Sinkovics 2018). The flexible pattern matching approach is "most suited for explorative research design" (Sinkovics 2018; Sinkovics et al. 2019). It provides flexibility for iterative comparison of relevant theories with collected data through a tentative analytical framework (or initial template) (Sinkovics 2018). The matches and mismatches between the framework and the empirically observed patterns build the foundation for exploration and theory building. It offers a structural process for researchers to articulate their theoretical implications and mental models in data analysis and facilitate readers to comprehend findings in relation to prior work (Gatignon and Capron 2020). Following the process of flexible pattern matching, we first develop propositions (cf. the previous section). The investigation into coworking-spaces leads to extension (in depth) and expansion (in scope) in the initial template. Table 6.1 provides an overview of the development of propositions (expected patterns) from relevant theories.

6.5.1 *Data collection*

We employ multiple cases with longitudinal data to develop and validate observed patterns.

Our data sources consist of interviews, observations, tracing of official websites, and other archival data (see a summary of our data sources in Table 6.2). The diverse data sources allow for convergent and divergent views that help generate a holistic picture on service business models with collective consumption context (Aguinis and Solarino 2019; Boeije 2002). The primary data source is 79 interviews with 46 individuals (including 33 follow-up interviews) collected from three rounds of field study between September 2018 and December 2019. The initial field study was set out to collect data on coworking-spaces and their business models. The fast development of the coworking industry motivated the second round of data collection from the initial and additional cases. A newly emerged pattern further led to another round of data collection for validation.

Round 1: Data collection from selected cases to investigate the research question. The first round of data collection was about business models of the rapidly evolving coworking industry and the mega-city background in China. We adopted a purposive sampling approach following the principle of appropriateness and adequacy (Eisenhardt 1989; Seawright and Gerring 2008). Our first field research started in March 2018. We selected ten cases based on the criteria: 1) each coworking-space must represent an independent provider (brand) with a clear business model, 2) the set of cases reaches a maximum variation with respect to space organizers, service provision, facilities, target user groups, sizes, and regions (see Appendix A for more details).

Table 6.1 Initial Template and Pattern Match.

Underlying theoretical framework	Propositions (expected patterns)	Observed patterns
Servitization changing philosophy in business models Service ecosystem perspective integration of multiple actors in service Value co-creation of customers Customers as key value co-creators in service business models. Value process in service A constellation of surrounding, actors, activities.	Collective consumption services have a high degree of interconnected processes of value co-creation and value proposition, where value co-creation is the key to the business model.	Co-creation and co-immersion – leading continuance - Value proposition from pre-set image; - Image derived from co-creation and co-immersion of users; - Socio-emotional value from co-presented users; - Continuance in the user group and service provision.
Collective consumption Value from co- dimensions: co-presence, co-creation and co-immersion. Co-creation in collective consumption context Individuals fit with the value context and interact. The atmosphere shapes the vibe that influences customers and their behavioral spill-over. Co-immersion influences the intensity and duration of interaction.	Business models in collective consumption contexts depend on interconnected economic and socio-emotional value processes of several co-present and co-immersed actors.	Servitization-Layers - Tangible: socio-emotional cue to co-creation and co-immersion; - Development services: increasing co-creation and co-immersion; - Platformization: extending scope of co-creation and co-immersion.

Data collection from selected cases began in May 2018. We visited all ten coworking-spaces and worked in each of them no less than ten days as a non-participant observer. Observation yielded 313 pages of field notes, and they helped in developing semi-structured interview guidelines. We interviewed managers of each coworking-space. We also talked with users in each coworking-space, aiming for diversity and information-rich examples to corroborate future findings. Specifically, we looked for informants with no less than one-year working experience in coworking-spaces. We also purposefully selected informants in different professions (e.g., coworking, marketing, information technology, trading, fashion, and design) and positions (e.g., employees, managers, CEOs, founders, entrepreneurs). To ensure that interview data captures different sides of the story, we contacted five individuals who were involved more broadly in the coworking industry, including trainers, alumni, policy representatives, and coworking book authors. This yielded 38 interviews from 16 providers, 17 users, and five other coworking practitioners.

We started our interviews with general questions about a description and purpose of coworking-spaces. Specifically, we asked providers and users about the attraction and provision of the space, the daily activities, the role of other users in the space, and social interactions. Interviews with the five industry experts showed largely overlapping topics. Data from interviews and other diverse sources strongly support our propositions on interconnected value creation and proposition but also inform about different servitization layers.

Round 2: Additional data from within- and out-of-sample cases to corroborate the findings. In 2018, a tremendous growth of the coworking industry in China and even worldwide motivated the research team to collect additional data and to search for more details, especially on the business model changes. In March 2019, we decided to revisit five cases from the initial sample, aiming to capture potential changes and new insights. Additionally, we visited five coworking-spaces in Germany and the USA[2], aiming to diminish the potential influence of the Chinese culture. The data collection process of the second round was in line with the first round. The data from diverse sources presents high consistency with the previously developed patterns, but also shows that business models tend to be very stable. Therefore, the research team conducted another follow-up study of all the selected cases for validation.

[2] Based on the data from Global Leadership & Organizational Behavior Effectiveness (GLOBE) project, among 62 investigated countries, Germany ranked 60th (east) and 54th (west), the USA ranked 32nd, and China ranked 7th regarding institutional collectivism. https://globeproject.com/study_2004_2007?page_id=data#data

Round 3: Data collection to validate a new pattern. We aimed to revisit all the ten cases and got access to nine of them. All spaces had personnel changes. Nevertheless, we managed to approach and interview at least one provider and one user from the first round. The guidelines for follow-up interviews included the same questions as in the first round but also new questions on the newly emerged theme of business model continuance (Hermanowicz 2013; Van de Ven and Huber 1990). We aimed to explore the "why" in interviews with providers and customers. This round yielded 21 follow-up interviews, including nine with providers and twelve with users.

Table 6.2 Data Materials.

Source	Type of data	Use in the analysis
In-depth interviews	**First round: September - October, 2018**	
	Coworking-space providers (16) with coworking industry practitioners from the 10 cases (operators, managers, sellers, chief operating officer, chief executive officer, space designer) working in different Chinese cities. **Coworking-space users (17)** with users of the 10 cases, who have been working in coworking-spaces for more than one year, including entrepreneurs, start-uppers, industry experts, and employees in specific sectors of big firms. **Other coworking industry informant (5)** with informant working in coworking-related positions (book author, trainers, alumni from coworking-spaces, and policy representatives).	Gather data on the business model of coworking-space with a collective consumption context, namely how they propose, create, deliver and capture value; examine the operation of coworking-spaces and their services (physical offerings and service portfolios), daily activities and impacts from co-presented users, and balance the data with three sides of the story: providers, users, and professionals in related positions; explore the role of consumers in business models with collective consumption context; map out the interaction among co-presented users, service offering and business model of coworking-spaces.
	Second round: April -May, 2019	
	Coworking-space providers (12) with five providers of five other coworking-spaces in Germany or the USA, and seven tracking interviews with providers from the first field study. **Coworking-space users (8)** with three users from the five emergent coworking-spaces and seven tracking interviews with providers from the first field study.	Gather further data from coworking-spaces in other culture with different level of collectivism; obtain additional information or potential changes from cases in the first round; corroborate or expand the findings from the first round of field study.
	Third round: November - December, 2019	
	Coworking-space providers (9) with coworking practitioners from the 10 cases in the first round. Some of the informants from the first round left the position, so we interviewed the in-position successors. **Coworking-space users (12)**	Capture further longitudinal data to corroborate the continuance found in the second round; unpack the reason and mechanism behind the continuance; understand the interaction of co-presented

	with eight users from the first round of whom two had moved out of the coworking-space in the first round; and with four other users from the ten cases.	users, service provision and business models in this process.
Official webpage	**From July, 2011- June, 2020**	
	Longitudinally track the webpages of all ten cases. When there is a change in the design or site menu bar, note it down. This data includes 67 tracked changes in the webpages of the ten cases.	Track content, style, and structural changes in the webpages; assess the proposed value and attraction of each coworking-space with the presented information; create a timeline of changes that have impacted the proposed value; observe how the shaped public image and stressed service change along with time.
Observation	**First round March, 2018- September, 2018**	
	Visiting the ten Chinese cases, and participating in the events, workshops, and salons therein as an observer. Also, two researchers worked in each coworking-spaces for no less than five days, observing the daily activities and interaction in the coworking context.	Understand the operation and daily interaction in coworking-spaces; validate the information from providers and users; observe and compare the interaction in different coworking-spaces with varying business models.
	Second round March, 2019- May, 2019	
	Visiting coworking-spaces in Germany and the USA, and participating in activities therein. Also, revisiting five of the ten cases from the first round and working there.	Visit other coworking-space, and revisit the previous ones; obtain additional data and capture potential changes in the previous cases.
	Third round September, 2019- December, 2019	
	Revisiting the ten cases from the first round. Observing the design and daily activities and participating in events.	Compare the physical surrounding, activities, and daily interaction with the previous rounds; assess and corroborate the finding of continuance from the second round.
Archival documents	**Internal documents**	
	Strategic planning; Activity plan and minutes; Summary of users' needs; Team meeting minutes; Policy documents; Seasonal and annual report; Organizational pamphlets and promotional materials of the ten cases;	Underpin the service provision and business model of the coworking-spaces; gain insight into how the management team internally defines organizational mission and vision; triangulate the evidence derived from interviews, webpages.
	External documents	
	local and international press, publication and media (Internet articles and local newspapers), industrial reports (JLL 2016a, 2016b, 2018; China money network 2018; Coworking-space council 2018a, 2018b, 2019a, 2019b; Cushman&Wakefield 2018; Sydney business insight 2017; Wujie coworking white book 2017); Governmental materials (announcements from the national government and policies from local governments).	Get a sense of how the identity of the coworking-spaces articulated by external audiences; derived additional insights into the industry and phenomenon from reports and policies.

Table 6.3 Changes of Websites Overtime.

CWS	Timeline	Changes in website	Effects of changes
Avel	Mar., 2016	- Set up the webpage with four categories: space, news, resided teams and value-added service.	1. Present the space, users, and services; 2. Most of the links were dedicated to the introduction of space and service.
	Mar., 2018	- Adopt Photo-Realism style for presenting spaces and activities.	1. Associate potential customers with the realism of space and activities; 2. Present a modern work-life style.
	June, 2018	- Restructure the content into five categories: space, welfare, activities, members, and service team.	1. Detailed and sorted the service part into welfare, activities and service team; 2. Attract potential users with more all-encompassing service
Bemus	Aug., 2016	- Set up the webpage with four categories: space, vision, competitiveness, and the managing team.	1. Present space and price of different type of seats; 2. Highlight space and competitive price.
	Mar., 2018	- Use an eye-catching slogan; - Adopt Photo-Realism style.	1. Both the slogan "Central location, spatial workplace, at a low price!" and photos highlight space and price.
Cabin	Apr., 2016	- Set up the webpage.	1. Introduce the space, settlement, activities, partners, and investment.
	Jan., 2015	- Set up the webpage with three categories: location, interior and community activities. - Use a slogan.	1. Introduce spaces in multiple sites; 2. Slogan: your flexible workplace solution.
	Feb., 2016	- Add two categories: discount, auction.	1. Attract more users with low price seats.
	Apr., 2019	- Remove discount and auction; - Add two categories: customization, member welfare.	1. Attract more potential users with customized space or shared service.
Entre	Apr., 2016	- Set up the webpage with information in 3 categories: space, service, and contact.	1. Present the space with spatial open areas; 2. Describe the vision as creating an entrepreneurial ecosystem.
	Apr., 2017	- Restructure the content into five categories: space, activities, application, service provision, eco & circle.	1. Specify and detailed the attached service and benefits; 2. The slogan stays as an entrepreneurial ecosystem with space and service.
	Sep., 2019	- Adopt a flat design with pictures focusing on innovation and activities; - Restructure the content into five categories: community updates, innovation ecosystem, activity center, workspace, network.	1. Strengthen the image of ecosystem node and platform for entrepreneurs.
Focus	Aug., 2018	- Set up the webpage with five categories: space, users and projects, service, application, and resource integration.	1. Present information about the space and success of users' projects; 2. Depict the spaces as a hub and fertile land for entrepreneurial projects.
	Apr., 2019	- Add information on training and events.	1. Enhance the image of a hub for entrepreneurs with education provision; 2. Events with big firms increase the possibility of networking.
Gazelle	July, 2011	- Set up the webpage with the introduction of the first space and activities therein.	1. Introduce and define the space as a hub and platform for Internet-orientation entrepreneurs.

	Nov., 2012	- Sort the content into three categories: space, activity calendar, and videos of previous activities.	1. Provide more information to attract more related peers; 2. Consolidate the image of "hub for internet entrepreneurs".
	July, 2013	- Add two more categories: training and open course, latest news and insights on the internet industry.	1. Improve and specify the service for internet entrepreneurs; 2. Create a more inclusive service profile focusing on internet projects.
	Dec., 2015	- Restructure the content into four blocks: space, activities, investment and policy academy; - Propose a slogan.	1. Deepened and categorized the services for internet entrepreneurs; 2. Focus on developing teams with slogan "Grow together with other dream seekers".
	Mar., 2017	- Restructure the content into six blocks: space, activities, internal service, external service, information, co-workers.	1. Broaden the types of service and activities; 2. Strengthen the ability to support growing projects.
	Sep., 2018	- Narrow down the content into five categories while adding sub-categories.	1. Restructure the service and related resources; 2. Generate a more focused and structured service portfolio for internet entrepreneurs.
Helios	Sep., 2018	- Set up of the webpage with five categories: space, community, activities, news, service, and investment.	1. Introduce the spaces focusing on network and growth of developing projects.
	Aug., 2018	- Add a new category, oversea station; - Change to more international design.	1. Highlight the global network and activities.
	Apr., 2020	- Adopt a flat design with pictures on spaces and events; - Restructure the content into four categories: location, service, international network, news.	1. Attract more young and creative workers with the design; 2. Further strengthen the image of a coworking-space with an international atmosphere and resource integration.
Image	Jan., 2017	- Set up the webpage with information on space, functionality, and about the team.	1. Focus on location, design, and functionality of the space and facilities; 2. Highlight their high-tech technology that makes work easier.
	Feb., 2020	- Reorganize the whole webpage and categories into settlement, smart office solution, customization.	1. Undergird the image of space with high-tech facilities; 2. Stay the focus on space and tangibles.
Jump	Nov., 2016	- Set up of the webpage with four categories: living and working space, reside shop, activity, service partner.	1. Introduce the space with co-living areas.
	Jan., 2019	- Restructure and relabel the content into four categories: socializing apartment, coworking-space, community activity, professional service;	1. Focus on the community and attached service while further promoting the work-life balance concept;
		- Adopt a flat and picture-realism design to present daily life and activities.	2. Present an international and communal lifestyle of residents.

We complemented data with rich secondary materials to minimize the information bias from informants and to further capture the business models of the cases and the value process therefrom (Yin 2014). Longitudinal tracking of their official websites was an essential source providing evidence on the value each coworking-space proposed to the public, the image it

presented, and changes over time (see Table 6.3 for more details). Other sources, including internal documents from management teams and external documents from media, industry associations, and government materials, further enhance the diversity of sources and the validity of our findings. Table 6. 2 provides a brief description of our rich data sources and their use in the analysis.

6.5.2 *Data analysis*

We analyzed data with a constant comparison approach to glean predominant and characteristic patterns from data (Eisenhardt and Graebner 2007). We first assembled the accrued data from multiple sources into MAXQDA, which ultimately yielded 1,469 pages. With the adoption of a flexible pattern matching approach, MAXQDA facilitated the iterating between theory and data as we generated observed patterns from codes and discerned (miss)matches with the initial template. The (re)examination of existing theories and our data enables theory building through potential revision, extension, or other changes in the initial template (King 2012; Alvesson and Kärreman 2007).

The coding and analyzing process was conducted after each field visit and the corresponding data collection. Data from the following rounds was added to previously collected data for another round of analysis and pattern matching. At the beginning of each analysis, with the guidance and focus provided by the initial template, we identified and coded our data touching on the topic of value process or co-creation/co-immersion. We then grouped relevant codes, constructs, and concepts into observed patterns by moving back and forth between theory and codes. This process is in line with some recent studies adopting a pattern matching approach for qualitative data (Bouncken and Barwinski 2020; Gatignon and Capron 2020; Sinkovics et al. 2019; Sinkovics, Sinkovics, and Yamin 2014).

The analysis of data from the first field study resulted in support and extension of the initial template. Patterns were identified as subcategories for interconnected value co-creation and proposition (e.g. value proposition from pre-set image) and co-creation and co-immersion from socio-emotional values (e.g. different servitization layers lead to co-creation and co-immersion). Data from the second round validates the identified patterns, which shows the adequacy of samples and robustness of findings. However, from the consistency of patterns, we found high continuance of service business models. The data from follow-up interviews in the third round and longitudinal tracking of webpages further corroborate the new pattern of continuance. Table 6.1 summarizes our initial template and the later refined data structure from pattern matching.

6.6 Findings

6.6.1 *Co-creation and co-immersion – leading continuance*

We find strong matches with our propositions and insights extending our theorizing. Our findings largely support systematically interconnected processes of value co-creation and value proposition in collective consumption because of the co-creation and co-immersion of customers in the service space. Visual material, narratives, and videos might shape the images of services and thus propose it via digital media. For proposing the image, providers might need to relate to existing experiences in the service category and show how their business relates or departs from proposed value-in-use from other providers in the category. The Gazelle space states in their narrative: "*Grow together with other dream seekers*". Walk-ins to the service space instead can directly perceive cues of the value-in-use of the service. For example, Entre space hosted a series of entrepreneurial activities with free entrance, as the space manager illustrated: "*We invited many people in entrepreneurial areas for a wine tasting last month. So later, when they search for related resources, they would know and come to us.*" [EP2].

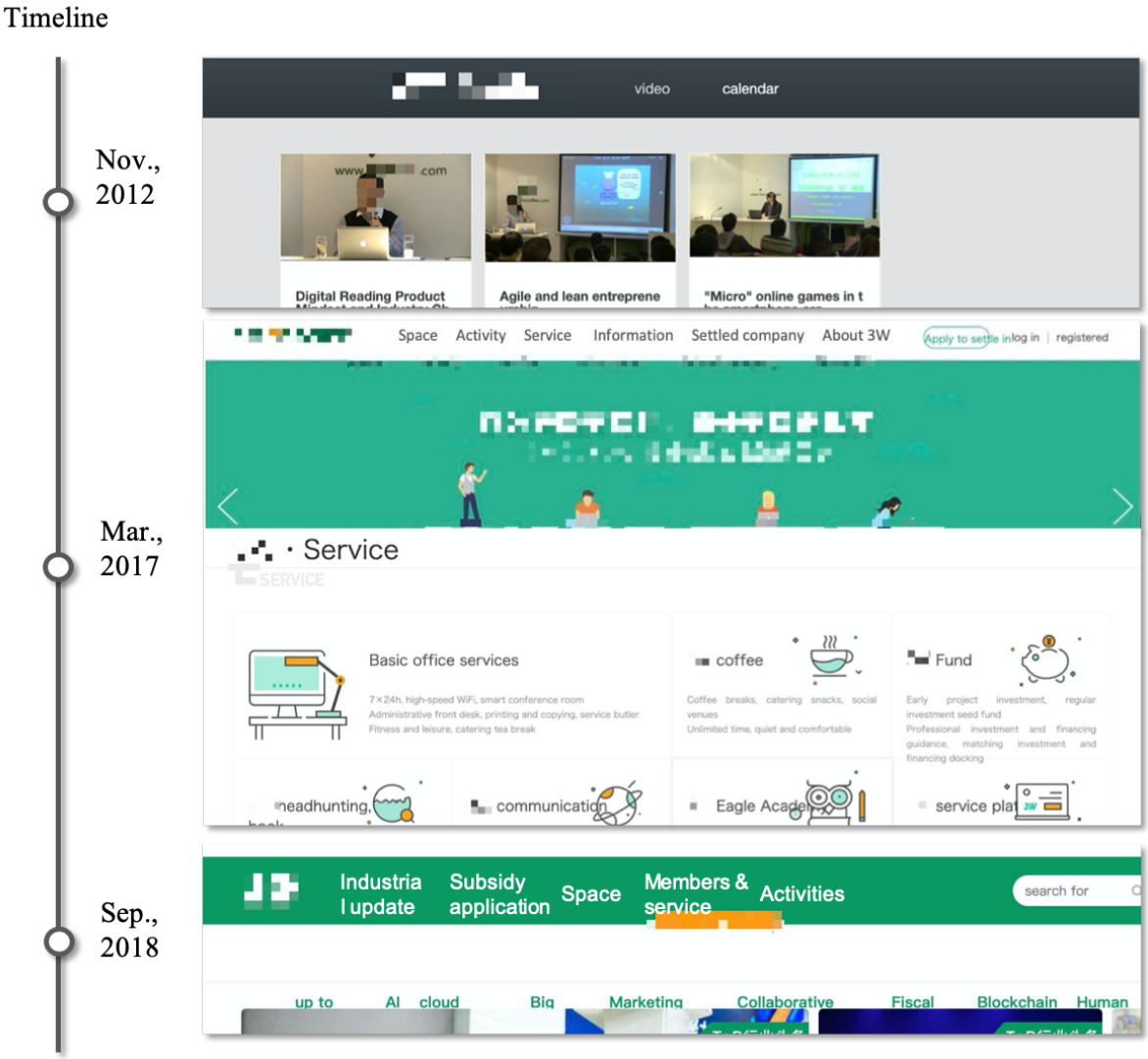
Value creation and capture strongly overlap because many services are on a use-basis (e.g. catering, service fee, and commission) although the rent is typically pre-paid by subscription. Cabin space's assistant of CEO illustrated value capturing: "*...membership or rental is a way to achieve business-related service provision, but not the main source of our income.*" [CP1]. Additional service provisions expand value capture, e.g., premium services, catering, living spaces, household items, recreational activities, and co-living offerings, mostly offered through metered service fees.

Value co-creation and the (co-)immersion of several actors build the core of service business models, thereby stressing the importance of value-in-use as the central theme for the service-dominant logic and service business models (Brodie et al. 2019; Caru and Cova 2015; Lusch, Vargo, and O'Brien 2007; Vargo, Maglio, and Akaka 2008). It brings a specific socio-emotional value that is more than a shared sense of community, as shown for coworking-spaces (Garrett, Spreitzer, and Bacevice 2017). Co-creation and co-immersion in the service encounter, e.g. creating the atmosphere and evoking the participation of others, shape a social image of the space, and recursively influences other users. The socio-emotional value can motivate users to interact with each other and co-immerse more intensely and thus spiral and shape the business model fundamentally. Hence, we additionally find high continuance of business models.

Besides the socio-emotional trajectories, we find that a group of users with similar needs choose

coworking-spaces in general and often the same specific space. GU2, a serial entrepreneur, has formed three entrepreneurial teams in Gazelle space and "returned to coworking-spaces" several times. For each new entrepreneurial project, he chose Gazelle space. He explained it at length: "*Here is the place for entrepreneurs! They can really understand your difficulties and share something helpful with you… While for an established company, I mean big ones, you need a facade to show the culture and financial capability of your company.*" [GU2]. Other users with less experience in coworking-spaces echoed: "*I think our team will move when our business get steady cash flow… Here can't show my customers our long-term potential. They might feel your team can dissolve or move somewhere else at any time.*" [IU1].

The Focus space was the only provider that slightly changed its business model between our field visits. The manager attributed it to the changing socio-economic environment and denied a relationship with users' involvement, as he related: "*You know the big wave of artificial intelligence. We adjusted our resource structure to support more teams in this direction. But still, it is consistent with our image of a platform for innovation… While our users are more influenced by our business strategy rather than impacting us.*" [FP1]. We find a trajectory of established business models through reinforced images of the coworking-spaces and customer behavior. The operator of the Gazelle space elaborated on the importance of maintaining "the backbone": "*I think we further strengthen our image and our services from the interaction with users. We set up this space to support start-ups, and we shape our market image like this.*" [GP1]. The changes in the webpage of Gazelle space further support "the backbone" statement from GP1. Since its establishment in 2012, the proposed value of Gazelle space has evolved around support and services for internet entrepreneurs, and has been more specified to cater to the needs of this customer group, as shown in Figure 6.1.



Time	Nov., 2012	Mar., 2017	Sep., 2018
Design	Cards design pattern	Icon and cartoon style	Photo-realism style
Menu	1) Videos 2) Calendar	1) Space 2) Activities 3) Service 4) Information 5) Settled companies	1) Industrial update 2) Subsidy application 3) Space 4) Members & Service 5) Activities
Proposed value	Hub of internet pioneers and related activities	Emphasis on service and education for internet entrepreneurs	Development services of internet entrepreneurs with stress on subsidy application
Level of specification			

Notes: Space names and faces are blurred to maintain confidentiality.

Figure 6.1 Changes of Gazelle's Website.

6.6.2 *Servitization-layers*

Our findings show that coworking-spaces offer different forms of co-creation and co-immersion. Users can use silent spaces or more interactive spaces by choosing a specific work-zone(s), participate in more one-sided lecturing (e.g. participating in presentations), more intense temporary interactions (e.g. workshops), or long-term interactions (teams, start-ups). Providers can influence the co-creation and co-immersion of their offerings. Following low servitization, they might emphasize the tangibles. Analogous to servitization levels of manufacturers, services might expand the co-creation and co-immersion by adding additional services on their tangibles. Providers might lead value in context and co-immersion in collective consumption by additional service options of educational services, workshops, team building, hospitality, networking, and project-management that present different components of their business models as layers of servitization that demand higher co-creation and co-immersion. For example, social or educational services of the provider might create value, but also assist interaction and not only co-presence of users. The additional services should cohere with the social interaction and the socio-emotional atmosphere.

Tangibles: socio-emotional cues to co-creation and co-immersion

Our findings indicate that tangibles in service spaces bring functionality and socio-emotional meaning, too. The socio-emotional values are strong in coworking-spaces that generally relate to a postmodern, aesthetic design-inspired services in which socializing and meeting with like-minded peers is supported (Waters-Lynch and Duff 2019; Mitev et al. 2019). The physical spaces build the basis for users to enter physically and then work or socialize. A founder in Bemus space concluded their demands in the following words: "*You have nothing but you need everything*..." [BU1]. He further stated how the proposed value of Delphi space attracted him: "*Everything is shared, so you can use all of them without paying much.*" The spatial and temporal proximity, deliberately placed facilities, availability of open social spaces promote social interaction among users. Delphi space exemplified this concept with an eye-catching slogan on their webpage and poster: "*Central location, spatial workplace, at a low price!*". The spatial design of coworking-spaces commonly incorporates innovative or playful elements, which promote intrinsic motivation, induced inspiration, and spontaneous interaction, as the founder of an entrepreneurial project in Avel space explained: "*...everyone likes the skylight atrium and warm atmosphere here… I feel that working in this open space improves my work efficiency* [they have a private office]." [AU2]. The value can change deep-level socio-emotional value. An entrepreneur described the benefits of working in an open-plan area: "*I*

was introverted but got to know many people here. Such as the lady sitting next to me… She even recommends you to others when she knows what you are doing." [DU1].

Providers can harness the arrangement of interior and its socio-emotional meaning to signpost desired behavior and practices to users. If the tangibles incorporate more inspiring elements, collaborative areas, and interactive ambience, they shape further co-creation and co-immersion among users. Expanding the sharing concept, coworking-spaces can offer hospitality services (rooms, apartments, foods, recreational facilities, and social events), e.g. for digital nomads, remote workers, and international start-ups, freelancers and professionals who travel for work (Orel 2019). The combination of coworking and co-living spaces expands coworking-spaces from a workplace to a life center that attends to several needs of traveling modern workers. The collocation of essential daily settings, for both working and living, avails modern workers of a camp with private space, social possibilities, and the flexibility to switch between them. The collocated occupants offer multiple social interactions, events, and networks, which construct a sense of community through shared values and interests. As Jump space advertised: "*A better life with the community: Share together. Work together. Live together.*". Jump space generated the majority of its revenue from co-living dimension. Jump space shaped a "living district" with shared working spaces, recreation rooms, spatial kitchen, gym, events hall, where daily encounters and social events increase the frequency and depth of interaction with like-minded people. The expansion to life-related services leads to an all-encompassing service that mingles users in more physically shared areas, engaging amenities, and social activities, so that users can co-create a sense of community (Blagoev, Costas, and Karreman 2019; Garrett, Spreitzer, and Bacevice 2017) and an urban lifestyle, so demanding a strong fit of social values. A manager of Jump space elaborated: "*Our members all have private rooms and shared workplaces, and they also get access to the gym, a bookstore, a full-service bar with draft beers. Whenever you need supplies, you can go to an exclusive 24-hour self-service convenience store.*" [JP1]. The atmosphere further constructs an attractive environment for other potential customers to meet new people. As a user of Jump co-living space stated: "*The best thing* [about Jump Space] *is that it gives me the ease of having friends... What you talk about can be trifle stuff or somewhat work-related, but you feel like yourself.*" [JU1].

Developmental Services: increasing co-creation and co-immersion

Our findings indicate that services in the spaces have not only functional but also developmental value, so increasing a higher co-creation and co-immersion of customers on the fundament of learning. Besides simple services of beverages and snacks (e.g. in the cafeteria), coworking-

spaces offer educational services, including workshops, coaching, training, consulting, and administrative assistance (Bouncken and Reuschl 2018; Merkel 2019). This servitization relates to different co-creation and co-immersion levels. Four spaces –Avel, Cabin, Gazelle, Helios – in our case study presented this user development-centered business model. Avel space was famous for start-up training, Cabin space hosted roadshows where investors attend, Gazelle space had a policy academy, and Helios space linked users with various service agencies. Hosting a series of formal seminars, a manager of Gazelle space elaborated how their well-designed sessions helped users: "*We have a workshop every two weeks. Topics cover entrepreneurial training, laws, finance, up-to-date policy… We invited experts in each field.*" [GP1]. Besides, the operator in Gazelle space serves as the shared administrative staff for all users, and this space set up a policy academy that helped entrepreneurs in searching appropriate financial support based on the latest policies.

Professionals with diverse backgrounds might enter the same space, so allowing creativity, cross-domain thinking, possibly mentoring other users (Barwinski et al. 2020). Spatial proximity can stimulate collaboration with multiple partners in transferring knowledge and supporting users in business growth. A founder in Entre space explained: "*I was about to set up a team or a company for this project, but then I found many other issues related always confused me… later my friend recommended here to me as an entrepreneurial campus.*" [EU1].

Platformization: extending the scope of co-creation and co-immersion

Our findings indicate that servitization might include the facilitation of contacts to individuals outside the space. It brings economic values and socio-emotional values. Coworking-spaces mimic platforms by facilitation of contacts, expertise, and network. Coworking-spaces as platforms extend the user network beyond the sphere of the coworking-spaces and involve users as producers of the platform through their alignment of resources. Users can tie in with other actors, selecting potential partners, and leveraging complementary resources while being in the node of the network and engaging in its construction. As a "hub of creative workers", coworking-spaces present prospects in integrating multisided resources in innovation- and entrepreneurship-related industry, such as investors looking for promising projects, big firms searching for new technologies or experts. The potential to connect with resources gathers high-growth projects or developing-stage teams who are facing the constraint of limited available social capital and are looking for external sources or further collaboration for their development. Entre space and Focus space are frequently reported by Chinese media as "hub of innovation", who focus on platformization and integrate diverse resources based on their platforms.

Platformization can increase users' networks in and outside of the space. For the formation of a platform, coworking-spaces need to extend their social events and networking activities. Spatial assembly halls, lobby or function rooms, and other services host social events and activities, where coworking providers can play the role of an intermediator in matching potential partners and can further capture value from their collaboration. Coworking-spaces authorize users to host events where the user can gain more public awareness and improve the social network. A manager of Entre space concluded: "*...what we are doing is an ecosphere with active actors. We just incorporate as many players, and they will do the rest themselves.*" [EP1]. The chief operating officer of Entre space elaborated on a case of how they fulfilled this function: "*We hosted the finals of Entrepreneurship Competition in our city, which included the presentation of thousands of entrepreneurial teams… One user just spontaneously found a team that addresses an issue they faced while watching their presentation.*" [EP1].

6.7 Theory Development: Trajectories in Service Business Models

6.7.1 *Business model trajectories*

Previous research has focused on the changes and the planning template of a business model (Foss and Saebi 2017; Osterwalder 2004; Ghezzi and Cavallo 2018). In contrast, we find trajectories in service business models that origin in the co-creation and co-immersion of customers. In collective consumption contexts, the interaction among users per se is about shaping the service experience thus the value-in-use (Brodie et al. 2019; Vargo, Maglio, and Akaka 2008). The service system brings some tangibles and other institutionalizations led by the providers but is mostly led by customers' expectation and behavior (see Figure 6.2). Customers have expectations formed through a category and in the service encounter. Customers experience socio-emotional cues, behave according to those cues, and mimic others in the space. The recursive stabilization shapes value co-creation and co-immersion that results in business model trajectories.

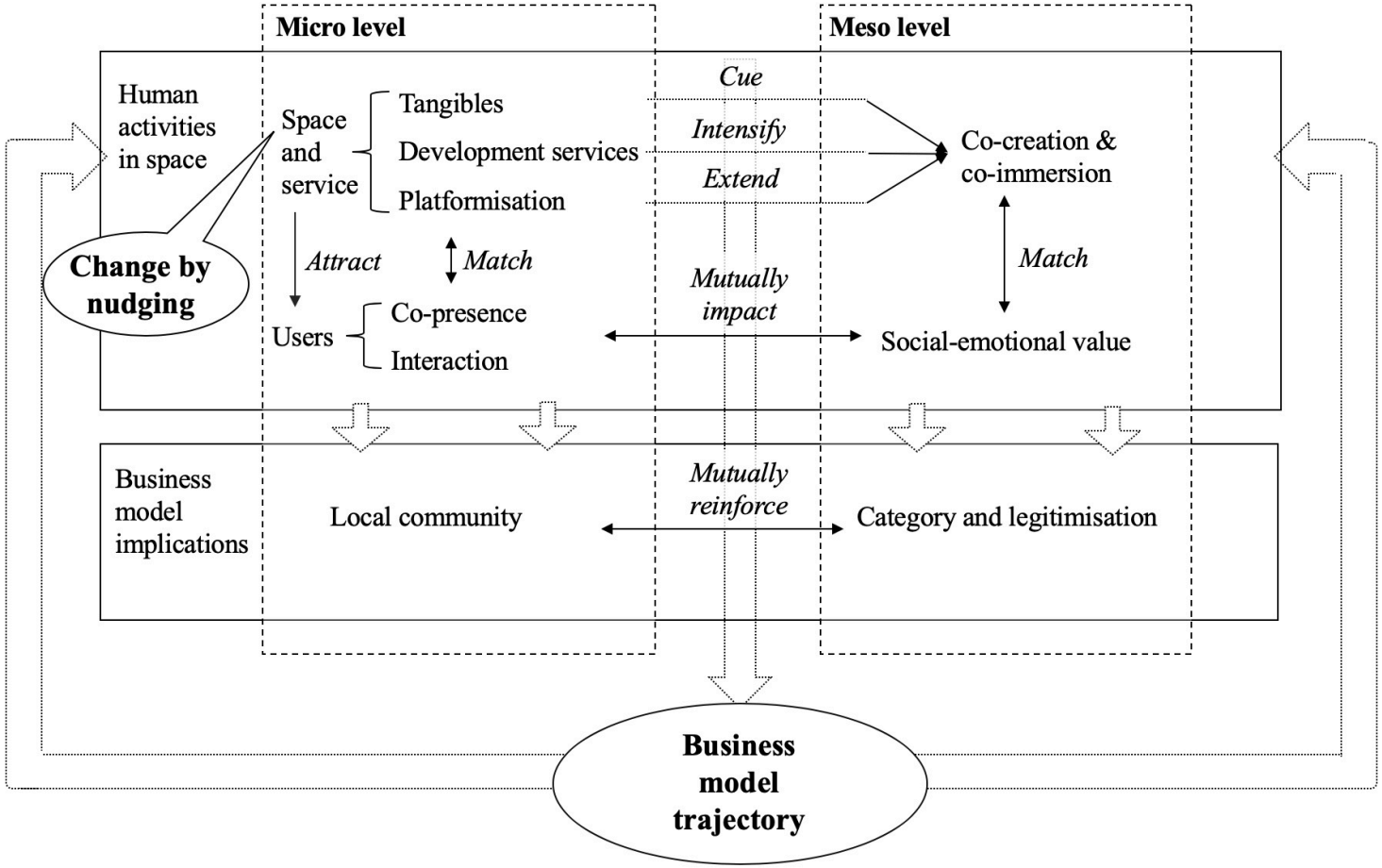


Figure 6.2 Mechanism of Business Model Trajectory and Findings.

Research has focused on technological trajectories (Dosi 1982; Teece 2008 Souitaris 2002; Jenkins and Floyd 2001). A few studies indirectly consider trajectories in social exchanges (Kuehnle 2007), in educational programs (Kuratko and Morris 2018), roles in innovation systems (Mangematin et al. 2003), in organization's identity (Cloutier and Ravasi 2019), or in servitization levels (Visnjic, Wiengarten, and Neely 2016). A technological trajectory describes a pattern of normal problem-solving activities on the basis of a specific technological paradigm, making progress by drawing on the relevant technological variables and trade-offs (Dosi 1982). For example, the traditional s-curve of technologies marks technological trajectories (Hacklin, Raurich, and Marxt 2005), which guide the evolution of technology following the key principles/patterns of it (Teece 2008). Technological trajectories describe self-reinforcing directions of development (Jenkins and Floyd 2001; Souitaris 2002) shaping technology and industry sectors (Castellacci 2008). Beliefs, artifacts, and evaluation routines might work as carriers of trajectory shifts (Henfridsson and Yoo 2014). Innovation trajectories might be shaped through engagement with different local conditions and practices (Oborn et al. 2019). A trajectory starting with a business model focusing on products (including warranties or spare parts), then moving towards services for those products (e.g., maintenance), later moving to user-orientated or results-orientated business models gradually was found for servitization of manufacturing firms (Gebauer et al. 2010; Gebauer et al. 2012; Visnjic, Wiengarten, and Neely 2016).

We regard trajectories as paths taken that have their own momentum, reinforcing its evolvement and restricting a departure of the involved actors from the path. Trajectory shifts demand the momentum of diverse actors in firms and from the outside. The trajectories in (pure) service business models differ from manufacturing business models, where firms have several options for changing their previous business models by experimentation with new products or service offerings. Trajectories in collective consumption service business models depend on the socio-emotional meanings that linger in the value-in-use context, the customer interactions, and the reinforced experiences of customers in a category. The tangibles and intangibles of the service space, the boundary-crossing relationships among customers, and recursive interaction loops across coworking-space users, but also coworking-space providers and external organizations draw on the creation and manifestation of meaning. Stronger interaction and resource exchanges among customers and their socialization effects reinforce experiences and expectations (Khazanchi et al. 2018; Stryker, Santoro, and Farris 2012).

Trajectories of the business model point towards institutionalization processes outset already in

service ecosystem research (Vargo, Wieland, and Akaka 2015). Core to institutional theory is that organizations tend to develop similar institutions as they influence each other and are influenced by similar external and internal influences (DiMaggio and Powell 1983). Institutional theory and its different variants generally lay emphasis on the supremacy of existing models, scripts in channeling behavior, thus forming trajectories (Clemens and Cook 1999). In service systems, the customer is embedded in the institutionalization shaped in experiences in the specific service space, but of the service category and of the physical environment of the space. Meaning develops within a specific tangible environment, specifically the interior of the coworking-space, its location (e.g. a quarter of a city), the additional services offered, the rules set by the coworking-space provider, the personnel and its moral sets of the coworking-space, the user base of the coworking-space, and their social interaction. Community emerges strongly through the co-creation and co-immersion of coworking-space users. The community will cultivate logics (Lee and Lounsbury 2015). In the following, we model these aspects on micro and meso levels. We do not consider the broader macro levels that influence service systems (Vargo and Akaka 2012).

6.7.2 *Mechanisms of business model trajectories*

Observations and local community – features of a micro-level

The co-immersion of customers promotes mimetic isomorphism (DiMaggio and Powell 1983), thus imitation of each other's behavior in a space. Observation shows how others use the tangibles (e.g. in work or social zones) and operate in processes. Co-presence delivers cues about meaning and behavior. Customers can become embedded in a trajectory of learning of the social unit, in a way that the learning trajectory of a newcomer is intimately connected to the perceived identification with the community and its practices and value systems (Campbell, Verenikina, and Herrington 2009). While customers are embedded in the trajectories of value-in-use, managers and their ideas of the business model become embedded in trajectories. Meaning becomes institutionalized. Hence, decisions on (tangible) interior become 'alive' and manifested through social interaction and immersion. Immersion and observation thus fertilize imitation and manifest meaning, expectations, and behavior while fostering institutionalization and thus trajectories of the business model (Thornton, Ocasio, and Lounsbury 2015).

Providers can experience trajectories of their organizational identity, which clings to shared values and norms of organizational actors (Cloutier and Ravasi 2019), who in collective consumption services are dominantly the customers. Besides internal trajectories, providers

experience trajectories related to the shared values and norms of the local environment. Local and regional contexts guide what is right in a specific community (Marquis, Glynn, and Davis 2007). Meaning and behavior might differ among localities (Marquis, Glynn, and Davis 2007). For example, an urban quarter brings expectations to the specific collective consumption context.

Category – feature on a meso level

In collective consumption contexts, customers who walk in, join, and interact specifically shape expectations about the business model. Even if customers use different spaces that might be geographically distant, they might come with expectations formed in the category. The open collective consumption spaces allow word-of-mouth communication among customers and their observations in several providers. Categories explain how members define them as an entity (Cloutier and Ravasi 2019). Legitimacy in category play back on the business model of the provider because they inform how business should be carried out (cognitive legitimacy) and what norms, values, and morals prevail (normative legitimacy) (Bitektine et al. 2020). Organizations follow their own trajectory but tend to be reluctant to explore opportunities which would violate categorical expectations (Cloutier and Ravasi 2019). Customers in categories where identification plays a dominant role, thus in post-modern workspace experience strong need to fit into the norms, values, and morals of the space and thus to cohere with what the social context assumes normatively appropriate (Navis and Glynn 2011; Fisher et al. 2017; Täuscher, Bouncken, and Pesch 2020). Feeling the need to fit in will be especially strong when connected with a collective consumption context because it includes direct socio-emotional co-creation and co-immersion that immediate experiences of the normativity. Easy observation also eases imitation among providers in their quest to achieve legitimacy in the categories. In addition, when providers can easily walk into other providers and mimic their service spaces, mimicry will be strong among firms and thus the need to adhere to the emerging logics for legitimatization (DiMaggio and Powell 1983).

6.7.3 *Enacting change by nudging*

Collective consumption services are based upon user-dependent co-creation and co-immersion that shape trajectories of business models and reduce the impact a provider can have by provider-led changes to business models. Yet, how can providers change the business model? We suggest that providers can nudge consumers and thus influence their business models. Nudging is a concept based on insights from behavioral economics that aims at changes in the

environments, which then stimulate behaviors (French 2011). Rather than a complex operation, nudges define simple interventions in a contextual architecture towards psychological effects. Nudges relate to free choices and not clear directives (Mirsch, Lehrer, and Jung 2017). Nudges are simple in so far that their information is straightforward and directed on the information processing of the individual (Lehner, Mont, and Heiskanen 2016). Coworking-spaces could make social meeting or collaboration easier, for example, by providing free drinks, but only in an area, so that users do not walk back to their desk. Nudges can include changes to the tangible environment. For example, stickers on tangibles can prevent error-prone repetitive behavior or guide right behavior (Lehner, Mont, and Heiskanen 2016). Nudges are powerful in collective consumption context because this context allows observation and social comparison. Customers might even unconsciously follow others' behavior in the space.

Tangibles in the collective consumption contexts bring opportunities to shape new meaning by artifacts that differ from previous ones. Artifacts then serve as boundary objects and nudges for behavior and meaning. Artifacts contain signals by trademarks and websites, but for collective consumption contexts, it will be the choice and design of factual objects (e.g. in workspaces or social lounges). New or re-arranged artifacts not only influence value and expectations but also factually shape new patterns of behavior, for example, allowing new work forms or different social interaction in small groups. A changed design or different focus of artifacts might change the relative importance of exchanges or work. Yet, the investments of providers in tangibles remain for a while and accordingly deliver relatively stable cues for cognitive and normative legitimacy.

6.8 Conclusion

Our findings primarily contribute to service business model research (Brodie et al. 2019; Fehrer, Woratschek, and Brodie 2018; Wieland, Hartmann, and Vargo 2017), especially in the field of collective consumption contexts where the co-creation can also co-immerse different customers in the service encounter and/or the provider space. We also specify research on business models that laid emphasis on innovation, transformation, or redesign, but not on their relationship with their prior patterns or their continuance (Demil and Lecocq 2010). The self-reinforcing process of co-creation and co-immersion show differences of business models in services compared to manufacturing (Brodie et al., 2011; Fehrer et al., 2018; Sweeney et al., 2015; Brodie et al. 2011; Fehrer, Woratschek, and Brodie 2018; Sweeney, Danaher, and McColl-Kennedy 2015). The collective consumption context suggests considering value co-creation as systematic resource

integration that goes beyond dyadic business-to-customer relationship involving the interaction among multiple customers. The co-creation and co-immersion of customers increase the importance of socio-emotional values and shared meaning of tangibles and intangibles. It stresses continuance and trajectories rather than experimentation in business models.

Collective consumption services can build their business models around different components of tangibles and service components. Different service intensities and trajectories have been shown with respect to the servitization of manufacturing business models (Bohnsack, Pinkse, and Kolk 2014; Kastalli and Van Looy 2013; Neely 2008; Vandermerwe and Rada 1988). The services have not necessarily different intensities but different forms of co-creation and co-immersion. Accordingly, we use the term layer instead of intensities.

Further, we find trajectories of service business models that emerge from the strong socio-emotional influences in collective consumption contexts. The business model includes what business the provider is in and what norms, values, morals, and emotions are put forward. Thus, the service business model has to consider the re-calibrated normative legitimacy by customers rather than what it brings to the customer with respect to cognitive legitimacy. Trajectories of collective consumption service business models are strongly determined by the micro-processes of their customers, often from a local community and additionally by meso-level influences from their categories. Finally, we add a service perspective to the emerging literature stream of coworking-spaces (Bouncken and Reuschl 2018; Leclercq-Vandelannoitte and Isaac 2016 Capdevila 2014; Mitev et al. 2019; Surman 2013).

Future research might analyze other forms of collective consumption services and their trajectories. A provider's service business model not only needs to indicate how services relate to what is commonly expected but also how the specific space is distinct from others. Thus, future service research might consider the optimal distinctiveness of service ventures while considering the specific audiences of services. Customers are an important class of audiences, yet they are not fully external but also internal. The double role of customers as resource providers and participants brings a new aspect to the study of audiences and optimal distinctiveness in cultural entrepreneurship research.

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Appendix 6. 1 Characteristics of Cases.

Coworking-Space	**Kr Space** *(https://www.krspace.cn/)*	**91 co-inno** *(https://zhongchuang.91jinrong.com)*	**Binggo** *(http://www.tiholding.cn/)*	**SOHO 3Q** *(http://www.soho3q.com/)*	**Weyoung** *(http://www.it-weyoung.com)*
Location	Beijing, China	Beijing, China	Beijing, China	Beijing, China	Shenzhen, China
Pricing	- Subscription - Service fee	- Subscription	- Subscription - Catering - Service fee	- Subscription	- Subscription for tenants and freemium for activity participators - Catering - Commission
Key users	Small and medium size business	Established teams, units of big companies	Technical small business, 2-10 members	Focus on big companies but also attracts entrepreneurs	Small and medium size entrepreneurial teams with 1-25 members
Provision Facilities	- Shared and private office utility - Café, kitchen, gym corner - Intelligent projection, pantries	- Shared and private office utility - Mother-and-baby rooms, gym, nap room - Café, canteen, reading room	- Shared and private office utility - Café bar	- Shared and private office utility - Café, smoking room, events hall, gym	- Shared and private office utility - Gym, a spatial shared hall with two-story loft, café
Service	- Front desk reception - Regular training - Workshops and sharing	- Front desk reception	- Roadshow with investors - Experience sharing from senior entrepreneurs - Marketing	- Front desk reception	- Regular workshop - Daily entrepreneurial information - Social events - Matching users' project with request from big firms

(CONTINUE APPENDIX 6.1)

Coworking-Space	**Weshow** *(http://www.zzweshow.com)*	**3W** *(https://www.3wcoffee.com)*	**UCommune** *(http://www.5lmeet.com)*	**Distrii** *(https://www.distrii.com)*	**5Lmeet** *(http://www.5lmeet.com)*
Location	Shenzhen, China	Shenzhen, China	Shanghai, China	Shanghai, China	Beijing, China
Pricing	- Subscription - Catering - Service fee - Commission	- Subscription - Catering - Service fee	- Subscription - Service fee	- Subscription - Service fee (minor)	- Subscription - Catering
Key users	Medium size entrepreneurial teams; 10-25 members	Entrepreneurial teams; new ventures	Small and medium-size entrepreneurial companies, 20-130 members	Big companies	Entrepreneurs, freelancers and small teams,1-5 members
Provision Facilities	- Shared and private office utility - Unmanned shop, pantry - Auto-cooking machine	- Shared and private office utility - Fitness equipment - Café, unmanned snacks stand	- Shared and private office utility - Café, shared kitchen and dining room, plant room, gym, roadshow area, unmanned snacks stand	- Shared and private office utility - Nap chambers, phone booths - Intelligent phone-based access control	- Shared and private office utility - Life-related infrastructures (e.g. apartments, kitchen, laundry, events area, terrace)
Service	- Front desk reception - Information sharing from government and companies - Integrate information in related industry - Matching users with big firms	- Front desk reception - Online coaching platform - Policy academy - Recruiting service	- Front desk reception - Resource matching in community - Regular workshops	- Reception - Unregular workshops	- Daily community activities - Life-related service (grocery, dining, and recreation)

Part 3: How Digital Transformation Impacts Workplaces

Chapter 7: The Impact of Digitalization on Organizations --- A Review of the Empirical Literature

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7.1 Abstract

When organizations pervasively adopt digital technologies, a growing body of empirical research also shows how digitalization is reshaping our business landscape in multiple aspects. However, fragmented research hampers practitioners and researchers to see the whole picture of digitalization processes. This paper seeks to advance our understanding of organizational changes resulted from digitalization through a systematic review of empirical studies on this topic. Analysis of 92 identified articles derives a framework with six digital technologies and 15 organizational elements. Building on this framework, we analyze the empirical studies in this topic concerning 1) examined statistical relationships 2) investigative perspectives—best practice or contingency. We develop a synthesis of organizational impacts concerning each digital direction and find that research with different investigative perspectives focuses on distinct impacted organizational elements. We also discuss existing issues in the literature and provide suggestions for future research.

7.2 Introduction

The adoption of digital technologies has become a ubiquitous phenomenon in today's business landscape. Most organizations are strategically transforming toward digitalized with expectations of gaining competitive advantages through a more entrepreneurial culture (Tumbas, Berente, & Brocke, 2018), more insightful decision making (Thirathon, Wieder, Matolcsy, & Ossimitz, 2017), more efficient production (Lyytinen, Yoo, & Boland Jr, 2016) or broader influence in marketing activities (Key, 2017). However, organizations might undergo profound changes, proactively or passively, in the process of digital transformation. For instance, some firms switch to a digital business strategy (Bharadwaj, Sawy, Pavlou, & Venkatraman, 2013), some transit to an open platform organization (Luo, Van de Ven, Jing, &

Jiang, 2018), some induce digital business model (v. Alberti-Alhtaybat, Al-Htaybat, & Hutaibat, 2019) or undergoing supply chain assimilation (Schoenherr & Speier-Pero, 2015). Simultaneously, some born-digital entrepreneurial projects, ventures, and companies thrive in the digital trend.

Interest in the burgeoning phenomenon of digitalization and organizational management raises a fundamental question: how does digital transformation impact organizations? Although, in recent years, there is a fast-growing body of research exploring organizational impacts from digitalization-organization interactions (Vial, 2019), findings from individual studies are fragmented and inconsistent. They, therefore, offer a limited understanding of the fruits and effects that organizations might receive from digital transformation. This review seeks to provide a lens through which researchers and practitioners can overview the potential organizational impacts while undertaking digital transformation concerning different digital tools. In this article, we systematically review empirical literature in management-related disciplines examining organizational changes resulted from digitalization. By selecting relevant empirical studies for inclusion and synthesizing the collection of studies and insights, we provide evidence of impacts on organizations from adopting specific digital tools and develop a holistic view of digitalization in organizations therefrom.

In the light of 6 digital technologies and 15 impacted organizational elements identified from an initial review, we first synthesize and analyze statistical relationships between various digital tools and impacted organizational elements. Based on these results and findings, we develop an overview of the identified impacts from each digital trend and of their interactions with contextual factors (e.g., mediators, moderators). This analysis arrives at a conclusion that the process of digitalization involves a complex interplay with various organizational elements, which leads to a more inclusive examination of all the empirical papers concerning their inspective perspectives — the “best practice” perspective or the contingency perspective. As Sorge (1991) summarizes, there are two dominant kinds of theorists: Universalists and contingency theorists (Sorge, 1991). Universalists take the “best practice” perspective and suggest that there are one-fits-all practices to achieve organizational efficiency (Netland, 2012). In contrast, contingency theorists pursue a “fit” dependent on organizational context and features in individual tasks (Aguilera, Filatotchev, Gospel, & Jackson, 2008). A comparison between studies under the two different perspectives suggests that digitalization exerts vast influence in organizations, while research with different perspectives focuses on distinct impacted organizational elements.

The review reveals that digitalization brings firm-wide adjustment, but research taking the "best practice" perspective does not always detect impacts on strategy and organizational structure, as it disregards some related contextual factors. The comparison between studies taking different perspectives also contributes to the best practice-fit debate because it presents the merits of each perspective in exploring different organizational elements. Finally, this article outlines issues in this research direction concerning 1) open the "black box", 2) digitalization-organization bidirectional interplay, and 3) construct and measurement of digitalization as we outline implications for scholars involved in this field and sketch out avenues for future research.

7.3 What is and Why Digitalization

The term digitalization (in this paper, using as interchangeable with digital transformation) is used in many disciplines, but with varying meanings, so it is essential to clarify the terminological confusion before entering the discussion. First of all, researchers should differentiate the concept of digitalization from digitization, which refers to the process of converting information into a digital format (Legner et al., 2017) but is often used as replaceable with digitalization. In contrast, digitalization accentuates changes resulting from and built on the switch to digital technologies, such as additive manufacturing, the internet of things, cloud computing, and social media (Singh & Hess, 2017). Furthermore, even when researchers reach consensus in the adoption of digital technologies, they still have mixed opinions on which degree of incorporating digital tools can be defined as digitalization. Some studies suggest technologically switch to new digital tools as digitalization (Nwankpa & Roumani, 2016), while some argue that it should involve an overarching and firm-wide strategy toward being digitalized (Hinings, Gegenhuber, & Greenwood, 2018). In this review, to meet the objective of this paper, we deliberately take the broader concept, which defines digital transformation as changes derived from the use of digital technologies, for generating a comprehensive understanding of the impacts that digitalization brings to organizations.

Researchers term digitalization as "digital transformation", pointing to radical and profound changes emerging from adopting digital technologies (Cozzolino, Verona, & Rothaermel, 2018). Compared with traditional technologies, studies feature digital technologies with the connectedness, sharing (Key, 2017), insightful and instantaneous interaction in virtual platforms (Leonardi, 2018). For example, two-way communication and access to others' dialogues in social media platforms pave a new way for information and knowledge exchange

(Lee & Park, 2016; Roberts & Candi, 2014). Cloud computing provides organizations with a platform to share and update data, where big data analytics play a role in extracting actionable insights (Bruque Cámara, Moyano Fuentes, & Maqueira Marín, 2015). Digital marketing channels leverage knowledge and insights from external actors (Iankova, Davies, Archer-Brown, Marder, & Yau, 2018). To sum it up, digital transformation is arousing revolutionary changes in multiple aspects of organizations, including organizational culture (Setia, Venkatesh, & Joglekar, 2013; Tumbas et al., 2018), network (Wu, 2013), strategy (Dobusch & Kapeller, 2017). On the other hand, pervasive digitalization causes increased pressure on organizations to maintain a competitive edge in the ever-changing world. Companies radically alter their business plans and practices, which involves a complex restructuring of organizational activities (Nwankpa & Roumani, 2016). For example, customized production and more transparent operation lead to better-informed decision making with more available data, and then involved digital platforms facilitate approaching external sources to complement limited ideas in-house, which could function back on the production design. As such, digital transformation gives rise to a firm-wide digital (transformation) strategy directing organizations toward digitalization.

However, when organizations benefit from promising business opportunities derived from digital transformation, radical changes also bring challenges. Svahn et al. (2017) synthesize four competing concerns—capability (existing versus requisite), focus (product versus process), collaboration (internal versus external), and governance (control versus flexibility)—in digital transformation that incumbent firms would face (Fredrik Svahn, Lars Mathiassen, & Lindgren, 2017). Legner et al. (2017) argue that user-driven communities bring opportunities and pose a significant challenge to organizations (Legner et al., 2017). Hinings et al. (2018) took an institutional perspective and illustrated the institutionalization challenges in digital transformation, e.g., how novel digital arrangements gain acceptance in organizations (Hinings et al., 2018).

Notwithstanding that a growing body of research in digitalization-organizational relationships sheds more light on this emerging area, we observe that studies are scattered throughout different examined organizational elements. In particular, each study offers only limited explanations over which organizational activities or outcomes are affected because of digitalization, with few clues from the whole organization's perspective and corresponding deployment. Therefore, we have just a fragmented understanding of the big picture of organizational impacts caused by digital transformation, whose absence might mystify

practitioners by veiling a general organizational change including individual performance, organizational activities, and even supply chain management. Furthermore, this deficiency could thwart further research, both in strategic management and information system areas, when researchers lack an overview about existing research streams, how they fit together, and what kind of findings are there for further exploration (Hanssens, 2018; Palmatier, Houston, & Hulland3, 2018). Therefore, an essential purpose of our review is to provide a systematic review of the relevant studies through which researchers and practitioners can better understand organizations' responses while undertaking digital transformation concerning different digital tools. To accomplish this goal, we gather the isolated research works into structured analysis and develop general guidelines with two identified perspectives, the best practice perspective and the contingency perspective, to assess the studied organizational impacts through distinct lenses.

7.4 Method

We chose systematic reviews as the design of our review strategy, considering the aim of the research to investigate how digital transformation impacts organizations by identifying, appraising, and analyzing relevant research. Compared with semi-systematic review and integrative review, systematic review fits research with a particular research question and pre-defined inclusion criteria and allows for collecting and analyzing relevant studies more accurately and rigorously (Snyder, 2019). As such, it fits the setting and aim of this review and provides more reliable findings where future research directions can be drawn, and insightful business decisions can be made.

Our review covers empirical papers published in management-related disciplines discussing the influence of digitalization and related technologies on management. The reason for investigating merely empirical research is that it narrows extensive theoretical arguments down to substantial ideas that find their way into empirical work and avoid mixing untested insights with rigorously tested ones. We choose a wide parameter for the initial search and a strict screening process, which gains both comprehensiveness and fitness for the list of final reviewed articles (Webster & Watso, 2002).

7.4.1 *Data collection*

We conducted a three-step search for collecting potential studies, and another three steps for screening empirical articles fall into our review sphere, following previous studies with a

similar focus in reviewing empirical work (Phelps, Heidl, & Wadhwa, 2012). First, to identify relevant articles, we chose EBSCO and ScienceDirect, two widely used databases among literature reviews in management-related disciplines (Edgar Ennen & Richter, 2010), for searching without restricting the subject area. Second, in addition to the two databases, we also identified top academic journals suggested by previous researchers but excluded in EBSCO and ScienceDirect [3](Majchrzak, Jarvenpaa, & Bagherzadeh, 2014; Wang & Rajagopalan, 2014) and added them into our search sphere. Third, to balance extensiveness and manageability, we only considered published papers explicitly presenting the notion of digitalization and management (or organization) in their titles, keywords, or abstracts. For capturing "digitalization", the list of keywords combine the words and phrases stem digital—including digitalization, digitization, digital technology, and digital transformation—with digital technologies referred to by scholars, namely additive manufacture (or 3D printing), artificial intelligence, big data analytics, cloud computing, internet of things and social media (Bharadwaj et al., 2013; Nwankpa & Roumani, 2016). The term "industry 4.0" is not included as it is still in infancy (Strange & Zucchella, 2017) and always mixed up with digitalization or the Internet of Things (Gružauskas, Baskutis, & Navickas, 2018). This process yielded a total of 2995 papers.

For narrowing down comprehensiveness to preciseness, we conducted a three-step analysis and screening with cross-validation from two researchers. First, we culled through the titles and abstracts, which presents us with crucial information about the unit of analysis and findings. This step enables us to rule out articles out of the digitalization-organization field or investigate how to manage digital technologies rather than the reverse direction— management leads to impacts on digitalization processes. 263 papers advanced to the second-round screening in which we performed an in-depth content analysis of each article, focusing on three search conditions: 1) it is empirical research, 2) the meaning of digitalization conforms with the portfolio we developed, rather than its traditional idea on converting analog signals into a digital form (Legner et al., 2017), and 3) different opinions about inclusion/exclusion are resolvable between two reviewers, or we just discard it. With these criteria, 82 empirical papers fall in our inventory. In the third step, we screened the reference in this set and identified eight additional papers. Finally, to avert the possibility of publication bias, we contacted the members in the field of digitalization and organization theory via e-mail, which drew our

[3] Including Academy of Management Journal, Administrative Science Quarterly, Journal of Management, Journal of Management Studies. Management Science, Organization Science, Organization Studies, Strategic Management Journal and Academy of Management Review.

attention to 2 unpublished publications (accepted but in progress), leading to a total of 92 papers in the final inventory.

7.4.2 *Coding and analysis*

The 92 reviewed studies suggest that empirically examining the effects of digitalization on organizations is a quite emerging field, as all the papers were published later than 2011, even though the emergence of digital networks and digital business can date back to 2002 (Wheeler, 2002). The review also suggests that it is a topic drawing increasing attention since 75% of these papers have been published (or accepted) in the last four years, namely from 2015 to 2018.

We first synthesized and analyzed the 92 studies concerning the explored statistical relationships between digital technologies and organizational elements and then borrowed two lenses to draw more comprehensive insights from a combination of the 92 studies. In doing so, the inspection of statistical relationships presents us simplified and operable findings, and a comparison between studies taking the *"best practice"* or the *contingency perspective* enables us to obtain a big picture of affected organizational elements. We analyzed the 92 studies as follows.

First, each study was coded with keywords in terms of their research objects, namely digital technologies (e.g., cloud computing, internet of things, social media, or general digitalization) and organizational elements (e.g., production performance, business model, or collaboration with other firms), to identify investigated themes. Besides, we coded each empirical article with critical characters such as research design, study type (i.e., qualitative, quantitative, case studies), empirical setting, independent and dependent variables (if applicable), findings, and implications. As in the screening part, this work was also cross-validated by two authors.

Second, based on the generated codes of research objects, six digital technologies and 15 organizational elements emerged. The former is composed of digitalization as a general trend and digital tools in our search profile except for artificial intelligence as no study in this area is inside the scope of our review. The latter arrives from the grouping of organizational changes examined in studies, which are further classified into four broader dimensions—organizational performance, organizational behavior, strategy, and organizational structure (see the first and second columns of Table 7.1)—drawing on the scope of various organizational dimensions developed by early scholars (Becker & Gerhart, 1996; Casadesus-Masanell & EnricRicart, 2010; Cowan, 1990; Richard, Devinney, Yip, & Johnson, 2009; Skivington & Daft, 1991). It allows for a better understanding of the nature of the elements among which organizations

might experience changes. Then we categorized the 92 studies in light of the four dimensions, including 15 themes and the respective digital technologies (or digital tools) that individual paper focuses on (see Table 7.1).

Organizational performance is essential for modern business in keeping a competitive position by improving finance, market and sales, production and operation, and innovation (Becker & Gerhart, 1996). Accordingly, we include all the four aforementioned elements (i.e., finance, market and sales, production and operation, and innovation) as sub-categories, as well as general performance, considering some studies measure the impacts on organizational performance as a whole (Austin, Devin, & Sullivan, 2012; Park & Saraf, 2016; Setia et al., 2013). This evidence reveals that digital technologies can bring broad and profound influences on organizational performance.

Organizational behavior concerns performance improvement, behavior, and employee feeling in the workplace (Luthans, 2002). The empirical studies on digitalization address three aspects of employee behavior: team efficacy, human resource management, and cognition. Srivastava (2006) considered *team efficacy* as the effectiveness reached by a combination of team design, composition, and context (Srivastava, Bartol, & Locke, 2006). *Human resource management* covers literature studies changes in recruit process and working culture. *Cognition* in an organizational context emphasizes shared cognition among coworkers, which helps coordinate actions to demands of the task and other team members (Leonardi, 2018).

Strategy refers to an integrated, overarching plan of actions to achieve firms' objectives (Casadesus-Masanell & EnricRicart, 2010; Hambrick & Fredrickson, 2005). In this way, *business model* and *strategy/decision making* are involved in this dimension, in addition to *information/knowledge management* and *stakeholder management,* which gains us more insights from resource and capability perspective (Alavi & Leidner, 2001; Hillman & Keim, 2001; Meso & Smith, 2000; Schroeder, Bates, & Junttila, 2002).

Table 7.1 Classification of the 92 Studies by the Type of Elements Investigated.

Dimension and theme		Additive manufac turing	Big data analytics	Cloud computing	Internet of things	Social media	Digitaliz ation	Total per theme	Total per dimension
Organizational Performance	Financial performance			4		6	1	**11.96%**	
	Marketing performance		2			9	2	**14.13%**	
	Operation& production	4	3	2	1	2	5	**18.48%**	**63.04%**
	Innovation performance		2	2		8	6	**19.57%**	
	General performance	1	4	2	1	5	2	**16.30%**	
		4.35%	**9.78%**	**8.70%**	**2.17%**	**23.91%**	**15.22%**		
Organizational Behavior	Team efficacy		1	1		12	1	**16.30%**	
	Human resource management		5			5	6	**17.39%**	**34.78%**
	Cognition		1			6		**7.61%**	
		0.00%	**5.43%**	**1.09%**	**0.00%**	**4.35%**	**5.43%**		
Strategy	Business model	1	4	2		2	13	**23.91%**	
	Strategy/Deci sion making	1	3	3	1	4	10	**23.91%**	**64.13%**
	Knowledge/ information		4			6	10	**21.74%**	
	Stakeholder management	2	5	1	1	15	14	**41.30%**	
		4.35%	**9.78%**	**3.26%**	**1.09%**	**25.00%**	**21.74%**		
Organizational structure	Openness	2			1	3	7	**14.13%**	
	Swiftness& agility		1	1		1	3	**6.52%**	**20.65%**
	General structure					2	4	**6.52%**	
		2.17%	**1.09%**	**1.09%**	**1.09%**	**4.35%**	**10.87%**		
Total per digital trend		**4.35%**	**14.13%**	**8.70%**	**2.17%**	**45.65%**	**25.00%**		

Note: N = 92 studies (100%) Totals for each combination of cells are printed in bold figures. Totals do not represent sums of the individual cells, as studies involving elements from more than 2 categories are contained in several cells, but are counted only once in the respective total figure.

Organizational structure indicates an enduring configuration of tasks and activities (Skivington & Daft, 1991). Due to only relatively few (20.65%) of the empirical studies on digitalization and organization investigate organizational behavior, among those that do, we were able to identify three subgroups: openness, swiftness and agility, and general structure. *Openness* refers to the extent to which the firm relies upon external knowledge, resources, and capabilities in carrying out the project (Cassiman & Valentini, 2009). Digital-driven openness includes open innovation (Chesbrough, 2006), open platform (Castelló, Etter, & Årup Nielsen, 2016), and open strategy making (Dobusch & Kapeller, 2017). *Swiftness and agility* mean an organization's ability to respond quickly and flexibly to unforeseen changes and dynamics (v. Alberti-Alhtaybat et al., 2019). In *general structure*, we involve other topics concerning changes in unit settings.

Third, we examined the 92studies with regard to 1) the identified statistical relationship and 2) their investigative perspectives. A synthesis of all the statistical relationships unveils interactions between specific variables and presents us with an instructive guideline for managing the effects of digital transformation. Furthermore, distinguishing between the "best practice" perspective and the contingency perspective shows a broader and more specific picture of all the studied impacts in the review because it covers all statistical and non-statistical interactions. Simultaneously, it provides us with an avenue to look deeper into how researchers investigate different aspects of organizational impacts. We draw on Sorge's (1991) discussion between "best practice and best fit" classifying studies with a limited number of elements and provide "universal rules" into "best practice" group and studies stress the interdependency between digitalization-organizational change and broad contextual elements into the group of contingency perspective (Sorge, 1991). Therefore, except those explicitly suggest universal practice regardless of the circumstances (best practice) and those explicitly state the use of contingency approach, in this review, we classify studies involving no less than three context elements into the contingency group; if not, then into the best practice group. Here we define context elements as those examined factors surrounding but out of research questions. The coded organizational elements involved in each article support us with rich clues to accomplish this classification. The classification yielded 47 studies comprising the "best practice" group and 45 studies making up the contingency group.

7.5 Results

7.5.1 *An overview of current research streams*

We categorized the 92 reviewed studies in terms of examined digital technologies and organizational elements, among which researchers identified impacts from the former to the latter (see Table 7.1). We believe this framework provides an overall picture of the organizational impacts derived from different digital tools, as a comprehensive list of matched studies is ensured from the broad initial search with strict screening. Furthermore, we generate a systematic list of organizational elements from iteration between reviewed papers and prior studies defining multiple aspects of organizations.

Regarding the examined digital tools, the columns of Table 7.1 show that social media and general digitalization are two digital directions that have drawn the most attention. However, relatively, a more substantial proportion of studies in the digitalization group explores impacts on strategy (21.74% out of 25% compared with 25% out of 45.65%) and organizational structure dimensions (10.87% out of 25% compared with 4.35% out of 45.65%) (we will discuss the reason in "Findings of the Two Perspectives"). Big data analytics (13 out of 92) and cloud computing (8 out of 92) are two digital directions that have received less but still significant attention. Only a few studies examine the impacts driven by additive manufacturing (or 3D printing) and the Internet of Things, with no more than four papers on each digital trend.

The rows in Table 7.1 provide the results concerning investigated organizational elements. It reveals that strategy and organizational performance are two dimensions that have been examined by most and an almost equal number of studies, with around 70 hits (representing around 76.09%) in each dimension. Within the organizational performance dimension, a comparable amount of studies investigated the impacts on the five involved elements, namely financial performance, marketing performance, producing and operational performance, innovation, and general performance. In comparison, by far, the largest proportion of studies in the strategy dimension (41.3% out of 64.13%, namely 39 out of 59 studies) has looked into impacts exerted on stakeholder management. This cluster of research suggests that digitalization transforms firm-customer (or public) relationship (e.g., directions of communication, the strength of relationships, attributes of their interactions) and firm-firm relationship (e.g., inter-firm collaboration, supply chain, or network management). Many studies also look into other elements in the strategy dimension (21.74% to 23.91%), namely business model, strategy/decision making, and knowledge/information management. While

fewer studies empirically explore digitalization-driven organizational behavior changes (32 in total, representing 34.78%) and organizational structure dimensions (19 in total, representing 20.65%).

7.5.2 *From dyadic relationships to interactions with organizational context*

Interested in what organizational elements are impacted by which digital technologies and how they are affected, we first examined statistical relationships identified in the review, which presents us objective, concrete and corroborated relationships between the two research objects. A closer analysis of the studies analyzing statistical relationships is particularly instructive concerning the types of changes on each organizational element caused by specific digital technologies. Not surprisingly, studies uncover not only positive impacts but also negative and non-significant ones, so we further categorized identified statistical relationships from the review into the three groups (i.e., positive, non-significant, and negative). Table 7.2 shows the investigated relationships in studies regarding variables that each relationship involves and the type of relationships.

Table 7.2 A Synthesis of Identified Statistical Relationships with Involved Reference.

Practice (independent variables)	Impacted organizational elements (dependent variables)	Moderators (▪)/ mediators (⅄)	Other findings
Additive manufacturing	+ Improve operation performance (6)		
	+ Better stakeholder management with customers (6)		
Big data analytics	+ Better operation performance (2)		
	+ Better organizational performance (11, 40. 41, 82, 58) ○ No significant positive effect on firm performance (58)	▪ Analytics capability–business strategy alignment (41) ⅄ Big data analytics information quality (58) ⅄ Big data analytics business value (58)	
	+ Create organizational agility (10)		
	+ Analytic-based decision making (12, 23)		
	+ Effective endogenous & exogenous knowledge management (10)		
	+ Better supply chain performance (11, 2, 23)		
	+ Enhance organizational dynamic capabilities (10) ○ No significant positive effect on Enhance organizational dynamic capabilities (10)		
Cloud computing	+ Enhance financial performance and cost effectiveness (18)	⅄ Collaboration (18)	
	+ Better operation performance (20)	⅄ supply chain integration (20)	
	+ Better organizational performance (61)		
	+ Team efficacy in job performance (61)		
	+ Better stakeholder management in inter-organization operation (18, 43, 51) in supply chain integration (21)	⅄ Collaboration (43)	
Internet of things	+ Improvement in operation (35)		
	+ Better supply chain management (35)		
Social media	+ Better financial performance in profitability (57, 74) in return of investment (62, 79) in financial performance (32) ○ No positive effects in profitability (57) in financial performance (32) - Worse financial performance in profitability (57) in return of investment (79)	▪ Social media activity (74) ▪ Customer characteristics (74)	• Effectiveness of different usage and phases varies (32, 57, 79)
	+ Better marketing performance (1, 7, 69) from sustainable brand (45) from spread of word of mouth (62) from market growth (57) from sales (80) ○ No positive effects in market growth (57) - Worse market growth (57)	▪ Features of products (80) ▪ Business model category (1) ⅄ Customer engagement (34)	• Effectiveness in different phases varies (57)

	+ Operational efficiency (77)		
	+ Enhance innovation capability (13, 57, 69, 77) o No positive effects in innovation (25, 57)	▪ Human resource management ability (69)	• Effectiveness in different phases varies (57); social media moderate 2 other relationships (13, 53)
	+ Better organizational performance (16, 45)	▪ Social media usage (16) ▪ Human resource management ability (69) ⅄ Customer engagement (16, 38) ⅄ Sustainable brand (45) ⅄ Firm innovation (69)	
	+ Improved team efficacy in employee creativity (55) in employee performance (4, 64, 70) internal communication (64, 65) o No positive effects in team efficacy on collaboration (25)	⅄ Information-rich network (70) ⅄ Absorptive capability (33)	
	+ Better human resource management o No positive effects on job applicants' selection (66) - Worse management evaluation (25)		
	+ Build up shared cognition (29, 64, 65)		
	+ Enhance knowledge management capability by getting more insights from external actors (69) by improving absorptive capability (33) through knowledge creation capability (33) through likelihood of knowledge transfer among employees (65, 70)	⅄ Absorptive capability (33) ⅄ Information-rich network (70)	• Social media moderate the relationship between IT infrastructure capability and knowledge ambidexterity (53)
	+ Better stakeholder management with customers (34, 38, 62, 67, 75, 50, 78) o No positive effects on user's online engagement (66)	▪ Firm generated content (7) ▪ Social media activity (74) ▪ Customer characteristics (74) ⅄ Social customer relationship management (67)	• Use of social media in union's communication has no effects on users' online engagement (87)
Digitalization	+ Enhance innovation capability (92)		
	+ Better organizational performance (31, 92)		• Co-present with HR flexibility or HR efficiency leads to firm performance (28)
	+ Foster customer-oriented working culture (56)		
	+ Better customer relationship management (17, 56)	▪ Process sophistication (56)	

Note: A bullet indicates a type of identified statistical relationship. "+"/ "o"/ "-" = a positive/ non-significant / negative relationship between the following organizational element and the corresponding digital technology "▪"/ "⅄"= a moderator/mediator of the respective relationship the row indicates to. "•"= other relationships not included in the previous categories. Numbers in brackets refer to individual studies (indicated by uppercase numbers in the reference list).

Inspection of the second column in Table 7.2 (impacted organizational elements) suggests that digitalization generally positively impacts organizations since 22 of the 30 identified relationships include just positive effects. Specifically, digitalization has some impacts on organizations that reach unanimous results and rechecked by researchers (i.e., explored by more than one study) on their positive influence. The relationship between cloud computing and better inter-organization collaboration (i.e., stakeholder management) receives the most consentient voice, with four studies identify positive effects, especially on firm-firm cooperation (Loukis, Kyriakou, Pazalos, & Popa, 2017; Schniederjans & Hales, 2016; Schniederjans, Ozpolat, & Chen, 2016), except Bruque Cámara et al. (2015) examine the impacts on supply chain integration (Bruque Cámara et al., 2015). Comparably, three studies argue that big data analytics can also facilitate collaboration with other organizations (Boone, Skipper, & Hazen, 2017), but more focus on the context of the supply chain (Gunasekaran et al., 2017; Schoenherr & Speier-Pero, 2015). Also, the function of social media in creating shared cognition among employees is studied by three articles (Leonardi, 2018; Leonardi & Meyer, 2015; van Zoonen, van der Meer, & Verhoeven, 2014), which are concordant in the features of social media in creating awareness of other's knowledge. Some other positive relationships re-examined by two studies include big data analytics promote insightful decision making (Schoenherr & Speier-Pero, 2015; Thirathon et al., 2017) and better operational performance (Boone et al., 2017; Gupta & George, 2016), social media/digitalization is beneficial to general organizational performance and digitalization helps to achieve better customer relationship management (i.e., stakeholder management) (Powell, Horvath, & Brandtner, 2016; Setia et al., 2013).

Findings involved in the other eight relationships, however, reveal conflicting conclusions, most of which focus on non-positive impacts derived from social media. The positive relationship between using social media and financial performance is the subject of much debate and discussion, with three studies identifying non-positive relationships, compared with five studies agree on the positive impacts that social media exerts on financial performance. An examination of the three studies indicates that social media for different specific usage could drive financial performance in distinct directions. For example, Roberts and Candi (2014) find using social media sites for marketing research has a negative relationship with profitability, but when used for new product launches, positive indications were seen (Roberts & Candi, 2014). Similarly, studies of Schniederjans et al. (2013) and Scuotto et al. (2017) also uncover both positive and non-positive influence on financial performance when social media

is used in different ways (Schniederjans, Cao, & Schniederjans, 2013; Scuotto, Del Giudice, Peruta, & Tarba, 2017). Besides, social media tools' constructive effects on innovation and human resource management are disputed by two studies. For example, Marion et al. (2014) find social media tools generally make no contribution to design development in new product development processes (i.e., innovation) (Marion, Barczak, & Hultink, 2014), and Iddekinge et al. (2016) show that information from social media platforms has no help in assessing job applicants' profile and predicting future job performance (Iddekinge, Lanivich, & Roth, 2016). Overall, integrating social media is most likely to cause unbeneficial impacts, suggesting that managers should implement and adopt social media more strategically and encourages more research to examine a systematic way for effective adoption.

Some reviewed studies have taken a more fine-grained view of these influences, which explores the numerous mediating and moderating effects that may come into play when trying to understand the impact of digitalization on organizations. The third column of Table 7.2 (moderator/mediator) provides a synthesis of identified moderators and mediators. The fourth column (other findings) shows some other related findings (e.g., digital technology moderate other relationships, non-significant impacts) corresponding to the indicated pair of variables. The richness in the interactions with contextual factors indicates that digitalization is a complex process that impacts and simultaneously is impacted by various organizational capabilities and resources. For example, while looking into how the use of social media enhance knowledge management capabilities, studies suggest benefits resulted from the inflow of external knowledge (Corral de Zubielqui, Fryges, & Jones, 2017) and more effective knowledge transfer within organizations via interactions or access to others' communication in virtue platform (Leonardi & Meyer, 2015). However, Cao & Ali (2018) reveal that social media use at work has no direct impacts on knowledge creation capability, but indirect influence still exists through the mediation of absorptive capability (Cao & Ali, 2018). Similarly, Wu (2013) finds the mediating role of information-rich networks between social media and information diversity among employees (Wu, 2013). Moreover, social media can also act as a moderator impacting the relationship between IT infrastructure capability and knowledge ambidexterity (Benitez, Castillo, Llorens, & Braojos, 2018).

These interweaved relationships suggest that digital transformation is not a separable practice. Instead, it associates with various surrounding organizational factors and continuously interacts with its environment. Moreover, we find that there is not a single study that statistically analyzes impacts on business models, openness, general organizational structure, and just a

few in decision making and agility, all of which, interestingly, are included in strategy or organizational structure dimensions. This implication draws our attention from statistical relationship to a more systematic view that takes interdependency with contextual impactors into consideration—contingency theory, usually adopted to combine structure and strategy as an organizational profile (Filatotchev & Allcock, 2010). The following analysis and comparison concern studies taking distinct perspectives, the "best practice" or the contingency perspective.

7.5.3 *Best practice or contingency? Perspectives and studied elements*

The analysis of results from research with statistical methods presents objective and instructive findings but provides just partial and limited understandings of possible changes in organizations. Because the "core" elements involved in regression analysis always simplify real cases by ignoring some contextual factors (e.g., dynamics in the economic environment, interdependency with other elements). As we conclude in the previous section, digitalization is a complicated process as digital technologies dynamically interact with its organizational environment. In the review, we also find studies taking broad contextual influence into account while examining the process of digitalization. Drawing on two dominant kinds of theorists summarized by Sorge's (1991), universalists and contingency theorists (Sorge, 1991), we further classified all the 92 studies by perspectives that individual studies take—the "best practice" perspective or the contingency perspective. The logic of the "best practice" perspective is to suggest universal rules and guide organizational activities by identifying relationships between limited and "core" elements. In contrast, the contingency perspective argues that no one-fits-all rule exists. Instead, it is the interdependencies between research objects and diverse (and dynamic) organizational contexts that matter. By analyzing studies involved in each of the two perspectives, we seek to gain more comprehensive understandings of organizational changes during digital transformation.

Studies taking the "best practice" perspective. We summarize two main insights that emerged from the analysis of the 47 papers in this group. First, the number of studies involved in each dimension shows that organizational performance and organizational behavior are significantly impacted by digital transformation. 29 of the 47 studies (61.7%) examine the influence that digitalization exerted on organizational performance from multifold perspectives (e.g., financing, marketing, operation, innovation.). Among the 18 studies concerning changes in organizational behavior, more attention is drawn on team efficacy concerning employee

creativity (Sigala & Chalkiti, 2015), collaboration (Huang, Singh, & Ghose, 2015; Marion et al., 2014), communication (Murphy & Salomone, 2013; Neeley & Leonardi, 2015) and general working efficiency (Wu, 2013). However, inconsistency in findings still exists, which not only attributes to the different usage of digital tools but also exhibits conflicting research findings.

Second, studies taking this perspective rarely examine most elements in strategy and organizational structure dimensions. Even though 16 studies involve general strategy in their research design, they all focus on two elements—knowledge/information management and stakeholder management. In other words, not a single study investigates business model, strategy/decision making, and elements in organizational structure dimension, with just one exception of Mitra's study (2018), which finds cloud computing enhance organizational capabilities in swiftness (Mitra, O'Regan, & Sarpong, 2018). The reason comes from two aspects; one is the limitation of the "best practice" perspective, the other is that these elements always involve firm-wide actions that are too complicated to measure.

Overall, the 47 studies taking best practice perspective suggest that while undertaking digital transformation, organizational performance and organizational behavior are likely to experience substantial changes. However, the use of digital tools in different ways and for different purposes could yield distinct outcomes, so we need more research to analyze the function and effectiveness of these digital technologies in more specific areas (e.g., new product development, marketing research, intra-organization interactions) and in more specific stages (e.g., customer preference collection, product design, new product launch) instead of a general assessment.

Studies taking the contingency perspective. As we discussed, studies in this group stress the interdependency among different organizational parts. Thus, the nature of the contingency perspective decides elements included in individual studies are interrelated and in dynamic and ongoing interactions. To unveil the law of the configuration of those multiple elements, we adopted cluster analysis, which helps to clarify the common rules among studies with similar research designs. This process yields three commonly investigated sets of elements; each of the 3 clusters represents a research stream in this group.

The first cluster highlights the importance of fit among strategy/decision making, human resource, and general performance, including six studies investigating various digital technologies. They suggest that analytic capabilities gain through adopting digital tools are crucial for the whole process of digitalization. Studies in this cluster support Sorge's (1991) neo-contingency framework of arguing interdependencies among changes in business strategy,

organization, and human resources (Sorge, 1991). The second cluster addresses the trend of general digitalization and discusses interrelated alterations in general structure, strategy/decision making, stakeholder management, and human resource management with four hits. In this group, breaking borders is a crucial notion spread across all the involved papers, referring to the non-hierarchy structure within organizations and blurring boundaries with externalities. Specifically, two of the papers in this cluster describe an emerging position—chief digital officer—as an organizational response to embrace digital transformation (Singh & Hess, 2017; Tumbas et al., 2018). This cluster of studies has implications for organizations undergoing digital transformation to be prepared for or proactively adjust to a flatter organizational structure brought by digitalization. The third cluster consists of five studies looking into the use of social media and its alignment with openness, strategy making, cognition, and stakeholder management. A case-to-case analysis into the five articles suggests that studies in this strand converge in analyzing co-creation enabled by social media platforms. Co-creation indicates that organizations open up their boundaries to internalize ideas and insights from customers, or even customers themselves, into various organizational processes (Parmentier & Mangematin, 2014). This evidence contributes to the discussion on how to manage co-creation and how to deploy a customer-centric strategy or social media strategy.

Overall, the analysis of the 45 studies following the contingency perspective shows that more attention has been paid to strategy, organizational structure, and organizational behavior than organizational performance. Moreover, strategy/decision making is of specific importance for this group of studies as it is the only element involved in all three clusters. Stakeholder management (in strategy dimension) and human resource management (in organizational behavior dimension) are also essential elements concerned by more than one cluster of studies.

A Comparison of the Two Perspectives. In comparing and contrasting empirical studies taking a "best practice" perspective or a contingency perspective, we identified two main points of distinctions. First, studies exploring different digital trends tend to take specific perspectives. A broad comparison suggests that studies investigating social media fields tend to choose the "best practice" approach. Among the 41 studies investigating social media, 34 of them (82.93%) take the "best practice" perspective, compared with just seven taking the other. In comparison, most studies in digitalization (20 out of 23) and big data analytics (10 out of 13) groups take the contingency perspective. The reason might come from the distinct nature of various digital trends, features of the two perspectives, and a match between them. For example, Big data is characterized by high volume, velocity, and variety (Gunasekaran et al., 2017), and the insights

generated from big data analytics can exert broad and profound impacts on organizations regarding decision making, service development, operation, and other organizational functions (Chen, Preston, & Swink, 2015). Accordingly, the inclusive nature of the contingency perspective that focuses on the "fit" with organizational context explains the overarching effects caused by big data analytics well.

Second, studies pursuing a specific perspective also incline to examine particular organizational elements. Studies taking a "best practice" perspective draw the most attention to organizational performance, followed by organizational behavior, but rarely examine elements in strategy or organizational structure dimension. In comparison, investigation of strategy takes a dominant position among studies taking contingency perspective as each study in this group explores at least one of the four elements in the strategy dimension. Similarly, organizational structure draws more attention from researchers pursuing a contingency approach (18 studies) than from the other group (just 1 study). This sharp contrast indicates that the two perspectives have their own merits in elucidating different issues, regarding different digital directions or organizational elements in this review. This finding is in line with Becker's (1996) argument, "best practice and contingency hypotheses are not necessarily in conflict-they simply operate at different levels" (Becker & Gerhart, 1996).

Drawing on the long-term and heated debate between the "best practice" perspective and the contingency perspective, our comparison of the 92 studies taking one of the two perspectives suggests that they are complementary rather than competing. The contingency approach is supported by some researchers while criticizing the "best practice" perspective because of its ignorance of the dynamic interdependency between organizational practice, outcomes, and the environment (Aguilera et al., 2008; Filatotchev & Allcock, 2010). On the contrary, a number of empirical investigation reveals that companies do, to a large extent, share (and have to adopt) the same principles that are accepted as global best practice (Lucianetti, Jose, Jabbour, Gunasekaran, & Latan, 2018; Netland, 2012). Our review shows that the seemingly conflicting perspectives have their advantages in examining different research issues (different digital technologies in this review) and feature with merits for scrutinizing distinct organizational fields (refers to the four dimensions in this review). This finding is aligned with a stream of literature, managing to combine these two perspectives (Becker & Gerhart, 1996; Sorge, 1991; Stavrou, Brewster, & Charalambous, 2010).

7.6 Discussion and Future Direction

Our review confirms that researchers have made significant progress in understanding organizational changes in performance, behavior, strategy, and structure while undertaking digital transformation. However, some challenges also emerge in our review, which shows directions where researchers should go from here. Below, we address three major matters in this field and give further research directions: (1) Open the "black box", (2) Explore the bidirectional relationship, (3) Clarify confusion in construct and measurement of digitalization.

7.6.1 *Open the "black box"*

Among the 92 reviewed studies examining effects in organizations caused by digital transformation, few of them, however, ask the more foundational question of how the impacts are developed despite that it unveils the course of changes and establishes causality.

Although empirical research on these fronts is much thinner, we can still seek clues from integrating insights in the existing literature. We suggest three directions for future research in investigating roles that digitalization plays in organizational reconstitution, which is identified based on the review. First, *digital technologies function as a complement* to the existing system. This concept is consistent with the resource-based view, which suggests that creating bundles of strategic resources and/or capabilities gains organizations competitive advantages (Barney, 1991), and also in line with sociomaterialism, which interlinks technology with management and human dimensions, arguing they are inseparable in organization research (Orlikowski, 2007). Empirically, studies have found that digital tools perform better with the support of existing on-premises information and communication technologies (Benitez et al., 2018), customer relationship management system (Trainor, Andzulis, Rapp, & Agnihotri, 2014), and transactional memory system (Cao & Ali, 2018). 16 of the 92 (17.2%) reviewed literature underlines the improvement in efficiency or/and effectiveness when digital tools co-function with already in-use technologies.

The second is *digital context as moderator/mediator*. Following the logic of dynamic capability (Teece, Pisano, & Shuen, 1997), digital tools have the potential to enhance capabilities in leveraging and transforming resources and further working on the relationships between competitive advantage and accessible resources (Warner & Wäger, 2019). However, among the 92 articles in our review, we identify just four studies that explore the mediating function of digital technologies, and two find relationships where digital technologies act as a moderator. A more in-depth analysis of the six studies reveals that various digital technologies can function

on interactions of different pairs of variables since not a single relationship is re-examined. The limited number of research and findings also suggests empirical studies to explore a broader range of potential effects.

The third is introduced by Leonardi and Meyer (2015), who describe *social media at work as a social lubricant* (Leonardi & Meyer, 2015). They suggest that the unique characteristics of social media—co-present in the virtual world and access to others' communication— enable employees to gain awareness about who owns what kind of knowledge, which facilitates knowledge seeking and breaks inertia in social networks. We suggest that the lubricating function can also be adapted to organizational networks. Digital tools, such as social media and cloud computing, develop an information-rich social network (Wu, 2013), which is rich in structural holes, and facilitate organizations to exchange information and collaborate to against the turbulent environment (Loukis et al., 2017). From a network inertia perspective, these conditions are likely to lead to more changes in organizational network ties (Kim, Oh, & Swaminathan, 2006). Similarly, the features of share and connecting of all digital technologists also have the potential to act as network lubricant and decrease inertia in organizational networks. Further studies can borrow this concept to shed more light on how digitalization change organization in the context of supply chain, network, and ecosystem.

7.6.2 *From unidirectional impacts to bidirectional interactions*

When we study how the implementation of digitalization exert influence on organization construct, we should also consider the possibility of a reciprocal relationship between them, as certain organizational attributes (e.g., industry, firm size, and organizational work climate) almost certainly impacts digital transformation (e.g., the acceptance and permeation of new digital tools). Studies have explored causal arrows pointing in both directions but separately. Carlsson (2018) proposed that digitalization builds on reasonable human/system reasoning combining various contextual elements such as experience, insight, social interaction. (Carlsson, 2018). Moreover, in parallel, Thirathon et al.'s research (2017) reveals that big data analytics lead to more analytic insights and decisions among managers (Thirathon et al., 2017). Although some studies realize and admit their interdependencies (Bharadwaj et al., 2013; Park & Saraf, 2016), we find only a few studies explore this type of relationship from a general sense (Chen et al., 2015; Gupta & George, 2016; Witjara, 2016). Surprisingly, none of the reviewed papers examines the dynamic interaction between a single pair of elements.

However, the neglected bidirectional relationship is an important part of identifying these varying outcomes in digital transformation and how firms trade-off between positive adjustment and passive acceptance when facing digital disruption. This research direction could potentially add a new perspective to digitalization literature, which has not sufficiently considered the dynamic nature of digital transformation and has not assessed the reciprocity of digitalization and its context. In doing so, further studies are likely to control for selection bias of measurement in the digitalization-organization relationship and decrease the spurious association between digitalization and organizational change.

7.6.3 *Accurize the digitalization construct and its measurement*

Our review also suggests the concept of digitalization has not been well defined, and its measurement has not been precisely considered.

Digitalization, but in which phase and aspect? Digital transformation is not a "0 or 1" option but an ongoing process in which firms continue to adjust and fine-tune their corporate scope and activities. Cozzolino (2018) disentangled two phases of organizational change when facing digitalization: the initial advent of disruptive technologies and the subsequent adjustment in business models (Cozzolino et al., 2018). Khanagha (2018) suggested the digitalization process includes three stages: technological experimentation, strategical deployment, and long-term ecosystem strategy (Khanagha, Zadeh, Mihalache, & Volberda, 2018). Based on the systematic review of the 92 studies on this topic and insights therefrom, we suggest that future studies should distinguish four stages of digital transformation: technological implementation, organizational routinization, strategical deployment, inter-firm assimilation.

Technological implementation refers to the alteration from traditional tools to digital tools and just staying on an operational practice that has not connected to overall business yet (Heinze, Griffiths, Fenton, & Fletcher, 2018). Organizational routinization indicates that digital technologies diffuse across organizational processes and have been integrated with organizational systems, but the capacity to develop and sustain these activities are still limited (Ferretti & Schiavone, 2016; Heinze et al., 2018). In the strategical deployment stage, organizations think beyond the current usage and foresee opportunities, values, and challenges in further activities that pertain to digitalization, and accordingly deploy an organization-wide strategy to guide the organization toward its journey of more digitalized (Luo et al., 2018; Singh & Hess, 2017). Inter-firm assimilation expands the strategical incorporation of digital tools beyond firm boundaries and pursues a compatible portal and system with partners, allies,

and suppliers, which further generates cross-firm trust and collaboration (Bruque Cámara et al., 2015; Iyer & Henderson, 2012). Remarkably, the issue of constructs is of significance for empirical studies, more than a conceptual definition, regarding its potential in impacts empirical conclusions. Scuotto et al. (2017) suggest that five dimensions in setting up social media networks, which can reflect their usage in different digitalization phases, have different impacts on the ratio of investment in small to medium enterprises (Scuotto et al., 2017). Therefore, studies should carefully consider the match between research questions and how to measure related variables (or design survey questions).

How should digitalization be measured? Issues in the measurement of digitalization give rise to several further directions. First, when and how to measure digitalization? Most studies operate under the assumption (explicitly or implicitly) that the digitalization phase involved in their research is already accomplished (this is also relevant to the issue of constructs). Nevertheless, given that we are still in the process of being digitalized, the deficiency of a criterion to evaluate the degree of digitalization is likely to cause a mismatch between research questions and the measurement of variables (e.g., investigate impacts of digital business models in a firm where only technology is digitalized). As a result, most quantitative research measures the use and pervasiveness of digital technologies based on individuals' perceptions through questionnaires. In our review, 42 of the 54 (77.8%) quantitative studies collect data based on surveys. However, these perceptions may cause deviation from reality, as respondents answer from their awareness, which involves subjective judgment and may fall behind the real digitalization implementation. We suggest future research to develop an objective and precise criterion to measure the stages of digitalization.

A second direction regarding the measurement of impacts derived from digitalization: we find, in digitalization literature, measurement of organizational impacts is often inconsistent with research questions concerning whether they are derived from digital transformation. For example, when investigating digitalization and its impacts on financial performance, studies often apply return on investments, operating earnings, and profit to measure financial performance, but without explaining which part of the impacts is caused by digitalization. In this way, although we can get an overview of statistical relationships between them, the changes resulted from digitalization could be potentially compensated or enhanced by some other factors. Therefore, more work is needed to separate the impacts derived from digital transformation in order to add precision in assessing the appropriate influence of digital technologies.

The third direction suggests addressing the multilevel process and impacts of digital transformation. The impacts of digital transformation on organizations are inherently multilevel, as our analysis also shows that it involves constructs at the individual level (e.g., Cognition, skills, and knowledge), team level (e.g., Team efficacy, human resource management), organizational level (e.g., Performance, business model), and industry level (e.g., Openness, industrial assimilation). However, most current studies focus on a certain unit of analysis and neglect the interdependence and interaction among levels in this process. For instance, organizational adoption of digital tools requires relevant employees to be equipped with certain skills (Social media as a social lubricant: How ambient awareness eases knowledge transfer), and in reverse, leads employees to assume roles and responsibilities that were traditionally outside of their functions (Tumbas et al., 2018). Similarly, digitalization at an organizational level can induce industrial transition toward specific digital tools and, to a certain degree, should consider the digital tools of stakeholders (Lyytinen et al., 2016). Therefore, we call for more studies to disentangle the inter-related multilevel impacts on organizations from digital transformation to provide more systematic and comprehensive insights to guide and direct organizations' digital transformation process.

The fourth direction concerns more longitudinal studies in the future. The nature of digital transformation indicates a dynamic process instead of static relationships between digitalization and organizational configuration. Given the possible bidirectional relationship and the aforementioned different phases in digital transformation, longitudinal studies could provide additional support for causal relationships and additional insight into the interplay between various organization elements and the dynamic environment. In doing so, we can also examine the longitudinal path of digital transformation and identify different strategies firms need for managing digital transformation over different periods of time. In fact, studies have realized the tremendous value of longitudinal research in this topic since 21 of the 92 reviewed articles ask for longitudinal studies, whereas only eight of the reviewed studies conduct long-term research, which indicates a dearth in this direction.

7.7 Conclusion

Digital transformation in organizations has drawn a significant amount of attention from managers and researchers (Pesch & Bouncken, 2020). Our review systematically analysis the potential impacted organizational elements from distinct digital tools through a systematic review of relevant empirical studies. The two perspectives, the “best practice” perspective and

the contingency perspective, exhibit distinct strength in elucidating different research issues, so they can be complementary instead of competing. Based on the systematic review, we also provide three directions for future studies.

To summarize, this review provides insights that contribute to three streams of research. First, it contributes to strategic management research by identifying and synthesizing current research findings on organizational changes under different digital directions and different investigative perspectives. Second, it makes a valuable addition to strategic information system literature by uncovering interactions between emerging digital trends and organizational elements. Moreover, we develop a 4-stage digitalization construct for further research to clarify the digitalization level they rest in. Third, our review also provides a reference to the best practice-fit debate because we demonstrate their distinct merit in supporting different streams of research and in exploring distinct organizational elements.

Managerial practitioners can also learn from this review and then better orchestrate digital transformation in their organizations. First, this article provides a synthesis of identified organizational changes from each digital trend and related moderators and mediators, from which managers can better deploy resources to embrace digitalization. Second, the 3 clusters drawn from studies taking contingency perspective provide a reference for practitioners in implementing actions to proactively and targeted prepare related organizational practice concerning their purpose of adoption. Third, the overview of impacted organizational elements also facilitates digital-born entrepreneurial projects and ventures to design the structure better while embracing and utilizing the digital trend (Bouncken, Kraus, & Martínez-Pérez, 2020).

Although care was taken to ensure the rigor and systematicity of the review process, there are some limitations to the study. First, we acknowledge the emerging studies on digital transformation and organization in recent years, as evidenced by the increasing number of publications in our investigated papers. This means that new studies might generate additional insights into our research agenda, but through broad initial search and strict screening for relevant papers, we believe the current analysis covers the overall picture of digital transformation in organizations. Second, our focus on journals of management discipline despite its wide relevance in other domains (e.g., computer science) restricts the paper reviewed. While this limits the final inventory of the reviewed papers, we found that the size of management literature and the insights therefrom on the topic was sufficient to develop an overview of the investigated question and provide insights for future studies and practitioners.

Overall, this review provides a framework and overview of the current research on organizations and digital transformation. Future research can use this framework as a guide to zoom in, identify and investigate relevant relationships, or dive into the three general future directions we derived from taking stock of the prior studies. Also, we encourage further review to test or complement the framework we generated with more future studies on this topic and more involved disciplines.

Statement

7.8 Reference

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7.9 Appendix

Appendix 7.1 A List of Reviewed Studies.

No.	Authors	Technology	Perspective (cross sectional/ longitude/panel)	Method (qualitative/ quantitative)
1	Iankova, Davies, Archer-Brown, Marder & Yau (in press)	Social media	Cross-sectional	Quantitative
2	Boone, Skipper & Hazen (2017)	Big data analytics	Cross-sectional	Qualitative
3	Alberti-Alhtaybat, Al-Htaybat & Hutaibat (2019)	Digital technologies	Cross-sectional	Qualitative
4	Huang, Singh & Ghose (2015)	Social media	Longitude	Mixture
5	Austin, Devin & Sullivan (2012)	Digital technologies	Cross-sectional	Case study
6	Muir & Haddud (2018)	Additive manufacturing	Cross-sectional	Quantitative
7	Lee, Hosanagar & Nair (2018)	Social media	Cross-sectional	Mixture
8	Ranerup, Helle Zinner & Hedman (2016)	Digitalization	Cross-sectional	Qualitative
9	Vallaster & von Wallpach (2013)	Social media	Cross-sectional	Qualitative
10	Côrte-Real, Oliveira & Ruivo (2017)	Big data analytics	Cross-sectional	Quantitative
11	Gunasekaran, Papadopoulos, Dubey, Wamba, Childe, Hazen & Akter (2017)	Big data analytics	Cross-sectional	Quantitative
12	Thirathon, Wieder, Matolcsy & Ossimitz (2017)	Big Data Analytics	Cross-sectional	Quantitative
13	Nguyen, Yu, Melewar & Chen (2015)	Social media	Cross-sectional	Quantitative
14	Rieple & Pisano (2015)	Additive manufacturing	Cross-sectional	Case studies
15	Iyer & Henderson (2012)	Cloud computing	Cross-sectional	Qualitative
16	Wang & Kim (2017)	Social media	Longitude	Quantitative
17	Powell, Horvath & Brandtner (2016)	Digital transformation	Cross-sectional	Mixture
18	Schniederjans & Hales (2016)	Cloud computing	Cross-sectional	Quantitative
19	Alijani, Fulk, Omar & Tulsi (2014)	Cloud computing	Cross-sectional	Quantitative
20	Bruque Cámara, Moyano Fuentes & Maqueira Marín (2015)	Cloud computing	Cross-sectional	Mixture
21	Mitra, O'Regan & Sarpong (2018)	Cloud computing	Cross-sectional	Qualitative
22	N'Cho (2017)	Big Data Analytics	One case study	Qualitative
23	Schoenherr & Speier-Pero (2015)	Big data analytics	Cross-sectional	Mixture
24	Bredmar (2017)	Digital transformation	Cross-sectional	Qualitative
25	Marion, Barczak & Hultink (2014)	Social media	Cross-sectional	Quantitative
26	Key (2017)	Digital transformation	Cross-sectional	Qualitative
27	Khanagha, Zadeh, Mihalache & Volberda (2018)	Cloud computing	Longitude	Qualitative
28	Park & Nilesh (2016)	Digitalization	Longitude	Mixture
29	van Zoonen, van der Meer & Verhoeven (2014)	Social media	Cross-sectional	Quantitative
30	Neeley & Leonardi (2015)	Social media	Longitude	Qualitative
31	Witjara (2016)	Digital transformation	Case study	Quantitative
32	Schniederjans, Cao, & Schniederjans (2013)	Social media	Cross-sectional	Mixture
33	Cao & Ali (2018)	Social media	Cross-sectional	Quantitative
34	Osei-Frimpong & McLean (2018)	Social media	Cross-sectional	Quantitative
35	Haddud, DeSouza, Khare & Lee (2017)	Internet of things	Cross-sectional	Quantitative
36	Lehrer, Wieneke, Vom Brocke, Jung & Seidel (2018)	Big data Analytics	Cross-sectional	Qualitative
37	Singh & Hess (2017)	Digital transformation	Cross-sectional	Qualitative
38	Braojos, Benitez & Llorens (2018)	Social media	Cross-sectional	Quantitative
39	Agrifoglio, Cannavale, Laurenza & Metallo (2017)	Digital transformation	Case study	Qualitative
40	Chen, Preston & Swink (2015)	Big data Analytics	Cross-sectional	Quantitative
41	Akter, Wamba, Gunasekaran, Dubey & Childe (2016)	Big data analytics	Cross-sectional	Quantitative
42	Amladi (2017)	Digital transformation	Cross-sectional	Qualitative
43	Schniederjans, Ozpolat & Chen (2016)	Cloud computing	Cross-sectional	Mixture
44	Pisano, Pironti & Rieple (2015)	Digital transformation	Cross-sectional	Qualitative
45	Lee & Park (2016)	Social media	Cross-sectional	Quantitative
46	Khorram Niaki & Nonino (2017)	Additive manufacturing	Cross-sectional	Qualitative
47	Oettmeier & Hofmann (2016)	Additive manufacturing	Cross-sectional	Qualitative
48	Frisk & Bannister (2017)	Big data analytics	Longitude	Qualitative
49	Lipiäinen & Karjaluoto (2015)	Digital transformation;	Cross-sectional	Qualitative

50	Hayes (2014)	Social media	Cross-sectional	Quantitative
51	Loukis, Kyriakou, Pazalos & Popa (2017)	Cloud computing	Cross-sectional	Quantitative
52	Ferretti & Schiavone (2016)	Internet of things	A case study	Qualitative
53	Benitez, Castillo, Llorens & Braojos (2018)	Social media	Cross-sectional	Quantitative
54	Heinze, Griffiths, Fenton & Fletcher (2018)	Digital transformation	A case study	Qualitative
55	Sigala & Chalkiti (2015)	Social media	Cross-sectional	Quantitative
56	Setia, Venkatesh & Joglekar (2013)	Digital transformation	Cross-sectional	Quantitative
57	Roberts & Candi (2014)	Social media	Cross-sectional	Quantitative
58	Ji-fan Ren, Fosso Wamba, Akter, Dubey & Childe (2016)	Big data analytics	Cross-sectional	Quantitative
59	Dobusch & Kapeller (2018)	Digital technologies	Cross-sectional	Qualitative
60	Parmentier & Mangematin (2014)	Digital transformation:	Cross-sectional	Qualitative
61	Isaias, Issa, Chang & Issa (2015)	Cloud computing	Cross-sectional	Quantitative
62	Kumar, Bhaskaran, Mirchandani & Shah (2013)	Social media	Case study	Quantitative
63	Huang, Baptista & Galliers (2013)	Social media	Cross-sectional	Qualitative
64	Leonardi (2018)	Social media	Longitude	Mixture
65	Leonardi & Meyer (2015)	Social media	Cross-sectional	Quantitative
66	Iddekinge, Lanivich & Roth (2016)	Social media	Cross-sectional	Quantitative
67	Trainor, Andzulis & Agnihotri (2014)	Social media	Cross-sectional	Quantitative
68	Mount & Martinez (2014)	Social media	Cross-sectional	Qualitative
69	Corral de Zubielqui, Fryges & Jones (2019)	Social media	Cross-sectional	Quantitative
70	Wu (2013)	Social media	Cross-sectional	Mixture
71	Parise, Guinan & Kafka (2016)	Digital technologies	Cross-sectional	Qualitative
72	Castelló, Etter & Årup Nielsen (2016)	Social media	Longitude	Mixture
73	Boitmane & Blumberga (2016)	Social media	Cross-sectional	Quantitative
74	Rishika, Kumar, Janakiraman & Bezawada (2013)	Social media	Cross-sectional	Quantitative
75	Saffer, Sommerfeldt & Taylor (2013)	Social media	Cross-sectional	Quantitative
76	Roßmann, Canzaniello, von der Gracht & Hartmann (2018)	Big data analytics	Cross-sectional	Mixture
77	Lam, Yeung & Cheng (2016)	Social media	Longitude	Quantitative
78	Dateling & Bick (2013)	Social media	Cross-sectional	Qualitative
79	Scuotto, Del Giudice, Peruta & Tarba (2017)	Social media	Cross-sectional	Quantitative
80	Lee, Lee & Oh (2016)	Social media	Cross-sectional	Quantitative
81	Barros (2014)	Social media	Case study	Qualitative
82	Gupta & George (2016)	Big data analytics	Cross-sectional	Quantitative
83	Luo, Van de Ven, Jing & Jiang (2018)	Digital transformation	Cross-sectional	Mixture
84	Cozzolino, Verona & Rothaermel (2018)	Digital transformation	Longitude	Qualitative
85	Ooms, Bell & Kok (2014)	Social media	Cross-sectional	Qualitative
86	Mawed & Aal-Hajj (2017)	Big data analytics	Cross-sectional	Qualitative
87	Maiorescu (2017)	Social media	Case study	Quantitative
88	Murphy & Salomone (2013)	Social media	Cross-sectional	Qualitative
89	Orlikowski & Scott (2014)	Social media	Cross-sectional	Qualitative
90	Tumbas, Berente & vom Brocke (2018)	Digitalization	Cross-sectional	Qualitative
91	Svahn, Mathiassen & Lindgren (2017)	Digital innovation	Longitude	Qualitative
92	Nwankpa & Roumani (2016)	Digital transformation	Cross-sectional	Quantitative

Chapter 8: Conclusion

8.1 Summary and Contribution

This thesis assesses the changes in the workplace and the underlying mechanisms against three overwhelming trends, namely sharing economy, coworking-spaces, and digital transformation. The findings in part one address the value configurations and connectivity of organizations altered by the sharing concepts. Part two explores the processes of coworking-spaces and their impacts on workplaces by employing different theoretical lenses, including socio-materiality, institutional theory, and service business models. Part three presents the overall and profound effects that digitalization exerts on contemporary organizations. Each research article generates separated findings and contributions as given below:

Chapter 2 (included in Part one) analyzes the decisive features in sharing-based business models considering their value configurations. This paper points out that 1) customization or standardization of shared goods and 2) the centralization or particularization of property rights over the shared goods are two essential dimensions that distinguish value configurations of sharing-based business models. The findings contribute to the business model innovation literature and sharing economy research by adding the two dimensions to the current inventory. Besides, the two dimensions can help firms to tap into the sharing trend.

Chapter 3 (included in Part one) examines the business model configurations of coworking-spaces, which incorporate the sharing concept into their businesses. The qualitative study reveals four types of configurations: efficiency-centered business model, user-centered business model, development-centered business model, and platform-centered business model. The findings further conclude that the level of connectivity, diversification in revenue, and collaborative capability of these four configurations increase along a continuum. This paper adds to the rudimental research on coworking-spaces and provides analytical dimensions to explore design themes of business models, especially those with the sharing concept.

Chapter 4 (included in Part two) explains the role of materiality in the workplace and the processes of impacting work practices by investigating coworking-spaces. This paper draws upon sociomateriality perspective to analyze conditions in coworking-spaces that incorporate emotional and social meanings, which might further enhance performance. The findings argue that materiality in coworking spaces shapes work environments concerning ambiance, proximity, connectivity, and privacy, which further form work practices of social actors

through the flow of communication, collaboration across boundaries, and architecture of innovation. The findings suggest companies consider all work practices as sociomaterial and achieve better performance by fitting materiality with users' needs.

Chapter 5 (included in Part two) investigates the generation of coworking ecosystems through an institutional theory perspective. The qualitative study examines the process at three levels. The findings suggest that 1) micro-level institutions are shaped by the institutionalized socialization and connected resources in coworking-spaces, 2) meso-level interaction in communal coordination and industrial value co-creation impacts institutions, and 3) Macro-level institutions include emerging ecosystems and increasing legitimacy of coworking-spaces. This research connects the phenomenon-based coworking research with institutional theory and contends that adopting a coworking concept could enhance innovation and venture through ecosystems.

Chapter 6 (included in Part two) points out that the servitization layers and co-creation among users lead to the trajectories of business models. This study applies a flexible pattern matching approach to analyze the continuance of coworking-spaces business models based on service business models and collective consumption literature. The analysis on longitudinal data shows that trajectories evolve through the recurring and manifested service experience of customers. The findings underscore value co-creation as systematic resource integration and its reinforcement on business models, suggesting that companies with collective consumption context only nudge changes of their customer-enabled business models.

Chapter 7 (included in Part three) provide a systematic review of empirical papers concerning organizational changes derived from digitalization. The analysis suggests a framework consists of six leading digital trends and 15 impacted organizational elements. This framework helps develop a synthesis of organizational impacts from each digital technology and provides insights into future research directions.

The six research articles together elaborate that contemporary workplaces face great challenges and opportunities against the transformation from sharing economy, open spatial settings, and digital transformation. The findings point out that workplaces and organizations are switching to more connected, flexible, dynamic, and opener platforms. Therefore, the management methods, decision-making strategies, and workplace culture should be modified consistently and accordingly to accommodate the coming new age.

8.2 Limitation and Outlook

While this thesis aims to disentangle the multifaceted changes occurring in the contemporary workplace and the mechanisms, the research articles involved in this thesis are still subject to some limitations, which provide directions and avenues for future research.

First, considering the rudimental stage of the extant literature on the emerging phenomena of sharing economy, coworking-spaces, and digitalization, most of the articles included in this thesis are inductive and explorative. When these trends are increasingly influential in the workplace and attracting growing attention from scholars (Bouncken & Reuschl, 2018; Cijan, Jenič, Lamovšek, & Stemberger, 2019; Rese, Görmar, & Herbig, 2021), it would be interesting and fruitful to generate new insights while leveraging the findings from prior studies by applying a flexible pattern matching approach (Bouncken, Qiu, & García, 2021a; Bouncken, Qiu, Sinkovics, & Kürsten, 2021b; Sinkovics, 2018). The flexible pattern matching approach enables disciplined imagination in qualitative studies by comparing empirical patterns with theoretical patterns deduced from the literature. In this way, it provides space for emerging constructs while guiding the analysis with extant theories (Bouncken & Barwinski, 2021; Bouncken et al., 2021a; Bouncken et al., 2021b; Gatignon & Capron, 2020). Besides, the theoretical frameworks and constructs derived from this thesis will need further test and examination. Quantitative research methods or mixed methods (e.g., fsQCA) can potentially provide additional insights into the relationships and configurations of the constructs.

Second, the theoretical lenses of the articles primaryly focus on management and organizational studies. Indeed, workplaces are an indispensable part of any organization, and organizations are the carriers and operators of workplaces (Bal & Izak, 2020; Barley, 1996; Dittes, Richter, Richter, & Smolnik, 2019; Yuan & Woodman, 2010). However, workplaces are composed of social actors and thus has considerable social attributes, including social cognition of the collectives (Gibson & Earley, 2007; Spreitzer, 1995; Wilson, 2013), social network and interpersonal relationship of workers (Pillemer & Rothbard, 2018; Podolny & Baron, 1997; Spector & Jones, 2004; Stryker, Santoro, & Farris, 2012), and individual emotion and affect (Ashkanasy & Daus, 2002; Klotz & Bolino, 2020; Morris & Feldman, 1997). To some extent, the social and human parts are interconnected with most organizational fields. Therefore, the changes in the workplace are interwoven with the social identity and subconscious of people there, making it difficult to extract the organizational influence from the individual traits and social backgrounds (Edelman & Larkin, 2014; Spector & Jones, 2004). This thesis attempts to address this issue by starting with the general social evolution of sharing

economy and connectivity, as the context of the following workplace transformation. Future studies can further adopt more theories and concepts from sociology and psychological studies (e.g., habitus, symbolic interaction, and individual empowerment) to further dig into the processes and logic of today's workplace evolution.

Third, this study explains the influence of sharing economy, spatial settings, and digital technologies on workplaces, but respectively instead of unitedly. This way of investigation and elaboration brings two major limitations to the studies. One refers to the neglected influence from other aspects while examining one trend, and the other points to the lack of a comprehensive picture of the modern workplace while organizations experience both visible and invisible transformations. Accordingly, future studies in contemporary workplaces would combine changes in physical space and virtual workplaces in the same research (Autio, Nambisan, Thomas, & Wright, 2018; Bouncken, Ratzmann, Barwinski, & Kraus, 2020). It will bring instrumental findings for researchers and practitioners to either examine the interplay and joint impacts from spatial settings and digital transformation or explore the distinct constructs that each trend touches on and how they complement or supplement each other.

Summing up, enormous changes in the contemporary workplace are driven by multiple trends and entail many potentials in organization and management studies while bringing great challenges to managers. This thesis looks into the impacts of sharing economy, spatial settings (especially in coworking-spaces), and digital transformation. Further studies can take different theoretical lenses, draw on different social changes or aspects of workplace changes, and apply different approaches to unravel the mechanisms and thus provide references for practitioners in managing modern workplaces.

8.3 Concluding remarks

Workplaces are changing so fast and extensively that the ubiquitous virtual conferences, the non-hierarchy working culture, and the flexible career path nowadays might sound unrealistic ten years ago. This thesis examines the profound impacts from visible spatial settings and more invisible technology advancement against the sharing economy, as well as the fundamental logic. In the end, I would like to conclude this thesis with the concept of "the invisible hand" from Adam Smith: "the revolution is led by both visible and invisible hands in the workplace that promote an end which was beyond its intention.".

8.4 References

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