# Coworking-Spaces: Drivers and Barriers of the Work in and of Coworking-Spaces

Lars Görmar

Dissertation zur Erlangung des Grades eines Doktors der Wirtschaftswissenschaft der Rechts- und Wirtschaftswissenschaftlichen Fakultät der Universität Bayreuth

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Dissertation

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Coworking-spaces do not only offer a professional work environment with the necessary infrastructure. There is much more about coworking, especially the community, diversity, as well as knowledge exchange, and they offer an innovative surrounding to their users. Both is important for coworkers in order to build relations and succeed in their professional careers. Luckily, the Chair of Strategic Management and Organization of the University of Bayreuth offers exactly that, plus a challenging and demanding surrounding for academic and personal growth and development. I am glad and thankful and deeply grateful for having this special place as my place for my academic career and my dissertation. The discussions and the social support from everyone here is unique. I am sure we created the best coworking-space-like surrounding for academic career and a vivid life in a unique surrounding. Therefore, it is of special concern to me, to express my thanks to all the great people that accompanied me during my time at the University of Bayreuth.

First and of utmost importance for my academic success in the past five years, I want to thank my supervisor Prof. Dr. Ricarda Bouncken. Thank you for giving me the opportunity to pursue my academic goals, for encouraging me with my promising ideas and for teaching me to identify and eliminate my misleading ideas. Under your supervision and with your help I learned scientific ethos and experienced research not only in my office but also on many conferences and congresses in various countries. Thank you for your support, for your guidance and for believing in me!

Furthermore, I would like to thank Prof. Dr. Daniel Baier who accompanied my research on coworking-spaces and co-chaired my colloquium as second supervisor. Thank you for inspiring me, discussing ideas and pointing out pitfalls in the course of my thesis.

Coworking and community are inevitably interconnected and my research shows that discussing and competing increases the success. Likewise, I feel that the community and the challenging discussions at the chair on many levels were important for my development and success, both personal and academical. Thus I want to thank Angelika and Christine for maintaining the community, Andreas for introducing me to the topic of coworking and third-party-funded research projects, Viktor and Sven for methodological support, and Roman for exhaustive discussions on all aspects of coworking. I also want to thank all other colleagues and co-authors who are part of my academic world and contributed to successful and productive work time, exciting discussions and well-deserved recreational breaks.

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Finally yet importantly, I want to express my gratitude to my girlfriend Birte who accompanied me especially during the heyday of my dissertation and the final submission of this thesis. Thank you, Birte!

# ABSTRACT

Coworking-spaces are a rapidly growing phenomenon of the sharing economy. The basic service consists of a professional working environment including the respective infrastructure in combination with the availability of workshops, social spaces, and a community built by its users. Start-ups, entrepreneurs, self-employed, or even employees of established companies share a common place to work in such coworking-spaces. Coworkers benefit from social interaction by escaping social isolation compared to home office, a professional work environment compared to coffee-bars, and a fruitful, innovative surrounding both regarding people and the office structure compared to all other workplaces available. By offering this, coworking-spaces are increasingly becoming the workspace of tomorrow.

Building on seven research articles, this thesis contributes to research by 1) showing the need for revision of established constructs, such as Entrepreneurial Orientation, 2) analyzing the global diversity of and in coworking-spaces and pointing towards an optimal degree of diversity, and 3) explaining, why and how these theoretical ideas and approaches find application in the practical world of coworking. This thesis is structured in seven research articles that cover the above mentioned topics, presenting 1) the practical relevance and demand for research and 2) a literature overview with the scientific width of the topic and analyzing 3) social networks and individual creativity, 4) co-creation processes in coworking-spaces and diversity, 5) the interplay of social and material aspects, 6) value creation and appropriation tensions in coworking-spaces, and 7) the entrepreneurial orientation in coworking-spaces.

Overall, this thesis shows that diversity on a global level is important for innovativeness, work-life satisfaction, and success of coworkers. While this thesis focusses on diversity especially regarding social networks, for co-creation processes, and regarding value creation and appropriation tensions, diversity also includes situational and context-based configurations around coworking as well as the design of coworking-spaces, their purpose and their claims. All in all, there is no ‘one size fits all’ solution. While full individualization is not possible, a certain, possibly optimal degree of individualization and thus diversity on the market and within work environment is necessary. Coworking-spaces can offer this degree of individualization, making coworking-spaces an important work place of the future. Eventually, employees will base their career choice not only on the employing company but also on the job location and possibilities for remote work.

# ZUSAMMENFASSUNG

Coworking-Spaces sind ein stark wachsendes Phänomen der Sharing Economy. Die grundlegenden Leistungen bestehen aus einem professionellen Arbeitsumfeld inkl. der notwendigen Infrastruktur zusammen mit Workshops, sozialen Räumen und einer Gemeinschaft, die die Nutzenden selber kreieren. In Coworking-Spaces teilen Start-ups, Entrepreneure, Selbstständige oder Angestellte von (Groß-)unternehmen einen gemeinsamen Platz zum Arbeiten. Coworkende entkommen der sozialen Isolation und profitieren von sozialer Interaktion im Vergleich zum Home-Office, einem professionellen Arbeitsumfeld im Vergleich zu Cafés, und einem innovativen Umfeld hinsichtlich Personen und Bürostruktur im Vergleich zu anderen verfügbaren Arbeitsplätzen. Durch dieses Angebot ist Coworking zunehmend der Arbeitsplatz von Morgen.

Mit sieben Beiträgen steuert diese Dissertation zur aktuellen Forschung bei, indem sie 1) die Notwendigkeit zur Überarbeitung bestehender Konzepte aufzeigt, hier das Konstrukt von Entrepreneurial Orientation, 2) die globale Diversität von/in Coworking-Spaces analysiert und zeigt, dass es ein gewisses optimales Level an Diversität gibt, und 3) erklärt, warum and wie diese theoretischen Ideen und Ansätze in der praktischen Welt des Coworking Anwendung finden. Die Beiträge der Dissertation decken die o.g. Themen ab und präsentieren somit 1) die praktische Relevanz und den Bedarf an Forschung sowie 2) den Literaturüberblick mit der Breite der Forschungsmöglichkeiten und analysieren 3) soziale Netzwerke und individuelle Kreativität, 4) Co-Kreations-Prozesse in Coworking-Spaces und Diversität, 5) das Zusammenspiel von sozialen und materiellen Elementen, 6) Wertschöpfungs- und -zuteilungsspannungen in Coworking-Spaces und 7) Entrepreneurial Orientation in Coworking-Spaces.

Die Dissertation zeigt, dass Diversität auf einem globalen Level wichtig ist für Innovativität, Work-Life Balance und Erfolg von Coworkenden. Der Fokus liegt insbesondere auf Diversität bzgl. sozialer Netzwerke, Co-Kreations-Prozesse sowie Wertschöpfungs- und -zuteilungsspannungen, es zählen aber auch situationsabhängige und kontextbezogene Konfigurationen rund um Coworking sowie das Design von Coworking-Spaces, die Ziele und Ansprüche dazu. Obwohl komplette Individualisierung unerreichbar ist, ist ein möglicherweise optimales Level an Individualisierung und somit Diversität auf dem Markt und innerhalb des Arbeitsumfeldes notwendig. Coworking-Spaces können diesen optimalen Grad an Individualisierung bieten und sichern sich damit einen wichtige Stelle als Arbeitsplatz der Zukunft. Schlussendlich werden Arbeitnehmende ihre Berufswahl nicht mehr ausschließlich vom Arbeitgeber abhängig machen, sondern auch vom Ort des Jobs und den Möglichkeiten für Remote-Tätigkeiten.

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# 1 INTRODUCTION

## 1.1 MOTIVATION AND RESEARCH CONTEXT

What will the new era of work look like? How will the employees, entrepreneurs, and self-employed people work, how will we all work in the future? What kind of skills will be necessary for this new type of work? With questions like that, we walk through an era influenced by digitalization (Bouncken & Qiu, 2021; Tumbas, Berente, & Brocke, 2018; Thirathon, Wieder, Matolcsy, & Ossimitz, 2017; Lyytinen, Yoo, & Boland Jr, 2016; Key, 2017), remote work (Choudhury, Foroughi, & Larson, 2021; Schinoff, Ashforth, & Corley, 2020; Ozcelik & Barsade, 2018; Murthy, 2017), and increasing numbers in start-ups (Ojaghi, Mohammadi, & Yazdani Hamid, 2019) and knowledge-intensive work (Sheffey, 2021; Castellani, Rossato, Giaretta, & Davide, 2021).

The changes in the work environment require increased flexibility among both employees and organizations (Monaghan, Tippmann, & Coviello, 2020; Mudambi, Li, Ma, Makino, Qian, & Boschma, 2018). Flexibility for employees is a broad field. Generally, flexibility is "*a measure of how well we deal with the unexpected*" (Hogarty, 2021). Following this approach, a flexible employee is better at overcoming unexpected obstacles than a non-flexible employee. Considering our fast-moving, continuously changing, and dynamic world, flexibility is a core-ability of all employees. But what makes an employee *flexible*? Starting with the basics, employee flexibility includes work-time flexibility. When needed – and if possible from the personal situation – employees occasionally need to be flexible with the time they work. That does not necessarily mean overtime, it might just be a slight change of working hours for an important deadline. Furthermore, employees need to be more flexible regarding their job descriptions. Although a certain task might initially not have been their job, demands change, and employees need to adjust their approaches to fulfill new tasks based on individual requirements and challenges. With this, flexibility also means *developing new skills* and *helping with jobs where needed* (Doyle, 2020). Consequently, *flexibility* is more than just a measure. *Flexibility* means to expect and accept things to change, and with the previously mentioned countermeasures being able to deal with these changes without personal, mental, or psychological damage (Hogarty, 2021).

However, flexibility is based on reciprocity. Employees can only be flexible if the organization they work in/for is flexible as well and offers the employees opportunities for being flexible. For example, the manager can approach the individual needs of the employees and treat

them as individuals. For example, he can adjust schedules when employees need time flexibility for private duties and praise them based on their individual desires. Furthermore, the manager can reward impactful suggestions as well as shown flexibility of employees, creating different role models and proving that employees will benefit from this behavior (Doyle, 2020). Overall, flexibility means *encouraging this kind of mindset* and offering employees flexibility regarding all the previously mentioned aspects that they need for living a stressless life, basically guaranteeing *freedom* (Hogarty, 2021).

Since working models, as well as jobs, change and thus require a different set of skills, we can already see the similarity to the *need for flexibility*. Additionally, these new working models offer new opportunities and freedom, while digitalization acts as an enabler for new places to work at, allowing remote work, home office, and working from third places (Akhavan, 2021). The most popular third place is the coworking-space (CWS). Coworking-spaces increasingly developed with the rise of the platform economy and the sharing economy (statista, 2019b; statista, 2019a).

The platform economy experienced a boost with the continuous growth and development of the internet (Kraus, Filser, Spitzer, Kailer, Tiberius, & Bouncken, 2020). Platforms are created to bring people with different offerings and demands together for buying and selling products or services, sharing resources, or general interaction (Täuscher & Laudien, 2017; Reuschl & Bouncken, 2017). They are created by the respective provider but shaped by their users (Gillespie, 2010). Platforms can have the purpose of social interaction, such as Facebook (Facebook, 2021), networking for economic success, such as LinkedIn (LinkedIn, 2021), or the purpose of creating a flexible, dynamic workplace that serves business purposes and includes a supportive and challenging community with friends while sharing resources. And that is exactly what coworking-spaces do, putting coworking-spaces as a great example for a platform that brings people together for sharing resources.

Sharing resources, such as eggs or sugar in the neighborhood, has a long tradition. It is not for nothing that the phrase *sharing is caring* is still on our minds and always has been. The sharing economy encompasses all activities between partners within a network in order to allow peer-to-peer interaction. In former times these networks were primarily *groups of friends* or the previously mentioned *neighborhood.* Over time and with the internet and the platform economy, plenty of online networks developed. Yet, these online networks still pursue the same goal: sharing goods and services (Belk, 2014; Hamari, Sjöklint, & Ukkonen, 2016).

This includes a wide variety of goods and services that can be coordinated via the internet (Belk, 2014), such as carsharing (ShareNow), peer-to-peer credits (auxmoney, mintos), accommodations (Airbnb), or transportation (Uber). Especially the case of Airbnb is remarkable: At the IPO, the online application with no own properties or accommodations was worth as much as the VW-group altogether (Jacobsen, 2020) and challenges the whole travel industry (Oskam & Boswijk, 2016; Voeth, Pölzl, & Kienzler, 2015). However, these networks can also be offline, offering a shared and mutual workplace: the coworking-space. Considering that office infrastructure is expensive, office space in many cities is scarce, and much of the often needed special equipment is beyond prize for individuals as well as start-ups, sharing became a famous, maybe the only affordable solution for people interested in coworking.

In times of the COVID-19 pandemic, we all experienced that remote work and home office as third place to work at are possibilities for pursuing especially knowledge-intensive work. However, we also experienced social isolation, being unmotivated and tired of sitting all day without relief and variation, bad internet connection, unhealthy ergonomics, and distraction in various forms (Roussel, 2021). This again shows us the advantages and merits of coworking-spaces. Coworking-spaces are, on the one hand, a third place for working, on the other hand, they are a place for social interaction, knowledge exchange, and spending leisure time. They fill in and fit in the gap between home office and the office.

All of these changes pave the way for a completely new way of working. Knowing and accepting that these changes are already lived and practiced reality, we now need to move one step further: The future of work.

When talking about the future, we need to consider one of the greatest pioneers of today's time: Elon Musk. Musk says: "*Essentially, in the future, physical work will be a choice.*" (Sheffey, 2021). If physical work will be a choice, the core of work that is left is knowledge-intensive work in an entrepreneurial-shaped environment. Entrepreneurial orientation describes antecedents of the entrepreneurial processes on a company level as opposed to the innovativeness of a dominant person in the company (Miller, 1983; Covin, Rigtering, Hughes, Kraus, Cheng, & Bouncken, 2020; Hughes, Rigtering, Covin, Bouncken, & Kraus, 2018). With this, entrepreneurial orientation is the thrive towards new entries (Lumpkin & Dess, 1996). A new entry can be achieved "*by entering new or established markets with new or existing goods or services*" (Lumpkin & Dess, 1996, p. 136). In the future, this will be important

because entrepreneurial orientation will secure long-term success and promote innovations within firms (McGrath, 2001).

The future will be characterized by increasing importance of factors such as creativity and cooperativeness. Creativity is the ability of people to generate new useful ideas for problem-solving (Pleschak & Sabisch, 1996). To generate these new problem-solving approaches, elements of already existing knowledge are combined in a new way. This ability can be trained and supported by appropriate methods and working techniques. The world economic forum lists creativity as top 3 most important skill for the future (Gray, 2016). For benefitting from the changes in products, technologies, and the new ways of working, people need to become more creative, Petrone (2018) adds.

Considering the ongoing debates on diversity, this will be another core factor that will play a crucial role in the future. Diversity can be measured in many different ways (e.g., Pelled, Eisenhardt, & Xin, 1999; Colignon, 1987; van Knippenberg & Schippers, 2007; Maznevski & DiStefano, 2000). All in all, it describes the level of similarity between people regarding the peculiarity of certain attributes. On the one hand, diversity can lead to negative outcomes (e.g., Hentschel, Shemla, Wegge, & Kearney, 2013; Cockrell, Placier, Cockrell, & Middleton, 1999; Ely, 2004) it can also lead to positive outcomes (e.g., Downey, van der Werff, Thomas, & Plaut, 2015; Richard, 2000; Ely, 2004). Considering the influence of diversity in the new work environment is thus important in order to draft recommendations for shaping the coworking-space accordingly.

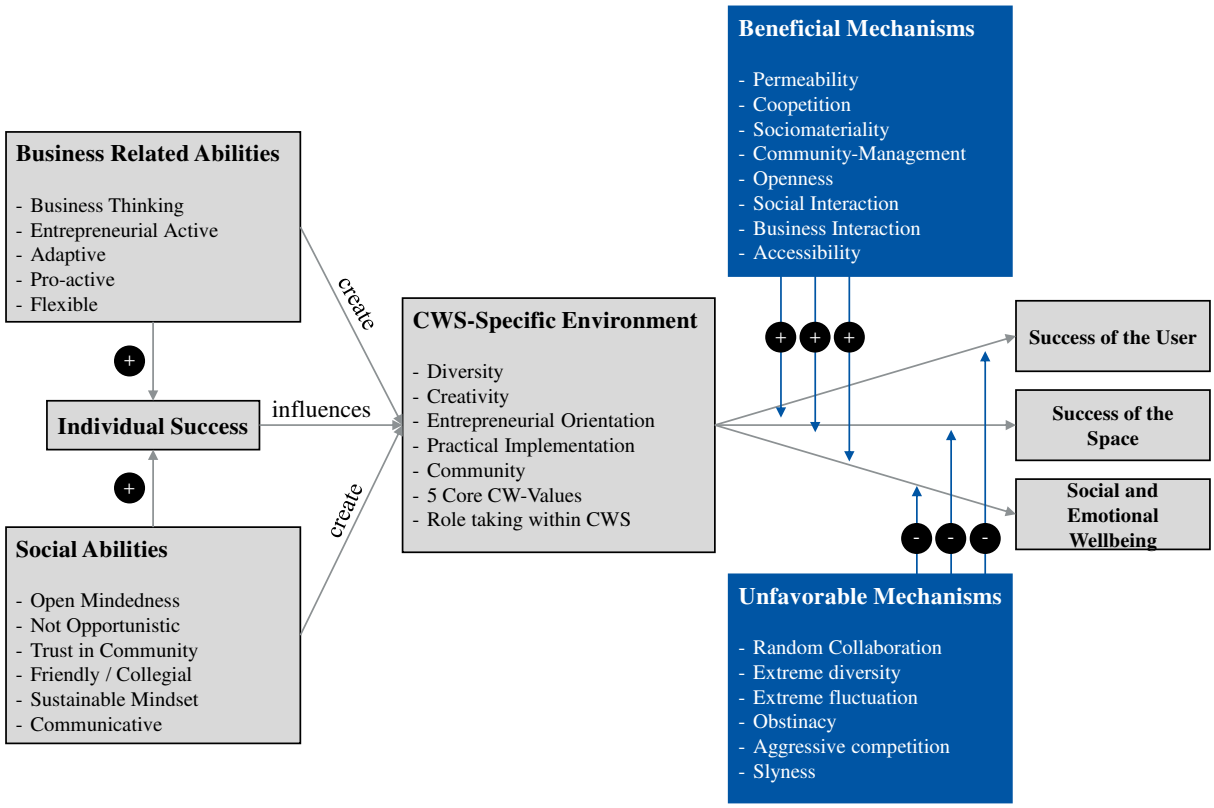
Another crucial factor is the need for cooperation. In the context of coworking-spaces, cooperation is extremely likely to happen with competitors. This specific case is called coopetition. Coopetition is was first introduced by Raymond Noorda, a businessman and the founder and CEO of Novell. In the research context, Nalebuff and Brandenburger (1996) extended the explanation and added a model of inter-organizational relationships. In the context of coworking, it especially occurs among individuals and new ventures (Devece, Ribeiro-Soriano, & Palacios-Marqués, 2019; Le Roy & Czakon, 2015). Many examples (alliance between IBM and Apple; R&D coopetition between KONE and Toshiba; Sony and Samsung with “S-LCD”, etc.) prove that by combining specialized resources and sharing knowledge, especially innovations benefit from coopetition (Bouncken & Fredrich, 2012). In the knowledge-intensive industry, this will be core to apply creativity and create new products and services.

Finally, all the good ideas and approaches do not work if not supported by the interplay between social and material elements (Leonardi, 2013; Orlikowski, 2007; Scott & Orlikowski, 2014; Leonardi & Barley, 2010). Consequently, it is important to analyze how sociomaterial interplay influences the entrepreneurial activities and behavior within coworking-spaces (Bouncken & Aslam, 2021; Bouncken, Aslam, & Qiu, 2021; Aslam & Görmar, 2018; Aslam, Bouncken, & Görmar, 2021).

However, diversity is not only an element of The Future of Work, it is much more. Diversity can be thought of on a global level, it is not only autotelic but influences every other factor around, such as innovativeness and success. Furthermore, diversity in and of coworking-spaces means the diversity of the spaces, of the culture within the spaces, the offerings that the spaces make, the community, the accessibility, and the purpose of the whole.

When considering the previously mentioned ideas, approaches, and underlying mechanisms that emerged from the practical phenomenon, it appears reasonable to find an aggregating framework that puts them into a broader context. Figure 1.1 shows the core abilities that play a crucial role in coworking-spaces and create the cws-specific environment with its individual characteristics. Combining them with the beneficial and unfavorable mechanisms, it leads to success on three levels: 1) Success of the user, 2) success of the space, and 3) social and emotional wellbeing.

**Figure 1.1: Framework of Abilities, Environment, and Success.**




When looking at the required characteristics and abilities, the framework illustrates once again that coworking is not a solution for everyone. Introverts and non-communicative people that enjoy loneliness would not enjoy the work. On the opposite, especially flexible work that requires communication and knowledge exchange benefits from the coworking-setting as well as open-minded people that interact and are adaptive to changes in both the social and business-related environment.

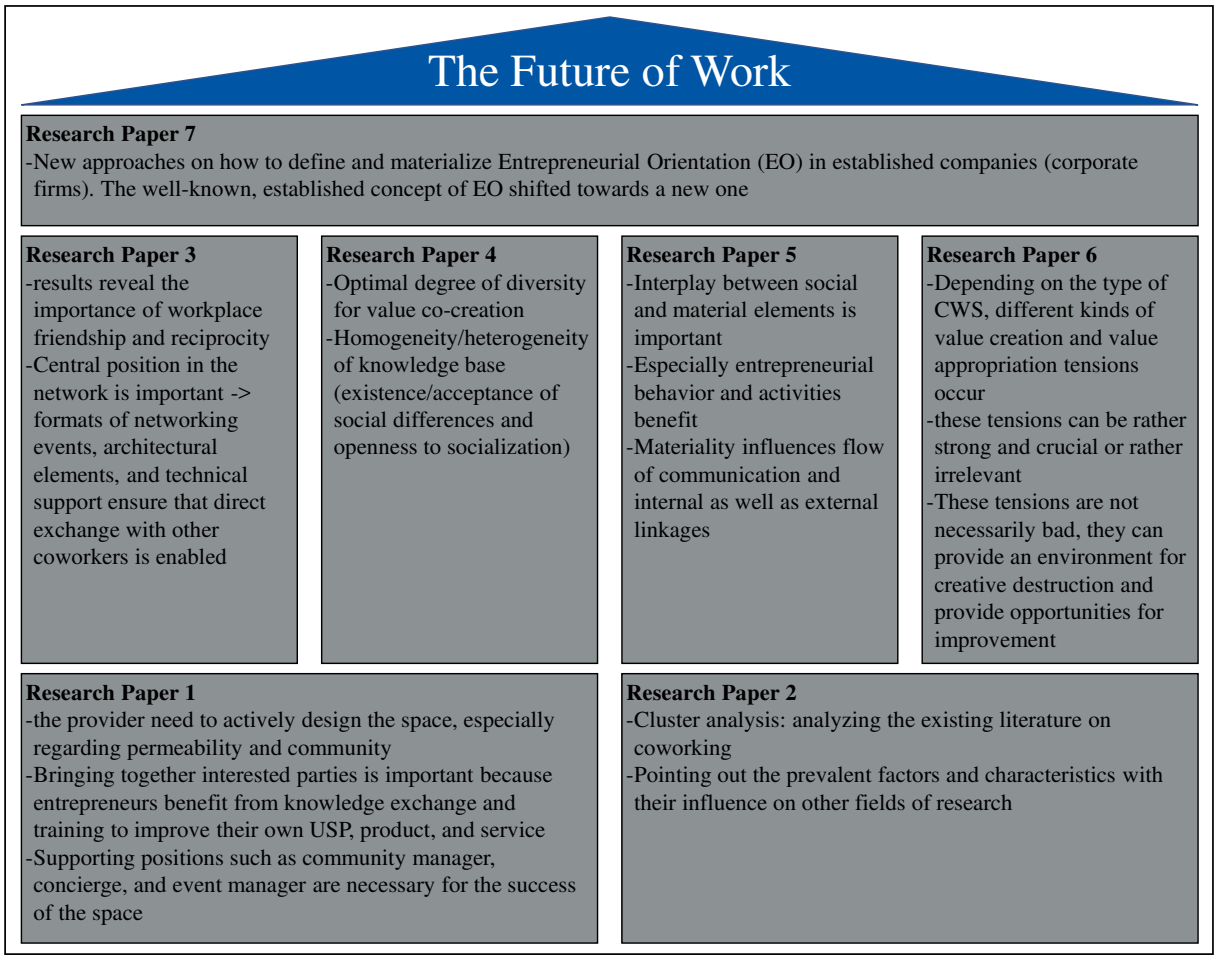
It becomes obvious that the four elements Entrepreneurial Orientation, Creativity, Diversity, and Coopetition create the basis of The Future of Work, and we need to think about the most important skills and topics that will be necessary for the future in the light of the workplace of the future – the coworking-space. Consequently, it is important to analyze how Entrepreneurial orientation, creativity, diversity, and competition within the community influence the work in a coworking-space.

## 1.2 THESIS STRUCTURE AND RESULTS

This thesis consists of seven research articles. Two of them build the foundation, stating the practical and theoretical necessity for research on this field and laying out the potential research avenues. Four of them build supporting pillars of The Future of Work and elaborate on the individual elements *social networks and creativity*, *diversity and co-creation*, the *socio-material interplay*, and *coopetition within the community*. While each paper analyzes a different topic with an individual research design, they together build the fundamental basis for coworking. The seventh paper provides the transfer to the corporate world, creating an overall view on coworking as part of The Future of Work. Figure 1.2 shows the overall structure and includes the major findings of each research paper.

Research paper one explains the development of the phenomenon from the practical areas. The second research paper provides a literature analysis on the field of coworking. Research Papers three, four, five, and six analyze the core factors and thus pillars of The Future of Work. The third research article shows what factors of social networks can foster individual creativity and the fourth paper discusses the limitations of diversity for co-creation processes within coworking-spaces. The fifth paper deals with the interplay of social and material elements within the coworking-space and the influence on communication flow, and the sixth paper explains why the competition between coworkers is not necessarily bad but rather fosters the success of the coworkers. Finally, in paper seven, I show what these findings mean in the context of entrepreneurial orientation and what it means for corporate companies, elaborating on how the concept of entrepreneurial orientation needs to change in order to properly display entrepreneurial orientation in today's work environment.

**Figure 1.2: Structure of this Thesis.**




The first research article, *Working Together in the Decentralized Digital World,* was published in *Gestaltung vernetzt-flexibler Arbeit: Beiträge aus Theorie und Praxis für die digitale Arbeitswelt* under the title *Gemeinsames Arbeiten in der dezentralen digitalen Welt*. As the practical initiator of this research project, it shows where the phenomenon *coworking* came from. The paper shows that different CWS from different providers have different forms, goals, and services. Because of their difference and their individual mix, they aim at different groups of users, while all spaces serve as ecosystems or part of ecosystems. It becomes clear that all providers need to actively design the space, especially regarding permeability, socio-materiality, and community. Also, bringing together interested parties is important because entrepreneurs benefit from knowledge exchange and training to improve their own USP, product, and service. Supporting positions such as community manager, concierge, and event manager are necessary for the success of the space.

*This research paper is authored by Lars Görmar and Ricarda Bouncken. Lars Görmar especially contributed to the theory, the methodology, and the results.*

The second research article, *Coworking Spaces and Makerspaces: Mapping the State of Research*, was submitted to the *Journal of Innovation & Knowledge*. It provides a sound literature overview on coworking based on a cluster analysis with data from the Web of Science. With a researcher cluster and the distribution of publications per country and journal, we show the development of the research stream and its influences on other fields of research. The findings point towards the relevance of coworking-spaces for innovative behavior in general and knowledge exchange in specific, making them not only a place for work and social exchange but also a tool for pursuing daily work, innovative ideas, knowledge creation, and interaction.

*This research paper is authored by Sascha Kraus, Ricarda B. Bouncken, Lars Görmar, Ferran Calabuig, and María Huertas González-Serrano. Lars Görmar especially contributed to the theoretical background and the discussion.*

The third research article, S*ocial Networks in Coworking-Spaces and Individual Coworker's Creativity*, was published in *Review of Managerial Science*. The paper on networks and their influence on individual creativity of coworkers constitutes the second pillar and is based on literature on topics of entrepreneurial networks (Birley, 1985; Brüderl & Preisendörfer, 1998; Hoang & Antoncic, 2003; Hoang & Yi, 2015; Slotte-Kock & Coviello, 2010). After analyzing questionnaires from 113 coworkers, the results point out the importance of centrality in the network and individual CWS value orientation as input with workplace friendship and reciprocity as mediating influence. The findings support this model, especially for private CWS, yet it is unclear whether it is applicable for corporate companies.

*This research paper is authored by Alexandra Rese, Lars Görmar, and Alena Herbig. Lars Görmar especially contributed to the qualitative analysis and the discussion.*

The fourth research article, *Co-Creation in Coworking-Spaces: Boundary Conditions of Diversity*, was published in *Knowledge Management Research & Practice*. It is the third pillar, and by referring to service-dominant logic (Vargo & Lusch, 2004; Vargo & Lusch, 2008), in this context, CWS can be understood as hubs for value co-creation (Vargo & Lusch, 2004). The analysis of user and provider from 12 CWS further suggests an optimal degree of diversity among the coworkers for successful value co-creation. Eventually, the often one-sided perspective that value co-creation is mainly triggered by companies is softened, and it becomes clear that value co-creation is a process that links different actors with alternating roles.

*This research paper is authored by Lars Görmar, Roman Barwinski, Ricarda Bouncken, and Sven Laudien. Lars Görmar especially crafted the overall idea, supported developing the theoretical background, and was responsible for the methodological part.*

The fifth research article, T*he role of sociomaterial assemblage on entrepreneurship in coworking-spaces*, was published in *International Journal of Entrepreneurial Behavior & Research*. It follows the question of how coworking-spaces shape entrepreneurial ventures that we analyze with an inductive research methodology based on data from three different data sources, including observations, archives, and interviews from managers and entrepreneurs. The findings suggest that the materiality in the form of spatial architectures (working, socialization, and support structures), shared facilities and infrastructures (utilities, luxuries, and specialties), and integrated digital technologies (applications and platforms) influence the flow of communication, internal and external linkages, as well as functional uniformity and distinctiveness. However, there exists an inherent dualism in sociomaterial assemblage in coworking-spaces, which can lead to instrumental and detrimental outcomes for entrepreneurs.

*This research paper is authored by M. Mahmood Aslam, Ricarda B. Bouncken, and Lars Görmar. Lars Görmar especially contributed to the introduction and the discussion.*

The sixth research article, *Coopetition in Coworking-Spaces: Value Creation and Appropriation Tensions in an Entrepreneurial Space*, was published in *Review of Managerial Science*. As the fourth pillar, it completes the fundament and tackles an often neglected aspect of coworking-spaces: the competition among coworkers. The analysis shows tensions in value creation and value appropriation. These value creation and value appropriation tensions vary and depend on the type of coworking-space. Also, depending on the type of the CWS, these tensions can be rather strong and crucial, or coworkers accept and connive them. Understanding these tensions in the context of coopetition (Devece, Ribeiro-Soriano, & Palacios-Marqués, 2019; Le Roy & Czakon, 2015), especially in combination with value creation-appropriation tensions (Ritala & Tidström, 2014), these tensions are not necessarily bad. Having a decent level of coopetition can provide an environment for creative destruction and provide opportunities for improvement. Overall, coopetition can enhance the success of the coworkers.

*This research paper is authored by Ricarda Bouncken, Sven Laudien, Viktor Fredrich, and Lars Görmar. Lars Görmar especially contributed to the introduction and the discussion.*

The seventh research article, Ent*repreneurial Orientation in Coworking-Spaces for Corporate Entrepreneurship and Venturing*, was published in *Multidisciplinary Business Review*. As the first pillar, this article is based on the fact that entrepreneurial orientation is important for knowledge-intensive work and innovations. It draws on literature from the field of entrepreneurial orientation (Lumpkin & Dess, 1996; Rauch, Wiklund, Lumpkin, & Frese, 2009; Covin & Lumpkin, 2011; Covin & Miller, 2014) that provide three core elements for entrepreneurial orientation: innovativeness, proactiveness, and risk-taking. The analysis of 18 interviews from different companies that organized their office in a coworking-space style indicates that that entrepreneurial orientation changed during the past years regarding its materialization and the describing elements. Based on this, the findings show that with innovativeness and proactiveness, the descriptions of the corporate coworking-spaces largely reflect the elements of entrepreneurial orientation only with changes in the materialization, while indicators for risk-taking were not prevalent at all.

*This research paper is authored by Ricarda Bouncken and Lars Görmar. Lars Görmar especially contributed to the qualitative analysis and the discussion.*

These seven research articles form the house of The Future of Work. With the practical origin and the literature analysis as the theoretical foundation as well as the four pillars and the roof as finishing touch, coworking-spaces describe to a large extent how the idea of The Future of Work needs to be thought and how the society will think of work in the future. Eventually, concluding remarks provide a recapitulating view on this thesis and provide directions for further research on coworking-spaces, their legitimation, providers, positioning in the future work environment, and potential interference with the COVID-19-related changes in society and work environment.

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# 2 WORKING TOGETHER IN THE DECENTRALIZED DIGITAL WORLD

Published in "Gestaltung vernetzt-flexibler Arbeit: Beiträge aus Theorie und Praxis für die digitale Arbeitswelt" under the title "Gemeinsames Arbeiten in der dezentralen digitalen Welt". The article is translated into English for the publication of this dissertation.

## 2.1 INTRODUCTION

The rapid development of the Internet and the associated digitization have changed today's economy and society. The widespread use of social networks (Goh, Heng, & Lin, 2013), a change in consumption habits (Hamari, Sjöklint, & Ukkonen, 2016), and a fundamental change in values on the part of the consumers (Bardhi & Eckhardt, 2012) increase the pressure on companies and gradually lead society towards a „Sharing Economy" (Botsman & Rogers, 2010).

A phenomenon that has emerged in this context is the coworking-space (CWS). Start-ups, entrepreneurs, self-employed, or even employees of established companies usually share a common place to work in such CWS (Bouncken & Reuschl, 2018; Gandini, 2015; Spinuzzi, 2012). In fact, the basic service consists of a working environment including the respective infrastructure. However, it would be wrong to reduce CWS to just that. In addition to offering a professional workspace, CWS providers also define themselves through the availability of social spaces and a community built by its users (Capdevila, 2013; Moriset, 2013; Pohler, 2012; Spinuzzi, 2012). By offering this, CWS are increasingly becoming the workspace of tomorrow.

As a phenomenon from practice and without consensual standards, existing CWS extremely differ in their forms. Some CWS are popular and successful, while others have existential problems. But how do they differ, and what influences the success of coworking-spaces? What are the drivers and barriers for the success of coworking-spaces and the work of CWS users? What are supporting measures to improve the work of and in CWS? These and other similar questions are pursued in the project "Humanizing Digital Work through Coworking-Spaces (Hierda)".

As the evaluation in the context of scientific publications in peer-reviewed journals is still pending, it is unavoidable to accept some incomplete portrayals in the following chapters.

## 2.2 THEORETICAL BACKGROUND

Driven by technological (Belk, 2014; Oskam & Boswijk, 2016), economical (Hartl, Hofmann, & Kirchler, 2016; Möhlmann, 2015) and ecological (Cohen & Kietzmann, 2014; Hamari, Sjöklint, & Ukkonen, 2016) influences, people are more and more organizing the sharing of goods and services via the internet (Belk, 2014; Bouncken & Reuschl, 2018). This type of sharing is increasingly established and accepted as an alternative form of consumption (Lamberton & Rose, 2012), whereas owning something is more and more seen as a restriction of one's own mobility and flexibility (Kathan, Matzler, & Veider, 2016; Schaefers, Lawson, & Kukar-Kinney, 2016). Accordingly, the relevance of possessing objects decreases (Chen, 2008), and the mere access to an object is preferred (Belk, 2007; Belk, 2010; Hennig-Thurau, Henning, & Sattler, 2007; Schaefers, Lawson, & Kukar-Kinney, 2016). Instead of buying and owning goods, consumers are given temporary access to the goods and services they need (Bardhi & Eckhardt, 2012; Hartl, Hofmann, & Kirchler, 2016). This phenomenon is known as the Sharing Economy (Botsman & Rogers, 2010), which is characterized by "peer-to-peer" activities in which access to goods and services is coordinated via "community-based online services" (Hamari, Sjöklint, & Ukkonen, 2016). For this, both companies and private individuals can participate in and organize the usage of such community-based online services for intra- and inter-sharing activities (Reuschl & Bouncken, 2017).

The coordination of access and thus the efficient structuring of transaction costs are at the core of the Sharing Economy, which simplifies the interaction between individuals and the establishment of virtual communities (Möhlmann, 2015). This is based on the development of the Internet and the increasing networking of information and communication technologies (Belk, 2014). These developments make it possible to use goods and services jointly and sustainably without significant transaction costs (Albors, Ramos, & Hervas, 2008; Belk, 2014). Sharing resources creates an economic value for communities since acquisition costs can be avoided, and running costs can be eliminated (Schaefers, Lawson, & Kukar-Kinney, 2016). A social benefit for those involved is also crucial, arising through strengthening the sense of community, for example (Belk, 2007; Belk, 2014). Since waste can be avoided and overproduction can be combated by sharing a good, the Sharing Economy also implies an ecological benefit (Möhlmann, 2015). On the consumer's side, this is reflected in the fundamental

change in values mentioned in the introduction (Bardhi & Eckhardt, 2012) and further in changed consumption habits (Hamari, Sjöklint, & Ukkonen, 2016).

Apart from the impact on consumption, the effects of the Sharing Economy can also be found in other areas. In addition to the examples usually used, such as sharing vehicles, living space, media, or clothing (Bouncken, 2018), the Sharing Economy also has an impact on the world of work. A trend is increasingly establishing, which is characterized by sharing a workspace (Bouncken, 2018; Richter, Kraus, & Syrjä, 2015). This trend is supported by two other main influencing factors. Companies are increasingly looking for ways to make their workforce more flexible in order to better face permanent economic and technological changes (Raffaele & Connell, 2016). This development is also driven by the fact that many companies are geared towards the interests of investors and the associated focus on short-term financial success (Spreitzer, Cameron, & Garrett, 2017). As a result, employees are less and less likely to get traditional full-time positions that are associated with job security (Davis, 2016), a fixed schedule, and a permanent job on the company's premises (Kalleberg, Reskin, & Hudson, 2000). Instead, jobs are being outsourced, core workforces are being reduced (Kalleberg, 2001), and more contract workers are being hired without job security or pension benefits (Bidwell, 2009; Bidwell & Briscoe, 2009).

Along with the changes on the company-side, new demands on work are also developing on the side of the employees (Schürmann, 2013). Flexible work arrangements (Wey Smola & Sutton, 2002) with regard to the spatial and temporal organization of work performance (Johns & Gratton, 2013) and a good work-life balance (Carless & Wintle, 2007) are increasingly important to young professionals. This results in new employment models, new types of professions, and new forms of cooperation (Schürmann, 2013). Examples of new employment models are nomadic work (Mark & Su, 2010) or the possibility of working in the home office. In nomadic work, people travel with the aim of doing work (Mark & Su, 2010). Home office, on the other hand, describes doing daily work from home or, more generally speaking, from a place of your choice. This can also be seen in the increasing number of self-employed (Johns & Gratton, 2013). The number of self-employed in Germany had risen to around 3.5 million by 2019, and the number of self-employed across Europe was around 30.5 million in 2019 (eurostat, 2020). This development is possible because of technological progress in information and communication technologies (Johns & Gratton, 2013; Moriset, 2013), which allows work to be done anywhere and anytime (Kossek, Thompson, & Lautsch, 2015; Spreitzer, Cameron, & Garrett, 2017). Many of these self-employed now work in coworking-spaces (see chapter *The users*). In addition, flexible workplaces play an increasing role in the modern de-

sign of organizations (Gandini, 2015; Merkel, 2015; Gibson, 2003). Furthermore, today's world offers more opportunities for digital business models (Bouncken, Kraus, & Roig-Tierno, 2021). Due to low transactions costs of the Sharing Economy mentioned above (Albors, Ramos, & Hervas, 2008; Belk, 2014) companies can access the work of self-employed, offered on brokerage platforms, flexibly and without high search costs (Gandini, 2016a).

This change is also referred to as the "on-demand economy", which describes an extremely flexible labor market in which professionals act independently and individually and are only asked for when needed (Gandini, 2016b). However, as more and more people are working from home as a result of this trend and have less personal contact with colleagues, many feel increasingly isolated and socially shielded (Cooper & Kurland, 2002; Garrett, Spreitzer, & Bacevice, 2017; Golden, Veiga, & Dino, 2008; Whittle & Mueller, 2009). To counter this feeling, some self-employed have started working in publicly accessible places such as cafes. Yet, these places are often noisy and offer only little privacy (Garrett, Spreitzer, & Bacevice, 2017). In addition, they offer few opportunities for social interaction (Hampton & Gupta, 2008).

In order to counteract the often occurring social isolation, a new work model around the sharing of workspace emerged in the mid-2000s, which is now known as "coworking" (Moriset, 2013). Coworking-spaces have enjoyed great popularity since their first official appearance in 2005 in San Francisco (Foertsch & Cagnol, 2013) and have developed rapidly (Reuschl & Bouncken, 2017). While in 2018 around 1.7 million people were working in almost 19,000 coworking-spaces worldwide, these figures rose in 2019 to 2.2 million coworkers in almost 22,000 coworking-spaces worldwide (Foertsch, 2018). However, while coworking-spaces are of great importance in practice, they have only been considered sporadically in theory and science (cf. Bilandzic & Foth, 2013; Capdevila, 2015; Davies & Tollervey, 2013; Gandini, 2015; Johns & Gratton, 2013; Jones, 2013; Kwiatkowski & Buczynski, 2014; Moriset, 2013; Pohler, 2012; Spinuzzi, 2012).

### 2.2.1 Coworking and Coworking-Spaces

The term coworking means "working together" and came originally from San Francisco in 2005. In this area, the idea of coworking developed, which describes a way of working between a traditional workplace and a communal environment. This collaborative form of work is used, for example, by freelancers, self-employed, start-ups, or employees in home offices (Gandini, 2015). The focus is not on the economic benefit but on the approach of an open-

source community that promotes communication and social relationships between members (Gandini, 2015). Self-employed or employees working from home often feel socially and professionally isolated because they pursue their tasks from home and therefore cannot communicate with colleagues or other people (Bouncken, Aslam, & Reuschl, 2018). According to Bouncken and Reuschl, social interaction creates more satisfaction and motivation at work. In addition, the interaction of members can also lead to more professional success by exchanging information and thus supporting each other in solving problems (Bouncken & Reuschl, 2017b).

The idea behind this is that coworkers perform their individual tasks alongside other people, rather than with them, comparable to the atmosphere that is typical for a gym (Aabø & Audunson, 2012). Working side by side reduces the isolation that arises from digital work and the elimination of classic office spaces and creates a social component that coworkers would otherwise find difficult to experience (Bouncken, Clauss, & Reuschl, 2016). The users know each other and communicate a lot but are independent in their work and way of working. To make this possible, coworking-spaces offer not only the equipment necessary for working, such as a workstation, Internet, printers, and conference rooms, but also elements for well-being and communication such as kitchens, leisure rooms with table-football, sofas, and hammocks. The German Coworking Federation and various publications have identified five core values that describe the coworking mentality: (1) openness, (2) collaboration, (3) sustainability, (4) community, and (5) accessibility. Openness means accepting one another and being open to new people as well as new ideas. Collaboration refers to the fact that coworkers not only work together simultaneously but also work together on joint projects. Sustainability in this context means the resource-saving approach, i.e., making unused resources available, both spatially and financially. Community describes the feeling of togetherness within a coworking-space but also among all coworkers, which enables the integration of different perspectives and approaches. Accessibility does not only refer to opening times but rather the accessibility of the space for all interested parties without restricting potential users.

## 2.3 METHODOLOGY

The methodology is divided into two sections based on the research situation. At the beginning of the project, coworking-spaces were largely unexplored. This requires an open, qualitative research approach. After extensive research and studies both within the framework of this project and by other scientists worldwide, we pursued a quantitative approach.

### 2.3.1 Qualitative Approach to Researching a New Phenomenon

In this combination, coworking-spaces and the associated values are a new phenomenon with increasing relevance for research and practice, especially with regards to factors such as *community*, *permeability,* and *network activity*. For novel and unexplored topics, which include coworking-spaces (Garrett, Spreitzer, & Bacevice, 2017), an inductive approach is best suited (Mäkelä & Turcan, 2007; Strauss & Corbin, 1990). Based on this approach, a topic is investigated with qualitative research designs, open to expectations and results. This approach allows to combine context-specific data from different sources and thus to develop theories and framework concepts (Strauss & Corbin, 1998). Therefore, as part of this research project, we developed two interview guidelines based on a detailed analysis of the literature – one for users and one for providers of CWS. We conducted the interviews personally and on-site as semi-structured interviews. In this way, we could answer queries and prevent potential communication problems. We recorded the interviews and transcribed them on the same day. They were then checked by the respective interviewee. We supplemented the generated data with information from websites, social media channels, and databases and complemented the objective data about the coworking-space with information from the website or news about relevant aspects such as costs for premises or future orientation (e.g., IPO). If users were organized in companies or start-ups, we collected additional information about these companies and start-ups. These qualitative studies made it possible to differentiate between the coworking-spaces in terms of business model, the operators behind them, and the users addressed. Furthermore, we were able to work out the first success factors for working in and from coworking-spaces. We conducted a total of 158 interviews in Germany, China, and the USA and thus collected over 350 hours of interview material for the studies. Data was collected in Germany because the project focus is on Germany and Germany is considered a pioneer in the coworking sector worldwide. Since coworking originated in the USA, data was also collected there. China is interesting for the survey since it offers a different cultural background. China is traditionally collectivistic and the community, the sharing, and the commonness are of high importance. On the one hand, these are core elements of the Sharing Economy; on the other hand, China, as a counterpoint to the USA and Germany, offers an interesting comparison group. For data collection, we translated the interview guidelines into the respective languages for the US and China. For this purpose, first, two researchers translated the guidelines translated from German into the respective foreign language, and then two different researchers retranslated the guidelines. The teams discussed differences in the translation and adjusted them accordingly. We conducted interviews with both providers and users of CWS.

**Table 2.1: Overview of the qualitative data**

| | Provider | User | Total |
|---|---|---|---|
| **Germany** | 58 | 41 | 100 |
| **USA** | 5 | 19 | 24 |
| **China** | 13 | 21 | 34 |
| **Total** | 77 | 81 | 158 |

With the evaluation of the interviews, we followed a step-by-step coding process according to Gioia, Corley, and Hamilton (2013) with iterative process steps that allowed the integration of literature and additional material. First, we merged quotes into first-order concepts. In the next step, we aggregated these concepts into second-order themes. Finally, we formed aggregated dimensions. With this methodology, emerging topics can be extracted from interviews. An unbiased approach is essential for this.

### 2.3.2 Quantitative Research to examine Relationships and Mechanisms of Action

Based on this, we developed two questionnaires – one for the users of CWS and one for the providers of CWS. With these, we collected data within the identified provider and user groups. With this deductive approach, we made the situations and relationships measurable that were previously subjectively described by providers, users, and experts. We then presented the data in statistical models. Data collection took place via two methods, paper-pencil and online. By adding an informative introductory text we prevented potential questions. The questions are based on a 5-point Likert scale as well as on single items. Here, too, we supplemented the data-set with information from secondary sources such as websites, social media channels, and databases. In this way, the relationships identified in the qualitative studies could be tested empirically. The results of this quantitative study enable us to develop tools to improve the work of and inside coworking-spaces. In a subsequent roll-out, the instruments will be made available in an online tool for further dissemination.

In the quantitative survey, we again included users and providers. A total of 909 users and 89 providers were surveyed in Germany, China, and the US.

**Table 2.2: Overview of the quantitative data**

| | Provider | User | Total |
|---|---|---|---|
| **Germany** | 52 | 283 | 335 |
| **USA** | 6 | 13 | 19 |
| **China** | 31 | 563 | 594 |
| **Total** | 89 | 859 | 948 |

The evaluation followed the framework of structural equation models using the software MPlus and SPSS. In this way, different chains of effects can be identified and analyzed.

## 2.4 RESULTS

As part of the research project, initial findings on the topic of coworking have already been gained. We were able to identify provider and user groups, classify coworking-spaces and work out individual design features.

### 2.4.1 The Providers

Basically, we found four different types of coworking-spaces: (1) *corporate coworking-spaces*, (2) *open corporate coworking-spaces*, (3) *consultancy coworking-spaces,* and (4) *independent coworking-spaces*. *Corporate coworking-spaces* are companies that have dedicated their office and workplace structures to the principle of flexible workplaces in open office structures. The workplaces are only available to employees; there is no leasing or opening up for external users. The open and creatively designed office space enables and supports the exchange of knowledge between employees. Prominent examples of this are Facebook, Apple, and Google. *Open corporate coworking-spaces* follow the same principle for their own employees but also open the workplace (in part) to external coworkers, e.g., freelancers. This promotes the exchange of knowledge with people outside the company and the employees benefit from creative ideas and new types of input. The external users can be called in as specialists for advisory or consultancy tasks and support the company as short-term project employees. In the long term, from these external users, new employees can be acquired who already know the company and who the company already knows, especially in terms of their working spirit and methods. Modul57 by TUI and Ottobock are well-known examples of this type of CWS. *Consultancy coworking-spaces* are innovative and creative room concepts that are only open to customers of the respective consulting company. Here, the consulting firm can supervise and accompany customer-specific innovation projects and bring suitable and interesting companies together for joint projects. The consulting company acts as good repute and enables customers with similar projects to advance their innovation together with combined forces. In addition to providing the space and equipment, the consulting company can act as a moderator and provider of additional services. Additional employees can fill in potential gaps regarding knowledge and methodology and thus expand the entire range of services offered by the consulting company. PwC is a pioneer in this field with so-called “Experience Centers” all over the world, including Frankfurt, Germany. *Independent coworking-spaces* are the opposite of the previously mentioned coworking-spaces. These are usually open to anyone

interested but are sometimes focused on certain topics (e.g., Techquarter in Frankfurt with a focus on fintech start-ups) or on specific user groups (e.g., Rockzipfel in Munich for mothers with children). Users not only pursue their daily job routines but also escape their social isolation. In particular, they benefit from the community, the exchange of knowledge, and the leisure opportunities. The betahaus and St. Oberholz coworking-spaces can be cited for this purpose (Bouncken, Reuschl, & Görmar, 2017).

### 2.4.2 Special Forms of Coworking

The section above discussed the common forms of coworking-spaces. However, particularly independent coworking-spaces are increasingly using the opportunity to position themselves as "Coworking + X". This means they do not only offer the working environment but also add another component as a unique selling point to the working environment. This can be the possibility of living, the so-called co-living (Rent24 in Berlin), or the possibility of working near recreational areas and being able to use them (Coconat in Bad Belzig). Other combinations are coworking + vacation (e.g., Beachhub on Ko Phangan, Thailand) or coworking + special activities (e.g., coworking + horseback riding to compensate for work, RossVita in Neuenhagen near Berlin). It's all about exuding a certain level of individuality. However, it must not be too individual and special either. Otherwise potential users will be deterred (cf. Täuscher, Bouncken, & Pesch, 2021).

### 2.4.3 Offers in Coworking-Spaces

Coworking-spaces offer two core elements to their users. (1) Material equipment and (2) social design elements. The material aspects include the workplace with internet connection, conference rooms, and printers, everything that is needed in knowledge-intensive work. In addition, work utensils, machines, and laboratories are made available in some coworking-spaces. This basic equipment is required for the users' work. The social element consists of community rooms, fully equipped kitchens, relaxation rooms, and seating landscapes. These elements promote knowledge exchange, creativity, and community.

The core elements are accompanied by services that can be booked as an option. Such services can include catering for workshops, but also assistant services, company addresses, and mailboxes. In addition, seminars, training courses, and networking events are often organized for all users of coworking-spaces as well as external interested parties.

### 2.4.4 The Users

Users can also be grouped into different categories, (1) the *utilizer*, (2) the *learner,* and (3) the *socializer*. The *utilizers* are coworkers who are only looking for direct benefits for their tasks

in the context of their own activities. Interacting with other coworkers in order to exchange knowledge or to establish personal contacts is not pursued. The main objective of the *learner* is to expand the knowledge in exchange with other coworkers. Pursuing the work itself is not the main reason for working in a coworking-space. The *socializer* primarily uses the coworking-space to escape the social isolation to which he is exposed due to his activity or office situation. He wants to make friends and talk about current small talk topics (Bouncken & Reuschl, 2017a).

The proportions of user groups vary depending on the type of coworking-spaces. The corporate coworking-spaces are aimed exclusively towards company employees. The *utilizers* are thus the primary user group. But the reason a company creates a flexible workplace structure is also to promote exchange. The *learners* are therefore explicitly desired and form the second group of users.

Open corporate coworking-spaces basically address the same user groups. In addition, there is a small proportion of *socializers*, as external users also tend to use coworking-spaces because of their social isolation. However, the proportion is rather small, as most coworkers, who are primarily *socializers*, tend towards independent coworking-spaces.

The consultancy coworking-spaces address employees of companies who are customers of the respective consulting company. This is part of the consulting company's business model and is therefore billable for the company. Simply exchanging ideas with other employees and reducing social isolation is therefore no reason for using it. It is rather about the users generating new ideas or developing new ideas with the help of advisors and using the environment and the facilities of the CWS for these purposes. The primary user groups are therefore the *utilizers* and *learners*.

User groups mix in the independent coworking-space. Few of them are *utilizers* and most of them are *socializers*. This is because in independent coworking-spaces the community of shared values is particularly important and community life is a high priority.

### 2.4.5 Coworking-Spaces as Ecosystems

As our surveys show, networking at the professional level is an important aspect for self-employed people and start-ups. Because of getting to know each other and building trust, this networking is much faster and better possible when done personally than via digital media. The more people with the same and/or different backgrounds are integrated into the personal network, the higher the likelihood of receiving appropriate help in the event of problems. The combination of many of such networks can also be referred to as an ecosystem. An ecosystem

consists of a community of connected participants. These combine and complement their knowledge, their sources, and their potential (Turkina, Van Assche, & Kali, 2016; Dunning, 1988). These connections allow access to widely distributed knowledge and contacts (Mudambi, Li, Ma, Makino, Qian, & Boschma, 2018). Additionally, coworkers can tackle the needs of a client together, i.e., by presenting joint coordinated offers. A participant can be part of different ecosystems. In the context of coworking-spaces, both the individual coworkers and the coworking-spaces are such participants.

The coworking-spaces as "guardians of the community" act as gatekeepers. All coworkers who join the community therefore meet the basic requirements to be accepted as part of the community. They are thus being included in the coworking-space's ecosystem and are therefore directly part of the ecosystem of all coworking-spaces. By joining, they add their personal network and thus expand the existing ecosystem. This expands the available knowledge and support. The network to which the coworkers have access through the ecosystem's membership also has a direct impact on innovation and project success. A distinctive ecosystem that is actively supported by all participants is therefore one of the success factors of coworking-spaces.

### 2.4.6 Permeability

Permeability means the ability to move from one team, group, or network to another team, group, or network (Ellemers, Van Knippenberg, De Vries, & Wilke, 1988). Various studies have shown that permeability promotes communication and innovation (Jacobides & Billinger, 2006; Workman, 2005). Permeability also enables the integration of diverse users, which in return is important for innovation (Bouncken, Ratzmann, & Winkler, 2008). The exchange of knowledge among diverse users is additionally supported by the physical proximity in coworking-spaces (Bouncken & Aslam, 2019). The users of coworking-spaces, unlike employees of a company, are not restricted to one workplace or activity. This means that there is a certain degree of fluctuation among users within a coworking-space. This fluctuation is necessary in order to continuously promote the exchange of knowledge and creativity. Coworking-spaces that promote the flow and exchange of information improve the associated creative process.

Very low permeability, meaning a low fluctuation of users in coworking-spaces, increases the sense of community due to stability but reduces the exchange of knowledge. The existing network is set and the advantages of the flexible working environment in coworking-spaces cannot be realized. Contrary, too high fluctuation of coworkers prevents trust and acceptance

from being built up. However, trust is important for a coworker's performance (Hughes, Rigtering, Covin, Bouncken, & Kraus, 2018). Without trust, the initiation of the information flow is prevented. Consequently, a certain level of permeability promotes innovation and corporate success (Bouncken, Aslam, & Brem, 2019).

### 2.4.7 Sense of Community

Opposite to permeability is the sense of community. Various studies have identified the sense of community as a core element of coworking-spaces (Blagoev, Costas, & Kärreman, 2019; Castilho & Quandt, 2017; Garrett, Spreitzer, & Bacevice, 2017; Spinuzzi, Bodrožić, Scaratti, & Ivaldi, 2019). Garrett, Spreitzer, and Bacevice (2017) explain that a common vision, shared norms, and common routines create a sense of community among users, although no common employer specifies a code of values or corporate philosophy.

Just as with permeability, a certain sense of community must be created in the coworking-space. A sense of community also promotes innovative strength and corporate success. Identification with a common basis (coworking-space) is sufficient to share important knowledge with one another (cf. Bouncken & Barwinski, 2021). A community that is too distinct, on the other hand, means a fixed and rigid situation that should be prevented in established companies. This, in return, is prevented by existing fluctuation. The interplay of permeability and a sense of community is therefore one of the success factors of working in coworking-spaces and the work of coworking-spaces (cf. Bouncken & Reuschl, 2018). The existing competition and the competitive situation do not have a negative effect on the community (Bouncken, Laudien, Fredrich, & Görmar, 2018).

### 2.4.8 Matching Interested Parties

Working together, exchanging ideas, and spending free time together is not enough to be successful in professional activities. The right partners must be brought together appropriately for the desired purposes. Appropriate coworking-space employees are necessary for this (see chapter *Roles in the Coworking-Space*). Bringing coworkers together and/or in combination with external parties cannot be generic but must be appropriate and goal-oriented. Workshops and events have proven to be helpful for this. In our project, we were primarily able to identify three different types: (1) *network meetings*, (2) *forming cooperation,* and (3) *transfer formats*. The aim of *network meetings* is to make (potential) members of a specialist community aware of each other and bring them together. It's about creating awareness for other people in the same (specialist) field and bringing them into exchange with one another. Events for the purpose of *cooperation* should provide the impetus for joint projects. The primary focus of

these projects is – depending on the partners – research and development as well as large tasks that cannot be handled by one party alone or not completely and therefore need additional knowledge and skills. The *transfer meetings* serve for exchange between science and practice. Both sides can stake out their requirements or range of services on special topics and inform each other about the latest trends in their field.

Contrary to what was expected, meetings with donors, thus the role of a business angel or the support of established companies, are barely relevant for the users of coworking-spaces.

### 2.4.9 Roles in the Coworking-Space

In order to be able to operate a coworking-space successfully in the long term, our surveys have also shown that various positions on the operator's side should be filled. This is mostly only possible if the coworking-space has a certain size and thus certain financial capabilities. Conveniently, it is only necessary or helpful from a certain size. In smaller CWS, separate jobs can be merged and combined and eventually fulfilled by one person.

#### 2.4.9.1 Community Manager

The community manager connects the members internally. He knows which member specializes in which area and what help the respective member needs and which skills they themselves can provide to support other members. In addition, the community manager takes care of the well-being of CWS users and keeps the community alive. He not only knows where the individual users stand professionally but ideally also knows the personal situations of each individual and can therefore act and intervene on a personal level. Since the community manager knows all this, his field of activity also includes dispute resolution. Since all sensitivities and sometimes personal difficult life situations are known, empathy is necessary in order to settle disputes among coworkers or to prevent them in advance.

#### 2.4.9.2 Concierge/Administrators

The concierge/administrator is responsible for ensuring that nothing is missing in the CWS and that everything is available in exactly the right amount. This includes creative material such as flip charts, pens, equipped facilitator's toolboxes, and whiteboard pens, but also projector lamps, kitchen utensils, and everything that belongs to the basic equipment of the CWS. In addition, this person is also responsible for ensuring that the materials are handled with care. So, while the community manager is in charge of the CWS's soft structure (the community), the concierge/administrator is responsible for the infrastructure of the CWS.

#### 2.4.9.3 Event Manager

The event manager is responsible for all events in the CWS. If there is no digital booking system for conference and event rooms, this person is responsible for the occupancy of the existing rooms, otherwise for the administration of the corresponding software. In addition, this person is in charge of the events that take place in the CWS or that are organized by the CWS. This includes the organization of external speakers but also the rental of event rooms for external events. If possible, the event manager should respond to the coworkers' event requests and implement them or support the users in implementing their ideas themselves.

Depending on the situation, other positions can also be helpful. For example, a designer is helpful in building, equipping, and designing the CWS. This should, of course, take place in connection with the composition of the community in order to adapt the rooms and the community to one another.

### 2.4.10 Relevance of the Core Values of Coworking

(1) *Openness* as the first core value undoubtedly enjoys high status. The exchange and interaction with other people are often the first reasons named for using coworking-spaces. It is therefore not surprising that the openness towards other coworkers and their ideas is practiced and lived on a broad basis. We were able to confirm this in various studies. (2) *Collaboration*, on the other hand, is only of minor importance and – depending on the situation – is not desired. However, this refers to building joint projects and building a joint company together with another person in the coworking-space. Collaboration in the sense of mutual support in existing projects is unaffected by this. Pursuing (3) *sustainability* is very important to coworkers. As part of the Sharing Economy, coworkers are deeply rooted in sharing. The possibility of using something is more important to them than owning something. This applies to office space and means of transport, but also to special electronic devices (e.g., mobile Wi-Fi hotspots) and financial resources. The (4) *community* as an important element in coworking-spaces holds a special position, as not every coworker includes the community in the same context. Community can be seen as a motivator when coworkers see each other at work, but it can also be small talk about current events in sport and politics. Community can mean cooking together in the shared kitchen, but it can also be taking a break and playing table football or table tennis. The sense of community reaches its climax with new friendships that can form in the coworking-space. Depending on the type of users (see chapter The Users) and the type of coworking-space (see chapter The Providers), different levels of importance are attached to the community by both sides and thus have a different status. Finally, coworking-spaces have to evaluate for themselves whether or not they want to make their offer available to all inter-

ested parties (*accessibility*). Our evaluations of the quantitative survey showed that no final statement could be made on this. On the one hand, there are coworkers who only want a wide, diverse number of coworkers in exceptional cases and rarely find this helpful. They prefer a clear positioning and a clear focus, as this is valued as a unique selling point by coworkers. This focus can be based on the field of activity (Techquartier in Frankfurt am Main, Germany) but also on all other criteria (single parents with children, see Rockzipfel in Munich, Germany; community structure with an application in order to enter, etc.). On the other hand, there are coworkers who prefer a broad and diverse environment, as they do not seek collaborations but want to exchange ideas flexibly.

## 2.5 Conclusion

Coworking-spaces offer enormous potential for both entrepreneurial success and for the humanization of work. Innovations on the product, business, and business model level can be achieved in a targeted manner through improved communication and increased knowledge exchange. For the users of coworking-spaces, this means that they can develop more and more independently, which not only reduces boundaries and promotes creativity but also strengthens their well-being.

Our research has shown that there are different types of coworking-spaces: (1) *corporate coworking-spaces*, (2) *open corporate coworking-spaces*, (3) *consultancy coworking-spaces*, and (4) *independent coworking-spaces*. Particularly the latter are increasingly differentiating themselves through special forms of coworking-spaces that are characterized by coworking + X and offer an additional service as a unique selling point. In addition to the necessary infrastructure for offices, the coworking-spaces also offer the opportunity for interaction, community, and exchange. In some coworking-spaces, postal addresses, assistant services, and event planning are also offered. This is received differently by coworkers depending on the user group. The (1) *utilizers* are more focused on the use of the infrastructure, while the (2) *learner* would like to use the environment for learning. The (3) *socializer* prefer interaction with other coworkers in order to escape social isolation. The sum of all participants creates an ecosystem. Through the ecosystem, the participants can develop faster and stronger and benefit from the contacts, skills, and resources of other participants. A certain degree of permeability in this ecosystem enables new contacts to be made continuously. However, too high permeability reduces the sense of community. The community is important for mutual trust in order to willingly support other coworkers with their projects. Matching interested parties is also helpful. Coworkers among each other, but also coworkers with external parties, must be brought

together in suitable situations in order for further development to take place. This is supported by various roles that should be occupied in the coworking-space. These include particularly the community manager and the event manager. But the administrator/concierge also takes an important role in the ongoing operation of the coworking-space. The question to what extent coworkers identify with the coworking core values is only partially influenceable by the provider, but nevertheless a serious issue for the development of a coworking-space. The five core values (1) *openness*, (2) *collaboration*, (3) *sustainability*, (4) *community,* and (5) *accessibility* describe the values by which most coworkers live and which are also important to them at work.

However, these approaches still avoid risks and weaknesses that must be made predictable through scientific research and practical testing with the aim of eliminating them.

Since Germany has been a pioneer of the idea of coworking-spaces in Europe from the start, Germany should not give up this position and deal intensively with the topic on various levels. The “Hierda” research project can only be a start at this point.

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# 3 COWORKING SPACES AND MAKERSPACES: MAPPING THE STATE OF RESEARCH

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## 3.1 ABSTRACT

Coworking and its merits and benefits have been under heavy scholarly investigation. Also, in practice, the phenomenon with its characteristics and manifestations becomes increasingly relevant on many levels and for many different types of people and organizations. But why is that so, and how are the research activities distributed between researchers, countries, and journals? To answer these questions, we first analyzed existing literature and extracted the focal points of the respective approaches. We conducted a cluster analysis on the existing literature by analyzing data from the Web of Science. With these clusters, we show the development of the research stream and how the studies are connected. The findings point towards the relevance of coworking-spaces for innovative behavior and knowledge exchange, making them a place for work and social exchange and a tool for pursuing daily work, innovative ideas, knowledge creation, and interaction. With these findings, we contribute to the understanding of this research stream as a whole and provide a deeper understanding of the available studies and how they are connected. This allows researchers to understand where the interest came from, where it is going and how they can contribute to the topic. Our study indicates that scholars should take a broad approach towards the phenomenon coworking. It set food in many different research areas, and all of them are important for a holistic understanding, showing potential for interesting studies. On a practical note, the factors that coworking influences need to be rethought throughout the whole work environment.

Keywords: Coworking, Knowledge Creation, Innovation, Cluster Analysis, Literature Analysis

JEL Codes: M100, M130, M190

## 3.2 INTRODUCTION

As the number of remotely working people increases, many feel increasingly isolated (Garrett, Spreitzer, & Bacevice, 2017). For these reasons, many freelancers choose to work in coworking-spaces: Shared spaces where individuals pursue their own careers and jobs but in the presence of others with the aim of being part of a community (Garrett, Spreitzer, & Bacevice, 2017). Thus, the collaborative economy with the idea of sharing created a new phenomenon known as coworking-spaces (Bouncken & Reuschl, 2018). During the past years, the rise of digital nomadism increased the demand for mobile workplaces. This change in behavior and the associated need for flexible offices set the ground for the growth of coworking-spaces and boosted the increasing demand. The desire to combine leisure time and work while traveling around the world additionally expanded the intended use (Orel, 2019). Thus, the number of coworking-spaces and people choosing to work in them is constantly growing (Jakonen, Kivinen, Salovaara, & Hirkman, 2017; Rus & Orel, 2015). In the past three years, the number of coworking-spaces worldwide increased from 16,000 to around 23,500, that being during pandemic times with contact reduction (statista, 2021b). During the same time, the number of people using coworking-spaces increased from 1.6 million to 2.5 million – again, during times of contact reduction and isolation (statista, 2021a). It is expected that by the year 2024, there will be around 5 million people working in around 42,000 coworking-spaces worldwide (statista, 2021a; statista, 2021b). The changing life- and work style, the tremendous increase in demand and the respective figures, as well as the importance of social interaction that we learned about during the ongoing COVID-19 pandemic show that the practical phenomenon of coworking is of utmost importance and relevance for practitioners.

Besides freelancers, entrepreneurs, and start-ups, established companies increasingly use coworking-spaces for their everyday business as well as for innovative projects and ideas (Bouncken, Ratzmann, Barwinski, & Kraus, 2020). The relevance of coworking manifests itself, for example, in companies such as WeWork. WeWork is a company that operates coworking-spaces all over the world (Source). With their business model, they generated a loss of $3.2 billion in 2020 (Koutoumanos, 2021). Yet, the company is currently valued at approximately $6 billion (December 2021, Börse Online, 2021). Again this shows the potential of coworking.

In this article, we pursue a bibliographic analysis that is proven as meaningful analysis (c.f. Ferasso, Beliaeva, Kraus, Clauss, & Ribeiro-Soriano, 2020; Rovelli, Ferasso, De Massis, & Kraus, 2021), and we provide a literature overview on the topic of coworking-spaces and

makerspaces. With this, we show how the research output is spread over different countries, institutions of the researchers, and journals. We also explain how these studies map potential research avenues for the topic. To do so, we 1) investigate how the research activities are distributed between researchers, countries, and journals, and 2) lay out (potential) reasons for the distribution. The topic is highly interesting and important for both research and practice. On the research side, mapping the topic and explaining the as-is status shows that the topic is already booming on many different levels. Second, laying out research aspects and potential avenues for investigation is important in order to understand that the topic is relevant for many different fields of research and thus many different scholars. Knowing this, it becomes obvious that applying different theories from different research fields is necessary to comprehensively investigate and eventually understand the topic. With our research, we contribute to several shortcomings in the literature and the public understanding of the topic. First, there is no recent literature overview on the topic of coworking or makerspaces available, although the topic is clearly highly relevant for research and practice. Second, although the topic is under heavy scholarly investigation, especially in the context of innovation, knowledge exchange, organizational development, and interaction of social and material elements, many researchers struggle to understand the potential that the topic offers. With our study, we explain and map the potential of this topic and lay out research avenues for different types of studies. For practitioners, by explaining the wide array of the topic, we can clearly express the need for action. Practitioners cannot rely on their established systems and mechanisms that they implemented and maybe optimized in the past. If organizations and companies want to maintain or gain a competitive advantage, they need to rethink their structures, their incentives, and overall the whole way they pursue their business.

In our paper, we first provide a structured literature overview. We then pursue a cluster analysis with data from the Web of Science. Finally, we extend the results with basic indicators and co-citation analysis. The discussion and conclusion seclude our paper.

## 3.3 THEORETICAL BACKGROUND

### 3.3.1 Definition of Coworking-Spaces

Coworking and coworking-spaces emerged as a phenomenon of the sharing economy (Blagoev, Costas, & Kärreman, 2019; Bouncken, Clauss, & Reuschl, 2016; Bouncken, 2018) and are especially encouraged by technology. As a trend that is about to change the way we work, coworking is a significant area of interest in organization science and entrepreneurship. Consequently, numerous researchers defined “Coworking” and elaborated on different ele-

ments (see Table 3.1) by shining light on the place where coworking happens – the coworking-space (Waters-Lynch & Duff, 2021).

Generally, the term “coworking place” describes places that allow coworking. A google search illustrates that coworking is part of various spaces with different focus and configurations, resulting in numerous pages about coworking in coworking-spaces (with a focus on knowledge-intensive work), makerspaces and fablabs (with focus on craftsmanship), incubators (with a focus on supporting highly innovative start-ups), or cafes. Parrino (2015) addressed this issue and stated that “Coworking” refers to multiple types of spaces. Thus, it is vital not to exclusively bind the definition of coworking on coworking-spaces (Merkel, 2015; Merkel, 2019). In the coworking-space literature stream, Spinuzzi's (2012) study also assessed the definition of coworking. He deployed interviews with coworking-space providers and users to define the coworking-space literature stream. As a result of his study, Spinuzzi (2012: 432) defined coworking as a “(…) superclass that encompasses the good-neighbors and good-partners configurations as well as other possible configurations that similarly attempt to network activities within a given space.”. Spinuzzi's findings also explain the differences in definitions based on different perceptions of the providers and users. Users tend to perceive a single model in workspaces, while the providers perceive multiple models. This difference in perception raises the question of what does coworking encompasses? In an attempt to answer this question, Parrino, 2015, p. 5) characterized coworking as geographic co-localization of various workers within the same environment and workers heterogeneity by occupation. Merkel (2019) emphasized that collaborative and supportive relationships are the roots of coworking. This is consistent with the work of Servaty, Harth, and Mache (2016), who highlighted collaboration as a result of sharing activities to achieve a shared identity.

Examining the various definitions in see Table 3.1, they all have in common that they highlight the physical space as the differentiator. However, these definitions emphasize different aspects of actions that take place in these physical spaces.

**Table 3.1: Coworking Definitions.**

| Author | Journal/Book | Definition |
|---|---|---|
| Jones, Sundsted, and Bacigalupo (2009) | Book | *" Coworking is the burgeoning movement of people coming together to work in a shared workspace."* (p. 21) |
| DeGuzman and Tang (2011) | Book | *" (...) a diverse group of people who do not necessarily work for the same company or on the same project, working alongside each other, sharing the working space and resources"* (p. 22) |
| Spinuzzi (2012) | Journal of Business and Technical Communication | *" Coworking is a superclass that encompasses the good-neighbors and good-partners configurations as well as other possible configurations that similarly attempt to network activities within a given space."* (p. 432) |
| Moriset (2013) | Proceeding of 2nd Geography of Innovation | *" Beyond the room layout, coworking is first an atmosphere, a spirit, and even a lifestyle."* (p. 7) |
| Uda (2013) | Discussion Paper | *" (...) a way of working in which individuals gather in a place to create value while sharing information and wisdom by means of communication and cooperating under the conditions of their choice."* (p. 3) |

**Table 3.1: Coworking Definitions (cont.).**

| Author | Journal/Book | Definition |
|---|---|---|
| Rief, Stiefel, and Weiss (2014) | Book | *" Coworking is the flexible work of largely independent knowledge workers in a common, institutionalized location."* (p. 43) |
| Merkel (2015) | Ephemera | *" Coworking refers to the practice of working alongside one another in flexible, shared work settings where desks can be rented on a daily, weekly or monthly basis."* (p. 122) |
| Sebostava, Sperka, Malecka, and Luczka (2017) | Proceeding of Forum Scientiae Oeconomia | *" One concept of this collaborative learning and creative space is coworking."* (p. 24) |
| Kopplin and Baier (2020) | Book | *" (...), the expression for participating in a CWS as a member (...)."* (p. 1) |
| Papagiannidis, Harris, and Morton (2020) | International Journal of Information Management | *" Coworking is the phenomenon when individuals share workplaces with employees representing different organization teams."* (p. 7) |
| Waters-Lynch and Duff (2021) | Human Relations | *" Coworking describes the varied practices of a heterogeneous collection of independent knowledge workers (Rather than employees of the same organization) sharing physical space, interacting and sometimes collaborating on shared projects."* (p. 2) |

Moriset's (2013) definition is an exception who stated that coworking is an atmosphere. This definition refers to the community as the core of coworking. Coworking encompasses sharing the physical space and going beyond, including sharing as a form of social support or collaboration. Not everyone is willing to collaborate with other individuals in a shared space (Rese, Kopplin, & Nielebock, 2020). Thus, it is essential not to limit the definition of coworking on collaboration. As a result, the definitions of Spinuzzi (2012) and Papagiannidis and Marikyan (2020) fulfill the characteristics and can explain coworking the best.

In brief, coworking can be bound to a physical shared space of individuals who do not necessarily share the same employer. Moreover, social interactions and a resulting community are vital characteristics of coworking. Moriset (2013) proposed a different definition, but he highlighted the sense of community in coworking-spaces. Interesting is the perspective of coworkers who perceive coworking as a global movement (Gerdenitsch, Scheel, Andorfer, & Korunka, 2016; Servaty, Harth, & Mache, 2016) and underline five distinct core values of coworking: Community, openness, collaboration, accessibility, and sustainability (Görmar & Bouncken, 2020). These values originate from the coworking-space "Citizen Space", one of the first coworking-spaces worldwide (Waters-Lynch, Potts, Butcher, Dodson, & Hurley, 2016). However, Merkel (2015) exchanged accessibility with diversity as a core value.

The standard of working remains to be the work in a traditional company office. Coworking offers an alternative between the home office and traditional company office (Capdevila, 2014). Many researchers referred to coworking as the concept of "third-place". A third-place describes a place that is neither home nor company office and resembles a bridge between these two forms of work (Wilhoit Larson, 2020; Waters-Lynch et al., 2016). Coworking, home office, and traditional office work are separable by (1) accessibility, (2) flexibility, (3) diversity of organizations, and (4) diversity of workers.

(1) A traditional office building is primarily accessible for employees during traditional working times. The own home as office allows the individual to work any time. Coworking places as a third-place can either be 24/7 accessible or operate during regular office hours. Most of the serviced offices, which are also part of third places, offer 24/7 access. In contrast, coworking-spaces are commonly accessible during regular working hours (Kojo & Nenonen, 2017). Coworking places are timewise accessible by choice of the worker. This offers more flexibility than traditional offices but less flexibility compared to the home office. (2) From the perspective of organizations, coworking places offer more flexibility in terms of the contract by allowing flexible and scalable agreements (Bouncken & Reuschl, 2018; Gauger, Pfnür, &

Strych, 2021). (3) Home office indicates that individual works in the absence of anyone besides family members. Compared to traditional offices in which individuals work alongside workers from their organization, coworking encompasses the co-location with workers from various organizations (Papagiannidis & Marikyan, 2020). (4) In the same way, these forms of working are separatable by the class of users. Any user can conduct home office and coworking. However, traditional offices in times of rising real-estate prices are costly. Thus, entrepreneurs and start-ups may not afford their own offices in major cities (Richter, Kraus, Brem, Durst, & Giselbrecht, 2017). In conclusion, traditional company offices are instead devoted to workers of established companies.

## 3.4 METHODOLOGY

### 3.4.1 Data collection

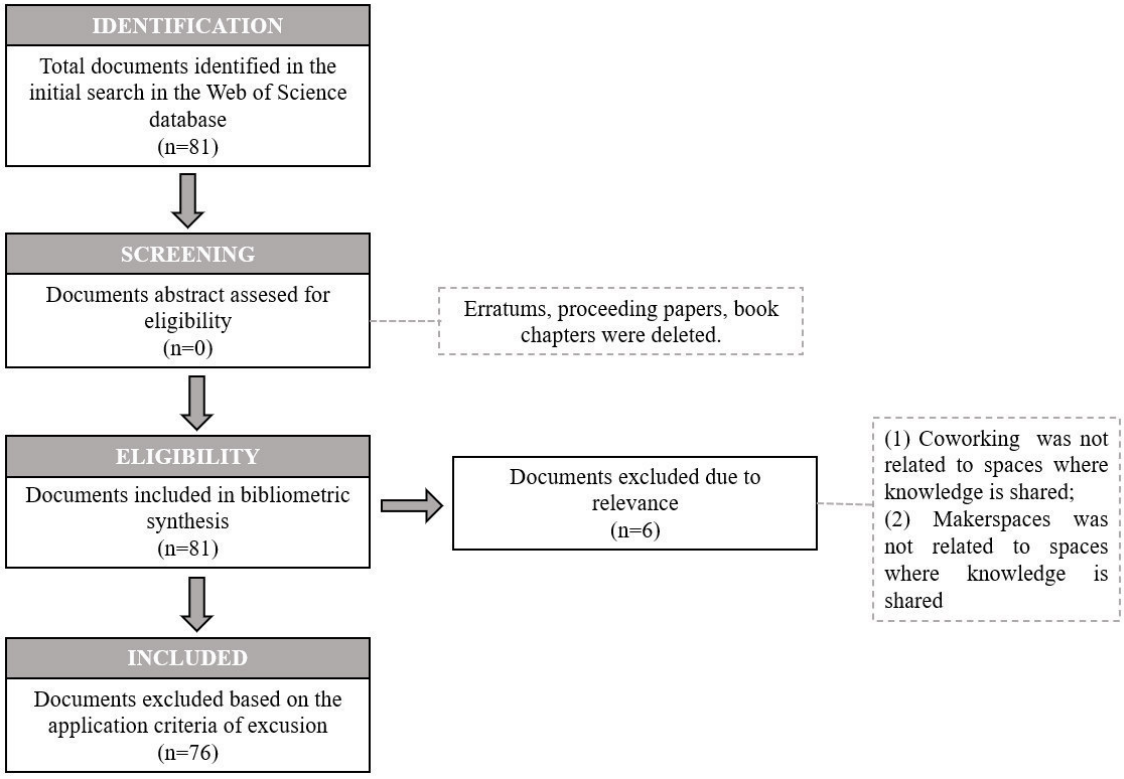
This study analyzes all documents published indexed in the Web of Science Core Collection™ about coworking-spaces. Only the Web of Science (WoS) publications were considered, as it is considered the most accepted database for the collection and analysis of scientific papers (Van Nunen, Li, Reniers, & Ponnet, 2018). In our study, we focused on the following indexes: Science Citation Index Expanded (SCI-EXPANDED), Social Sciences Citation Index (SSCI), Arts & Humanities Citation Index (A&HCI), and Emerging Sources Citation Index (ESCI).

An advanced search string was performed, using the following search string in the field "title" (TI) using the following query: ((coworking) OR (co-working) OR (makerspace*) OR (maker* space*)). The search string was delimited to these research areas: *Management, Business Economics, Public Administration, Social Sciences other topics, Operations Research Management Science, Economics, Multidisciplinary Sciences, Sociology, and Business Finances*. The search string was performed on 16th September 2021. It is vital to present the date of collection of the documents because the database is constantly changing and updated (Liu, Jiang, & Heer, 2013). The study was limited to research articles and reviews, including only original papers and reviews. The following documents were excluded: editorial, book reviews, conference abstracts, letters, editorials, and news and bibliographic articles. Moreover, the filter English in the language section was selected. The initial search retrieved 81 documents until the date of the search string.

All documents were downloaded in plain text to select the final articles. This procedure was followed to discard those documents that were not related to the study topic. The authors fol-

lowed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyzes) protocol (Moher, Liberati, Tetzlaff, Altman, & Group, 2009) to review the literature documents. This procedure has been used in some previous bibliometric studies (eg., Bartolacci, Caputo, & Soverchia, 2020; González-Serrano, Añó Sanz, & González-García, 2020; Ferasso et al., 2020; Rovelli et al., 2021). In the second step (screening process), it was not necessary to delete any document because all the documents were eligible. In the third step, the eligibility of the documents was assessed. The authors analyze the relevance of the 81 articles by reading the titles, abstracts, and keywords. The criteria selected to exclude the documents were: (1) coworking was not related with spaces where knowledge is shared, and (2) makerspaces were not related with spaces where knowledge is shared. All the authors participated in the process of assessing the eligibility of the articles. We sorted out any discrepancies we found by consensus and discussion with the correspondence author. After this procedure, 76 documents remained in the final database (see Figure 3.1). Lastly, we downloaded these remaining documents in plain text with authors, year of publication, author affiliation, title, abstract, journal, references, and the number of citations data.

**Figure 3.1: PRISMA flow diagram detailing steps in the identification and screening of sources.**



### 3.4.2 Data analysis

Duplicate records were identified and homogenized in the plain text document. One of the most critical problems was the duplicity of authors identified by different letters, especially when the authors have two first names or two surnames. Hence, the total number of articles was reviewed to avoid duplicity and errors. We then added the missing data of some records (institution, country, and publication year). After having prepared all the data, two sorts of analyzes were performed. Firstly, we calculated the basic quantitative bibliometric indexes (number of articles published by year, author, journal, and country) using the HistCite software (version 2010.12.6; HistCite Software LLC, New York). Secondly, co-authoring analyzes were performed using BibExcel software (version 2011.02.03; Olle Persson, Umea University, Umea, SWE) and Pajeck software (version 3.14, 2013.11.12; Batagelj and Mvar, University of Ljubljana, Ljubljana, Slovenia). Finally, bibliographic coupling analysis was performed using VOSviewer software.

HistCite (version 10.12) software was used to organize the data collected by authors, years, countries, journals, and cited references. The number of articles per year, number of articles per author, number of articles per journal, and number of articles per country were analyzed with this software. Besides quantitative indicators, the statistics software also presents quality indicators: Total Global Citation Score (GCS) and LGCS (Local Global Citation Scores). The Total Global Citation Score (GCS) represents the total number of citations received by the articles selected in the analysis performed in the whole WoS. The Total Local Citation Score (LCS) refers to the number of citations in WoS received only by the articles selected in the specific search string performed.

BibExcel (version 2011.02.03; Olle Persson, Umea University, Umea, SWE) was used to prepare the data to create the co-authorship networks. Then, Pajeck (version 3.14, 2013.11.12; Batagelj and Mvar, University of Ljubljana, Ljubljana, Slovenia) was used to visualize these networks on a map. To interpret these maps, it is essential to consider that size of the vertices indicates the frequency (number of articles published by the authors or frequency of keywords). A large vertex indicates a high frequency, and a small vertex indicates a low frequency. Moreover, the thickness of the lines refers to the relationship between the vertices; the thicker the line, the higher the correlation between the authors and the keywords.

Finally, we used VOSviewer software to perform the bibliographic coupling. Bibliographic coupling measures the similarity between two articles by considering the mutual number of references. Because the number of cited references in the articles does not change over time,

this analysis, compared to other (e.g., co-occurrence analysis), is not influenced by the time it is performed (Bartolacci, Caputo, & Soverchia, 2020). Consequently, this approach is beneficial when performing systematic literature reviews (Caputo, Marzi, Pellegrini, & Rialti, 2018). For its proper interpretation, it is necessary to consider that each color represents a different cluster. The darker the color of the cluster, the higher is the density of the cluster.

## 3.5 RESULTS

After revising all the documents, the search string performed in the WoS database has retrieved 76 articles published in 53 journals by 141 authors from 141 different institutions from 28 different countries. This section presents the chronological evolution of the papers published by year, country of author, journal, and author with the largest number of papers and citations.

### 3.5.1 Basic indicators

In this first section of the results, we present the primary indicators. Furthermore, we present the evolution of the papers published by years and the number of citations, papers, and citations per author, per institution per country, and by journal.

#### 3.5.1.1 Years

The number of articles published on this topic has increased over the years. The first article was published in 2012, and until 2017 published articles were scarce. Since then, there has been a significant increase in the number of publications on this topic, with 2021 (until September) being the year most articles have been published (22 articles). Regarding the number of citations, the articles published in 2018 are those that have received the most citations until now (GCS=198). Figure 3.2 and Figure 3.3 below show the evolution.

**Figure 3.2: Number of articles and received citations per year.**

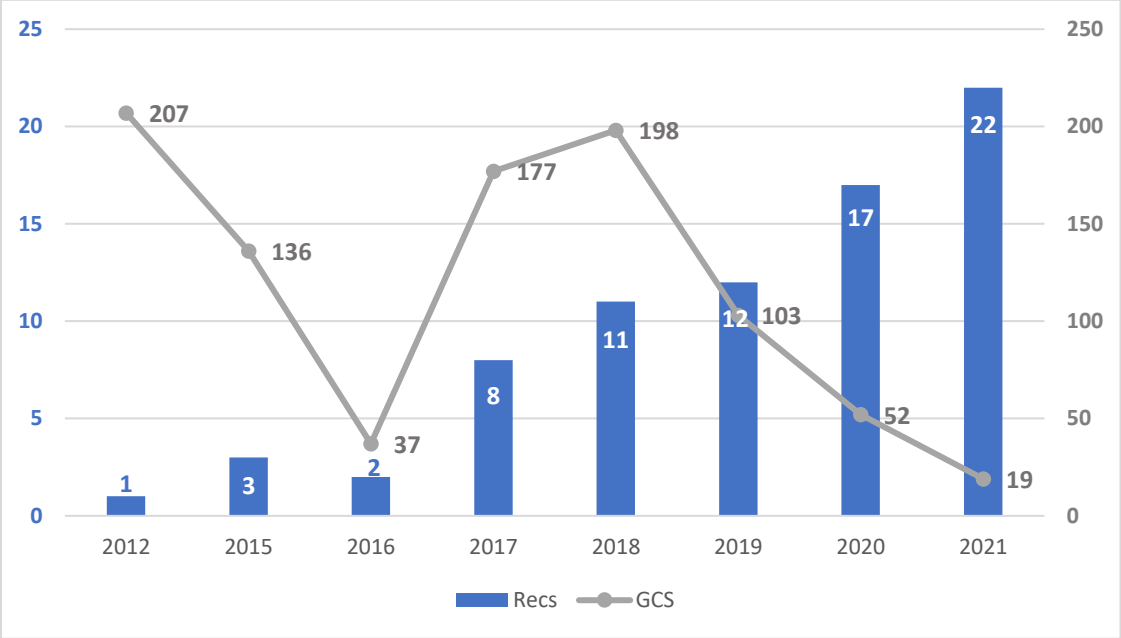
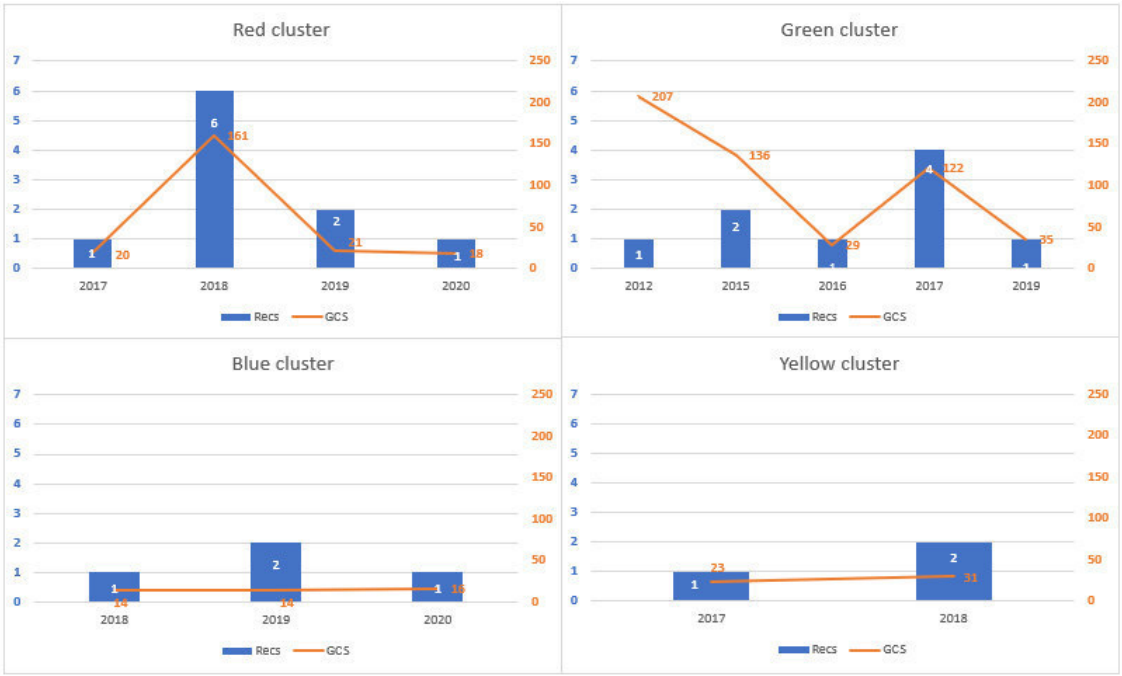



**Figure 3.3: Number of published articles and citations received per year and cluster.**



#### 3.5.1.2 Authors

A total of 141 researchers have published at least one article on coworking-spaces or makerspaces. Regarding the citations, considering the GCS, Spinuzzi C is the author who received the highest number of citations (GCS=242), despite his limited number of publications (Recs=2). The second place by number of citations is Bouncken RB with 171 citations, followed by Orel M with 50 citations (See Table 3.2).

However, only 20 researchers have published two or more articles. The author with the highest number of published articles is Bouncken RB with nine publications, followed by Orel M with eight articles published. Gauber F, Mayerhoffer M, and Pfuner have published three articles, while the rest of the 15 researchers who appear in Table 3.2 have published two articles.

**Table 3.2: Authors with the highest number of publications and citations.**

| Author | Institution | Recs | LCS | GCS |
|---|---|---|---|---|
| Bouncken RB | University of Bayreuth | 9 | 66 | 171 |
| Orel M | Prague University of Economics and Business | 8 | 23 | 50 |
| Gauger F | Technical University of Darmstadt | 3 | 0 | 3 |
| Mayerhoffer M | Prague University of Economics and Business | 3 | 1 | 0 |
| Pfnur A | Technical University of Darmstadt | 3 | 0 | 3 |
| Akhavan M | Politecnico di Milano | 2 | 0 | 5 |
| Aslam MM | Universität Bayreuth | 2 | 8 | 15 |
| Barwinski R | University of Bayreuth | 2 | 8 | 25 |
| Gormar L | University of Bayreuth | 2 | 12 | 29 |
| Halbinger MA | Baruch College | 2 | 4 | 19 |
| Kopplin CS | University of Bayreuth | 2 | 1 | 4 |
| Kraus S | Free University of Bozen-Bolzano | 2 | 9 | 25 |
| Laudien SM | University of Bayreuth | 2 | 15 | 36 |
| Mariotti I | Politecnico di Milano | 2 | 0 | 5 |
| Nenonen S | Aalto University | 2 | 9 | 33 |
| Qiu YX | Bayreuth University | 2 | 1 | 2 |
| Rese A | University of Bayreuth | 2 | 1 | 2 |
| Spinuzzi C | University of Texas at Austin | 2 | 61 | 242 |
| Strych JO | Karlsruhe Institute of Technology | 2 | 0 | 1 |
| van Holm EJ | University of New Orleans | 2 | 0 | 23 |
| 121 researchers | - | 1 | - | - |

**Note**: Recs-number of articles; LCS-Local Citation Score; GCS-Global Citation Score

#### 3.5.1.3 Countries

Focusing on the author's country institution in Table 3.3, the three countries with the highest number of citations are the USA, Germany, and the UK. The author's country institution that produced the most articles on coworking-spaces or makerspaces are the same countries but in

a different order: Germany, the USA, and the UK. Thus, as we expected, the countries that contribute the most to research outputs in this field are in the top three positions regarding citation number.

**Table 3.3: Top ten countries with the highest number of citations.**

| Country | Recs | LCS | GCS |
|---|---|---|---|
| USA | 13 | 103 | 379 |
| Germany | 17 | 73 | 192 |
| UK | 12 | 38 | 124 |
| Italy | 6 | 38 | 107 |
| France | 6 | 4 | 80 |
| Finland | 4 | 19 | 64 |
| Slovenia | 1 | 16 | 31 |
| Australia | 6 | 0 | 28 |
| Denmark | 2 | 9 | 28 |

**Note**: Recs-number of articles; LCS-Local Citation Score; GCS-Global Citation Score

#### 3.5.1.4 Journals

Concerning the analysis of the citations received by journals presented in Table 3.4, Journal of Business and Technical Communication (GCS=242), Review of Managerial Science (GCS=118), Organization Studies (GCS=66), and Knowledge Management Research & Practice (GCS= 62) are those journals whose papers attracted most citations. Review of Managerial Science has welcomed several papers on the topic (Recs=5), while the number of articles published in the other journals is rather limited.

**Table 3.4: Top 14 journals in the dataset by the number of citations received per publication.**

| Journal | Recs | LCS | GCS | JCR |
|---|---|---|---|---|
| Journal of Business and Technical Communication | 2 | 61 | 242 | 1.77 |
| Review of Managerial Science | 5 | 39 | 118 | 7.13 |
| Organization Studies | 1 | 25 | 66 | 6.31 |
| Knowledge Management Research & Practice | 2 | 24 | 62 | 2.74 |
| International Journal of Innovation Management | 1 | 0 | 50 | - |
| Research Policy | 2 | 7 | 31 | 8.11 |
| Teorija in Praksa | 1 | 16 | 31 | - |
| Organization | 2 | 8 | 30 | 5.12 |
| Facilities | 1 | 9 | 29 | - |
| Scandinavian Journal of Management | 1 | 10 | 26 | 2.43 |
| Economic Development Quarterly | 1 | 0 | 23 | 1.70 |
| Review of Social Economy | 1 | 0 | 20 | - |
| Journal of Business Research | 2 | 5 | 19 | 7.55 |
| Cambridge Journal of Regions Economy and Society | 1 | 2 | 19 | 8.30 |

**Note**: Recs-number of articles; LCS-Local Citation Score; GCS-Global Citation Score

### 3.5.2 Co-citation analysis

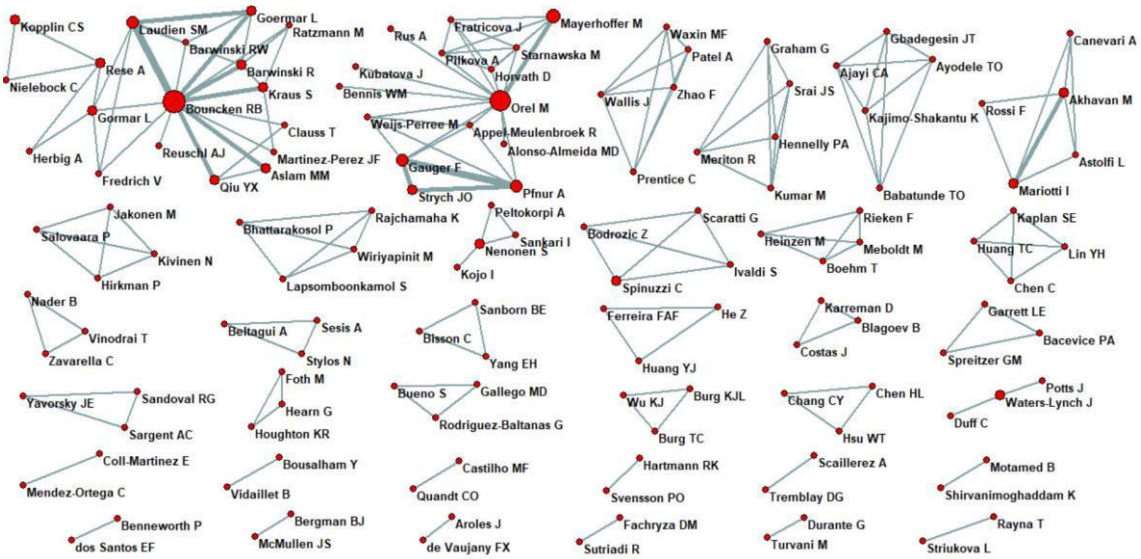
In this second section, the co-citations analysis is presented. Firstly, the co-authorship network is represented, followed by collaborative networks between countries in second place, and in third place by the bibliographic coupling analysis. All these results have been represented in the maps and tables below.

#### 3.5.2.1 Co-authorship

We set the cut-off point in one or more collaborations. With the 137 researchers who published articles on coworking, we formed 36 co-authoring networks. Specifically, there are 12 networks of two researchers, 12 networks of three researchers, six networks of four researchers, and six networks of four researchers. Moreover, there are two extensive networks of researchers. The largest one is composed of 18 researchers. The leading researcher in this network is Bouncken RB, presenting her strongest collaborations with Laudien SM, Goermar L, Kraus S, Aslam MM, and Qiu YX.

The second biggest network consists of up to 15 researchers. Its leading researcher is Orel M, presenting his strongest collaborations with Mayerhoffer M. Figure 3.4 shows the different collaborative networks.

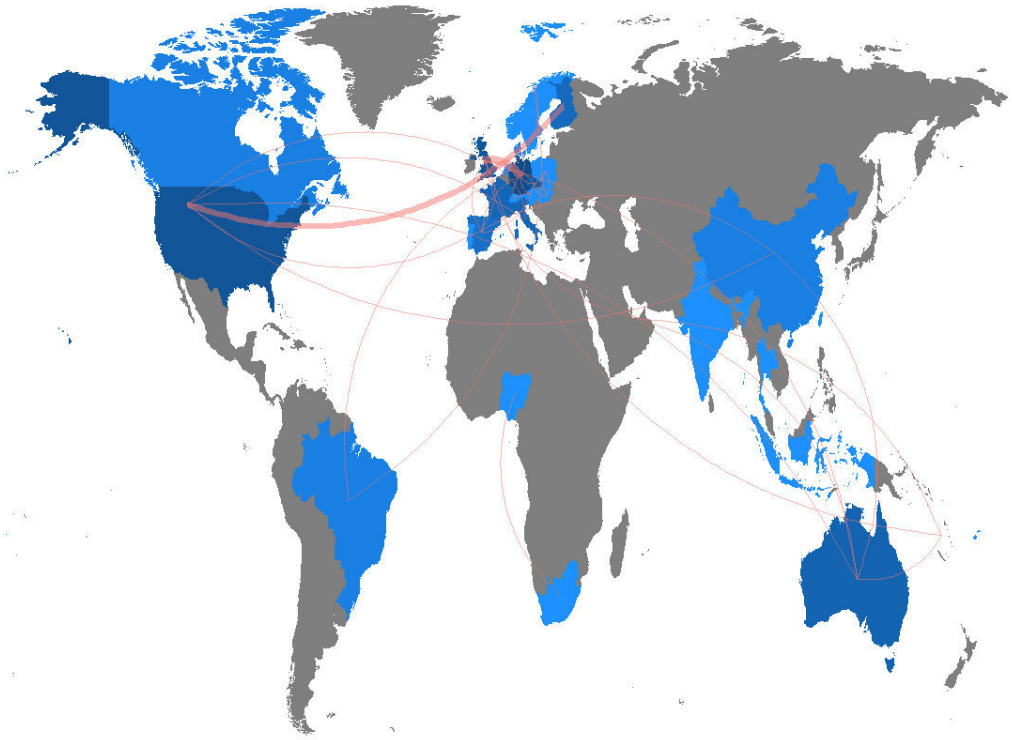
**Figure 3.4: Co-authorship networks (1 or more collaborations).**



#### 3.5.2.2 Collaboration between countries

The following map shows those countries that have published at least one article on co-working spaces or makerspaces (countries painted in different shades of blue). The shade of blue refers to the number of articles published, with the blue color representing the countries that have published the most articles on this topic. As for the collaborations between countries, the thicker the lines, the greater the number of collaborations. As Figure 3.5 shows, the United States, Spain, and Germany are among the most collaborative countries. Regarding the highest number of collaborations between researchers from institutions in different countries, those between the USA and Finland stand out, as well as those between Germany and England.

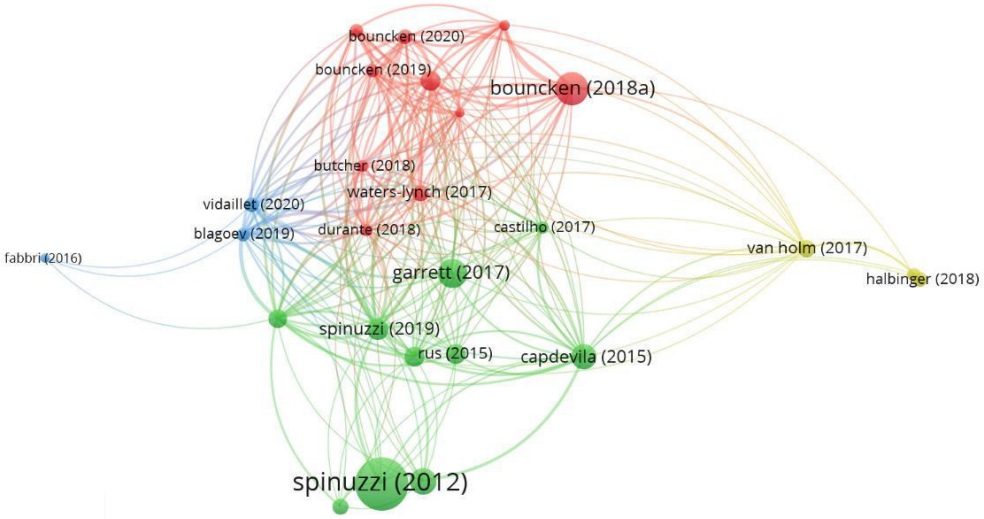
**Figure 3.5: Collaboration between countries.**



#### Bibliographic coupling

Subsequently, a bibliographic coupling analysis was performed to identify the different sub-thematics in this research field. A point of eight citations was set on the number of citations per document. Then, only the related documents were selected, leaving the final analysis with 26 documents, which were distributed in four different clusters (one color per cluster). Figure 3.6 visualizes the respective clusters.

**Figure 3.6: Bibliographic coupling.**




Then we classified all documents according to the cluster color in Table 3.5. We included the authors, publication year, and the number of citations (GCS).

**Table 3.5: Documents organized into clusters (authors, publication year, and GCS) to analyze sub-themes in the coworking-spaces and makerspaces research field.**

| Authors | Year | GCS | Authors | Year | GCS |
|---|---|---|---|---|---|
| **Cluster I red (220 Citations, ten papers): Benefits, prototypes, and sustainability of coworking-spaces** | | | | | |
| 1. Bouncken, & Reuschl | 2018 | 85 | 6. Bouncken, & Aslam, | 2019 | 13 |
| 2. Bouncken, Laudien, Fredrich, & Görmar, | 2018 | 29 | 7. Butcher | 2018 | 12 |
| 3. Waters-Lynch, & Potts | 2017 | 20 | 8. Durante, & Turvani | 2018 | 12 |
| 4. Bouncken, Ratzmann, Barwinski, & Kraus | 2020 | 18 | 9. Bouncken | 2018 | 10 |
| 5. Bueno, Rodríguez-Baltanás, & Gallego | 2018 | 13 | 10. Orel | 2019 | 8 |
| **Cluster II green (529 citations, ten papers): Definition, typologies, and understanding of coworking community building** | | | | | |
| 1. Spinuzzi | 2012 | 207 | 6. Rus & Orel | 2015 | 31 |
| 2. Garrett, Spreitzer, & Bacevice | 2017 | 66 | 7. Kojo, & Nenonen | 2016 | 29 |
| 3. Parrino | 2015 | 55 | 8. Jakonen, Kivinen, Salovaara, & Hirkman | 2017 | 26 |
| 4. Capdevila | 2015 | 50 | 9. Richardson | 2017 | 19 |
| 5. Spinuzzi, Bodrožić, Scaratti & Ivaldi | 2019 | 35 | 10. Castilho & Quandt | 2017 | 11 |
| **Cluster III dark blue (44 citations, three papers): Understanding the factors of coworking-spaces and their influence on the organizations** | | | | | |
| 1. Vidaillet, B., & Bousalham | 2020 | 16 | 3. Blagoev, Costas & Kärreman | 2019 | 14 |
| 2. Fabbri | 2018 | 14 | | | |
| **Cluster IV yellow (54 citations, three papers): Makerspaces to promote consumer innovation and economic development** | | | | | |
| 1. Van Holm | 2017 | 23 | 3. Svensson & Hartmann | 2018 | 14 |
| 2. Halbinger | 2018 | 17 | | | |

Note: GCS-global citations

**Cluster red (10 articles – 220 citations): Benefits, prototypes, and sustainability of coworking-spaces**

The red cluster is one of the largest and is made up of ten documents. It has received a total of 220 citations. The theme of these articles is related to the benefits of coworking-spaces for both productivity and quality of life of their users, the different prototypes of co-working spaces, and the future of these spaces from a sustainable perspective.

Within this cluster, the article by Bouncken and Reuschl (2018) has received the most citations (84 citations). These authors introduce coworking-spaces into management research by understanding coworking-spaces and identifying key factors for creating a conceptual model. From the same perspective, Bueno, Rodríguez-Baltanás, and Gallego (2018) explored the relationship between coworking-spaces and productivity. In the same vein, Butcher (2018) sought to understand the learning process in coworking through an ethnographic study.

From another perspective, this cluster explores the processes of knowledge exchange within these spaces. Specifically, Bouncken and Aslam (2019) analyzed the processes of knowledge exchange in coworking-spaces. Along the same lines, this cluster's third most cited article (Waters-Lynch & Potts, 2017) is based on ethnographic data from case studies of coworking-spaces.

Furthermore, Bouncken (2018) conducted a conceptual study in which she analyzed how coworking-spaces in universities could enrich entrepreneurial universities (such as the development of self-efficacy, inspiration, autonomy, knowledge flows).

On another note, it is vital to contemplate the trend towards digital nomadism. This development led to an increase in the use of coworking-spaces to improve the quality of their lives and productivity and meet the challenges associated with both work and leisure time (Orel, 2019). A year later, this concern for workers' quality of life using coworking-spaces was also captured by Bouncken et al. (2020), but with a focus on job satisfaction.

The growth of coworking-spaces has led to the diversification of coworking-spaces. Specifically, the second most cited article of this cluster (Bouncken, Laudien, Fredrich, & Görmar, 2018), through interviews and secondary sources, explained four prototypes of coworking-spaces. However, the tremendous growth and diversification that occurred in coworking-spaces in recent years have also been a matter of concern for researchers (Durante & Turvani, 2018), who have analyzed the economic viability of coworking companies.

**Cluster green (10 articles, 527 citations) – Definition, typologies, and understanding of coworking community building**

The second green cluster is also composed of ten articles, which have received 527 citations. The subject matter of these is based on the definition and conceptualization of coworking-spaces, the different types of coworking-spaces, and the process of creating coworking communities.

The article that has received the highest number of citations within this cluster is Spinuzzi (2012), with 50 citations. This author analyzes why professionals choose to work in coworking-spaces rather than in other facilities, how they describe the service, and the objectives, results, and actors of this activity. Along the same lines, Rus and Orel (2015) analyze the growing phenomenon of coworking-spaces, explaining what is driving this growth and where this increasing demand is originated. In addition, this high demand may also be mainly due to digital technology, which has changed the way and content of work through digital sharing (Richardson, 2017).

However, despite the advances in understanding this coworking phenomenon, the definition of coworking has also been a concern for researchers in recent years due to the inconsistencies found in the literature (Spinuzzi, Bodrožić, Scaratti, & Ivaldi, 2019). These authors reviewed the literature on coworking to analyze and discover how the community relates to collaboration. The categorization of coworking types is also one of the issues that has attracted the attention of researchers (Kojo & Nenonen, 2016). These researchers analyzed different coworking-spaces using two axes: the business model (for-profit or not-for-profit) and the level of user access (public, semi-private and private).

Also, the generation of a sense of community and the affective bonds that favor the exchange of knowledge in coworking-spaces captured the attention of researchers in the field. Specifically, Parrino (2015), the third most cited article in this cluster (55 citations), contextualizes the coworking phenomenon based on the theoretical framework of proximity and knowledge sharing. A couple of years later, Jakonen et al. (2017), through a case study of three coworking-spaces (two open and one closed), introduced the concept of the encounter economy, based on the premise that both intentional and unintentional encounters are a form of production in the new knowledge-based economy. In the same year, the second of the most cited articles (66 citations) of this cluster (Garrett, Spreitzer, & Bacevice, 2017), through a qualitative case study, analyze how members of a coworking-space work to build a sense of community through their daily interactions in this space.

Finally, the growth and diversification of these spaces allowed for different collaboration and innovation processes to rise in these coworking-spaces. In this line, Capdevila (2015) conducted a qualitative study. From a multilevel perspective, he analyzed the role of individuals and communities that are not part of the companies in the dynamics of innovation.

A couple of years later, Castilho and Quandt (2017) analyzed the development of collaborative capacity in coworking-spaces. To do so, they conducted interviews with owners, managers, and workers of these spaces and identified different factors, and proposed a model based on four main dimensions.

**Cluster blue (3 articles, 44 citations) – Understanding the factors of coworking-spaces and their influence on the organizations**

This third blue cluster is composed of only three articles, which have received a total of 44 citations. The theme of these articles is based on the analysis of coworking-spaces to theorize them and discover their effect on companies' organizational processes.

In this cluster, the article by Vidaillet and Bousalham (2020) is the most cited one (16 citations). It is a qualitative study of several coworking-spaces carried out over three years. Relying on Foucault's reflection on heterotopias, the authors develop a new concept of "syntopia" to theorize this type of space. With the same aim of understanding coworking-spaces, Blagoev, Costas, and Kärreman (2019), through an ethnographic study, went deeper into the study of these spaces but considered it as an organizational phenomenon. The authors demonstrated that coworking-spaces generate a sense of community and influence the shaping of the work activities of their members. Also, through an ethnographic study, Fabbri (2016) analyzed how a shared organizational workspace can play an essential role in the temporally and spatially constituted everyday activities of a group of entrepreneurs.

**Cluster yellow (3 articles, 54 citations) – Makerspaces to promote consumer innovation and economic development**

Finally, the yellow cluster is also composed of three articles, which have received a total of 54 citations. The subject matter of these articles is related to makerspaces as spaces to promote consumer innovation as well as the economic development of countries.

Within this cluster, van Holm (2017) is the most cited article (23 citations). This author explored how makerspaces can contribute to economic development by generating and sustaining businesses through interviews. The second most cited article (17 citations) in this cluster is by Halbinger (2018), who analyzes the role of makerspaces in fostering and supporting

consumer innovation. The study is conducted empirically by administering a survey to makerspace participants around the world. The third and last article in this cluster (14 citations) is written by Svensson and Hartmann (2018). These authors focus on user-centered innovation policies, specifically makerspaces in hospitals.

#### 3.5.2.3 Strategic thematic analysis

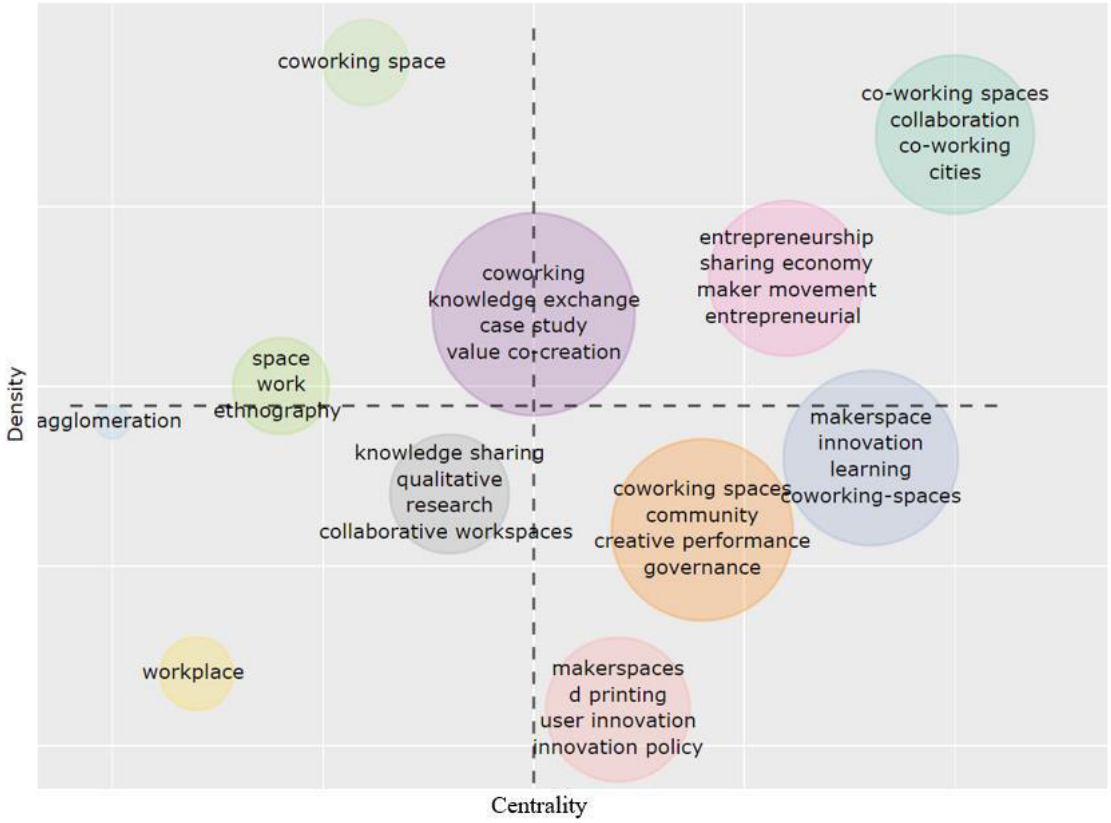
Finally, the strategic diagram for the coworking-space and makerspaces research field is presented in Figure 3.7. We used the author's keywords to generate this diagram. The size of the circles represents the number of occurrences of the keywords. The upper-right quadrant is motor-themes, the lower-right quadrant is basic themes, the upper-left quadrant is very specialized themes, and the lower-left quadrant is emerging or disappearing themes.

The theme in the upper-right quadrant is collaboration in coworking-spaces in cities and entrepreneurship in sharing economy. Both are important and well-developed themes for the structuring of this research field. Themes in the lower-right quadrant are important for this research field but are not developed yet. So, in this quadrant, terms are innovation and learning in coworking-spaces and makerspaces, communities and creativity performance, and user innovation.

Themes in the upper-left quadrant, such as are "coworking-spaces" and "space", "work", and "ethnography," have well-developed internal ties but unimportant external ties. So, they are of only marginal importance for the field. However, the terms "coworking", "knowledge exchange," and "value co-creation" due to their centrality and density will seemingly be the driving forces in the upcoming years. Themes in the lower-left quadrant are both weakly developed and marginal, mainly representing either emerging or disappearing themes. In this case, "workplace" seems to disappear.

Thematic analysis shows that we can merge the research focus "coworking-spaces" with "collaboration" and "entrepreneurship" with "sharing economy". It also shows that we can merge the rather important but underdeveloped research focus "communities in coworking-spaces" with "creative performance", "innovation" with "makerspaces", and "maker spaces" with "user innovation".

**Figure 3.7: Strategic diagram coworking-spaces and makerspaces.**




## 3.6 DISCUSSION

As laid out in our paper, the increasing amount of research on the topic of coworking-spaces, innovation centers, and knowledge sharing in entrepreneurial surroundings, as well as the practical relevance, is evidence enough for the sheer importance of the topic, not only for research but also for practice. In order to explain some of the remarkable findings, a look behind the curtains seems necessary. When looking at the cluster of Bouncken RB and extending the view on her research, we found a research project on coworking (*Hierda*). With the start of the project in 2017, the publications on coworking within her network skyrocketed. Since the research project started, not only the number of research articles spiked, but also the quality increased with publications such as Bouncken and Tiberius (2021, Bouncken et al. (2020), and Bouncken and Aslam (2021). For the context of Orel M, the context of increasing coworking publications is based on his past. He already started publishing research pieces on coworking in 2015 (Rus & Orel, 2015; Orel, 2015). Consequently, Orel had a head-start on the topic once it completely blew research as well as practice.

Elaborating on the country-specific findings, it is interesting that the most research output and the most citations are related to western countries. First, the mindset of western countries is rather individualistic and materialistic (Li, Lim, Tsai, & O, 2015), which contradicts the idea of sharing assets as opposed to owning them. Second, the idea of sharing workspace is explicitly famous in countries or areas with little space available and a rather community-oriented culture, such as China (Bouncken, Qiu, & Clauss, 2020; Bouncken & Winkler, 2010). Thus, obviously, we cannot blame the practical relevance of the topic for certain geographic areas or cultures. After having a deeper look at the researchers and the research output, it would also not be appropriate to argue with the overall amount of publications, the number of researchers, or the general quality that these researchers provide. Consequently, the most probable reasoning is according to research interest and prevalence of the respective topic. Given the wide range of research topics and the preliminary mentioned lack of understanding of the topic and its potential, this country-specific finding supports the mentioned need for investigation and we hope that our findings draw the much needed attention.

Overall, the results suggest the need for further research into the nature of successful makerspaces (Gantert, Fredrich, Bouncken, & Kraus, 2022), highlighting the value of a public investment in societal well-being (Halbinger, 2018) and considering the interplay between social and material aspects (Aslam, Bouncken, & Görmar, 2021). The overview we presented stresses the importance of this literature stream for knowledge creation and innovation.

When condensing the existing research and this very study, we can point out several implications for both research and practice. For research, this study shows the broad approach that scholars can and should take upon coworking. It is a phenomenon that made its way to organizational structures, influences knowledge creation and -sharing, improves innovative behavior, and is influenced by social factors as well as material equipment. Eventually, the success that coworking creates is manifold, from emotional wellbeing and happiness and individual business success to company-wide improvements. Consequently, the topic needs research support from many different research areas to holistically encompass the field. Also, when looking at Figure 3.4, we want to call for cooperation between the research clusters. Since cooperation and collaboration are so effective in coworking, it probably is for researchers as well. This can offer new insights and open the path for new approaches to analyzing the topic coworking.

For practice, our research has just as many important implications. Considering the broad range of factors that coworking influences in the scientific field, exactly these aspects need to be rethought throughout the whole work environment. Since a coworking-like surrounding makes people happier and emotionally healthy, companies can consider applying the gained expertise and knowledge in their organization, making employees more willing to stay with the company on the one hand and more productive and successful on the other hand. Furthermore, coworking as an innovative environment offers potential for innovative behavior and activities. Because we know that these factors are fundamental to long-term success and core of remaining competitive, applying these findings in an organization will again benefit the success and well-being of the company. All in all, the variety of possible research in this field shows the variety of approaches that companies can follow in order to make employees happy and healthy while simultaneously improving the company's overall situation.

However, our study contains some shortcomings. Because of the recency of the topic, it is basically impossible to always have the latest data for our analysis. Research articles are constantly published, so we had to draw a stop-line in September 2021. By then, not all articles that we could draw on while writing the paper were also listed in the Web of Science. Also, the commodification of coworking does not consider the precariousness of work in today's society (Jakonen et al., 2017). Yet, when thinking about these shortcomings, they only state the even more vital and overarching role that coworking and coworking-spaces will play in the future. Consequently, only extensive research in various fields of research besides management and organizational studies can grasp the variety and richness of this topic.

Concluding our research, we found that especially researchers from western countries contributed to the topic of coworking-spaces, with research focusing on mostly management-related topics. The research output tremendously increased for many reasons since the year 2017. With our study, we show the potential of the topic by drawing the attention of different research fields. We are expecting more publications in journals with a non-management focus. Especially social sciences as well as architectural related journals can benefit from the increasing interest in the topic.

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# 4 SOCIAL NETWORKS IN COWORKING-SPACES AND INDIVIDUAL COWORKER'S CREATIVITY

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## 4.1 ABSTRACT

Coworking-spaces (CWS) are open creative labs that provide a community-like environment and the necessary surroundings for their users to build and maintain networks with different actors inside and outside the CWS. With a wide variety of knowledge and skills available in trusted surroundings as well as similar value orientations, coworkers enjoy favorable conditions to establish their network style. However, research has not investigated the benefit of coworkers' social networks as far as their individual creativity is concerned so far. This paper takes several network characteristics into account: structure in terms of network size and centrality in the CWS, but also trusted and reciprocal relationships, supportiveness, diversity of knowledge exchanged, and the individual openness to core coworking values. Based on the literature on social networks and small group research, we developed a research model. We tested it to get deeper insights into the phenomenon by relying on 113 coworkers in 33 private German coworking-spaces. The results show that a central position in the CWS allowing for direct exchange and high individual openness to core coworking values positively affects social involvement and the diversity of knowledge exchanged, and finally, a coworker's individual creativity. Managerial implications include the vital role of a central position in the CWS for creativity and a somewhat balanced composition of coworkers working alone or in a team.

## 4.2 INTRODUCTION

Recent years have seen a rapid development of coworking-spaces (CWS), which primarily offer rentable space and flexible work infrastructure (Spinuzzi, 2012). By the year 2018, there were 1.65 million coworkers in 18,700 CWS worldwide, with future growth expected (statista, 2019a; statista, 2019b). CWS provide infrastructure and dedicated space to facilitate professional and social interaction (Bouncken, 2018; Bouncken & Reuschl, 2018; Cabral & Van Winden, 2016; Gandini, 2015). Private providers highlight community and cooperation

values and emphasize a relaxed working atmosphere and the possibilities for social exchange and networking (Bouncken, Reuschl, & Görmar, 2017; Fuzi, Clifton, & Loudon, 2014; Moriset, 2013). Schmidt and Brinks (2017, p. 291) subsume CWS under the term "open creative labs" that promote an innovative climate. They are supposed to foster creativity due to individuals and teams working in CWS having the opportunity to interact with others, exchange ideas, receive feedback, build partnerships, create trusted relationships, and collaborate with other users (Bouncken, Laudien, Fredrich, & Görmar, 2018). On the part of coworkers, they mention knowledge exchange and learning from others as the main reasons to use CWS (Parrino, 2015). While research has related individual creativity to social networks (Perry-Smith & Shalley, 2003; Perry-Smith, 2006), despite the claims of CWS to enhance creativity, the impact of network characteristics, e.g., network position, has not been researched so far in the coworking context.

Social network development is well established (Araujo & Easton, 1996; Hoang & Antoncic, 2003; Slotte-Kock & Coviello, 2010; Thornton, 1999). It is widely accepted that people who need information set up an information network and will "*commit time, energy, travel, and sociability to develop their personal networks*" (Stewart, 1990, p. 149). Information can be manifold, and in particular, entrepreneurs need information on diverse aspects. This includes feedback on the business idea, task-related help, and assistance for administration-related issues. Coworkers are freelancers, entrepreneurs, and members of start-ups, often with a professional background in IT, creative industries, media, design, or consulting (Bouncken & Reuschl, 2018). Zardini, Ricciardi, Bullini Orlandi, and Rossignoli (2020), p. 1031) describe coworkers' business networks as "*breeding ground for entrepreneurial options*". In CWS, these people from diverse backgrounds often work individually but together (Spinuzzi, 2012). Bringing these people together reduces the costs mentioned above and networking efforts in terms of time, energy, and travel. As a consequence, CWS can be great places for building and maintaining professional and private networks (Bouncken, Ratzmann, Barwinski, & Kraus, 2020).

Despite the increasing importance of coworking and CWS (statista, 2019a; statista, 2019b), there is currently a lack of research regarding social networks and the effect of network characteristics on (individual) creativity. So far in this context, there are predominantly conceptual and empirical studies investigating knowledge exchange in CWS concentrating on different antecedents, such as geographical proximity, trust or social interaction, and relating them to the process of knowledge exchange, and finally to outcome variables such as individual performance or creativity (Bouncken & Aslam, 2019; Bouncken et al., 2018; Bouncken &

Reuschl, 2018; Parrino, 2015; Rese, Kopplin, & Nielebock, 2020). Going beyond these findings, our study generates an understanding of how different network characteristics such as structure (network size and centrality in the CWS), content (diversity of knowledge exchanged), supportiveness (emotional support, workplace friendship), and shared coworker governance mechanisms (based on trust, reciprocity) influence an individual coworker's creativity. Besides, we consider the individual openness to coworking as a personality variable, which is reflected in the importance of core coworking values. With this focus, the present study intends to answer the following research questions: (1) How are network structure and content, supportiveness, governance mechanisms, the individual openness to core coworking values, and creativity related? (2) Can a causal chain be applied with input (enabling) variables positively affecting mediating variables, e.g., supportiveness and the diversity of knowledge exchanged, which enhance individual coworker's creativity?

We collected data in 33 German private CWS in spring 2018, resulting in 113 interviews with coworkers. Besides, a small calibration sample (n=15) includes answers from two corporate CWS. We applied structural equation modeling (SEM) to test the proposed hypotheses. Our findings show that in the context of CWS and in line with general network research, structural network characteristics, such as centrality in the CWS or network size, had a positive influence on social involvement with coworkers feeling connected and supporting each other, e.g., with diverse knowledge. Despite the constant change of users, diversity of knowledge exchanged, emotional support, trust, and reciprocity, as well as individual CWS value orientation, displayed high values. This is due to the critical role of values such as community and openness, which CWS try to embody. We can derive several practical implications for the management of CWS by focusing on measures for the support of workplace friendship, the centrality of coworkers in the CWS, and a careful selection process of coworkers regarding their working way, e.g., alone or in a team.

Our findings contribute to network research in entrepreneurship and research on new ways of working. We focus on network effects on processes and creativity as outcomes. We also contribute to research on innovative climate in the workplace and the emerging field of research on coworking and CWS, particularly taking an individual coworker's professional network into account. The paper has the following structure: first, we shine a light on related research in the coworking context, the theoretical background surrounding entrepreneurial network formation, and present research hypotheses and the research model. Then we explain the research method and data analysis then present the results. The concluding part contains a dis-

cussion and implications for further research as well as managerial implications for CWS providers.

## 4.3 Literature Review and Research Hypotheses

### 4.3.1 Coworking-Spaces as Innovative Workspaces fostering Creativity

The idea of CWS experienced a notable trend since the first opening of a CWS in 2005 in San Francisco (Foertsch & Cagnol, 2013; statista, 2019a; statista, 2019b). It was founded as an opposing model to the non-social business centers and provided a workplace and a social area to establish community, freedom, and communication (Dullroy, 2012). The idea spread worldwide, with the first CWS in Germany to go by this name opening in 2009 (Foertsch & Cagnol, 2013). The professional space comprises the necessary equipment to conduct business activities depending on the specialization of a CWS. The equipment can range from simple desks with Wi-Fi to fully equipped "do-it-yourself" labs (Johns & Gratton, 2013). Cafeterias, lounges, and bars constitute the informal social space that drives networking, knowledge exchange, initiation of collaboration, and joint leisure activities, leading to community formation (Bouncken, 2018; Gandini, 2015; Garrett, Spreitzer, & Bacevice, 2017; Schopfel, Roche, & Hubert, 2015). Besides, CWS provide their users with special services such as coaching, training, events, (start-up) consulting, or access to networks with externals, such as firms, venture capitalists, or business angels (Capdevila, 2015; Spinuzzi, 2012). Well-established firms – manufacturers such as Bosch, BMW, and Merck or consulting firms such as PwC – have jumped on this institutional trend and set up internal shared work and social spaces as a means to foster innovation, networking, and the creativity of their employees (Hanney, 2017; Tracey, Phillips, & Jarvis, 2011).

The idea of CWS demonstrates the manifestations of new ways of working. Generally, new ways of working describe bundles of practices, especially in human resource management, that aim at improving flexibility, autonomy, and freedom for people who are working (Peters, Poutsma, Van der Heijden, Bakker, & de Bruijn, 2014; Gerards, de Grip, & Baudewijns, 2018). For companies, social interaction in this context is a linchpin, especially for intrapreneurial behavior (Gerards, van Wetten, & van Sambeek, 2020). CWS (social) interaction adds value simply by being present and opening talking restraints of involved parties, eventually increasing entrepreneurial outcomes (Bouncken et al., 2020; Bouncken, Kraus, & Martínez-Pérez, 2020; Jeske & Ruwe, 2019). Overall, Jeske and Ruwe (2019, p. 174) emphasize that CWS "*provide important sources of support, learning and networking opportunities*".

Bouncken et al. (2020, p. 1465) highlight the closeness to the entrepreneurship field and describe a CWS as "*a real space for entrepreneurship*".

So far, concerning networks and networking opportunities, there is a study by Parrino (2015) performing an ego-centric network analysis in two CWS. She analyzes knowledge exchange within the CWS while also taking coworkers' ties outside the CWS into account. The study shows that besides geographical proximity, implementing an organizational platform is essential to stimulate knowledge exchange, interaction, and collaboration among coworkers. Bouncken and Aslam (2019) confirmed that geographical proximity fosters knowledge-sharing processes by coworkers while relying on in-depth qualitative interviews. Knowledge exchange processes and related antecedents, such as trust or community, have been studied by Bouncken and Reuschl (2018) on a conceptual level and Rese, Kopplin, and Nielebock (2020) empirically. The latter found a positive relationship between attitudinal and intentional belief to share knowledge and individual creativity. However, network characteristics were not in the research focus.

### 4.3.2 Network Formation with a Focus on Coworking-Spaces

From the perspective of social network analysis, networks are a group of actors related through ties "*with some pattern of contacts or interactions between them*" based on friendship or business relationships (Newman, 2003, p. 174). These actors' central aim is to access resources and derive competitive advantage without financial engagement (Slotte-Kock & Coviello, 2010). This requires a "structural" involvement of the actors in social interactions based on social contacts and social relations (Brüderl & Preisendörfer, 1998).

Regarding the actors, CWS provide office and social spaces for startups, freelancers, and small/entrepreneurial businesses who do not want to lease their own office but want to "*interact, share, build, and co-create*" (Fuzi, 2015, p. 462). In this sense, CWS and their individual level of diversity foster co-creation (Görmar, Barwinski, Bouncken, & Laudien, 2021). Research has highlighted the role of networks when founding and establishing a new business: the importance of the entrepreneur's personal networks in the founding process (Birley, 1985) and for the later business success (survival, growth) (Brüderl & Preisendörfer, 1998). Accordingly, Hoang and Antoncic (2003: 166) identified three key elements in their literature review on how entrepreneurs use, build, and coordinate personal networks and their effect on business outcomes: network content, governance mechanisms, and network structure. Although all elements are closely linked (Hoang & Yi, 2015), network-oriented research in entrepre-

neurship usually focuses on either the structure or the relationships (Slotte-Kock & Coviello, 2010).

Regarding the analysis level, this study focuses on interpersonal relationships and not on the intra- or inter-organizational level because individuals or small entrepreneurial or company teams predominantly use CWS (Phelps, Heidl, & Wadhwa, 2012).

The process of an entrepreneur forming the network starts with individual relationships between two actors, so-called dyads. Their use follows the exploration and selection of dyadic bonds. In the early stage, a broad, diversified social network to receive information and advice to identify entrepreneurial opportunities is essential (Butler & Hansen, 1991). Slotte-Kock and Coviello (2010, p. 35) emphasize that "*ties are differentiated not only by intensity but also the content of the relationship*". Strong ties are considered to be useful in terms of trust in information (Jack, 2005). For entrepreneurs, relational embeddedness is essential; e.g., they should continue to actively operate in their network and maintain their relationships (Slotte-Kock & Coviello, 2010). At a later stage, entrepreneurs can also reactivate and use dormant relationships (Jack, 2005).

Various tangible and intangible resources such as capital, business information, advice, emotional support, reputational or signaling content can be exchanged and accessed through interpersonal relationships (Hoang & Antoncic, 2003). However, social interactions must not be based on the fulfillment of goals but result from chance (Perry-Smith & Mannucci, 2017). CWS reflect places for random encounters, where coworkers often had no contact with each other before joining the coworking-space (Brinks, 2012; Merkel, 2015).

Within a network, an actor can share relationships with different actors, but also different types of relationships with one or more actors. Burt (2000) distinguished broadly between personal and work relationships, which in turn can be positive, but also negative. So-called multiplex ties can involve information, friendship, material, and workflow or competencies (Hoang & Antoncic, 2003; Human & Provan, 1997; Katz, Lazer, Arrow, & Contractor, 2004). In the context of CWS, it is often referred to the concept of sociomateriality (Aslam & Görmar, 2018; Bouncken, Aslam, & Qiu, 2021). Human and Provan (1997) showed that small and medium firms participating in a network had more multiplex relationships than market firms. Hoang and Antoncic (2003) emphasize entrepreneurship research on exchanging intangible resources, e.g., sharing information, collaborative problem solving, and emotional support. CWS, in particular, foster this type of exchange due to the physical proximity of diverse users and playing an active role in initiating and coordinating social interactions (Bilandzic &

Foth, 2013; Bouncken & Reuschl, 2018; Brinks, 2012). As a business exchange platform offering a creative and cooperative working atmosphere, coworking places can support their members' informal interconnection and networking (Bouncken et al., 2020; Brinks, 2012). The "culture of sharing" refers to intangible resources such as knowledge, ideas, and competencies (Brinks, 2012). In particular, the core coworking values reflect supportiveness and cooperation (Merkel, 2015; Moriset, 2013). However, coworkers themselves decide the extent to which they engage in networks and exchange, often working "*alone together*" (Spinuzzi, 2012, p. 433). Therefore, differences can be expected in coworkers' individual openness to coworking values.

### 4.3.3 Hypotheses Development

Overall, in this study, the describing elements are (1) network content where we focus on the diversity of knowledge exchanged, (2) network structure in terms of network size and centrality in the CWS, (3) network governance in terms of trust and reciprocity, and (4) supportiveness based on workplace friendship and emotional support (Hoang & Antoncic, 2003). Besides, (5) we included the individual openness to core coworking values (individual CWS value orientation) (Baer, 2010). We analyzed these elements on an individual level (Phelps, Heidl, & Wadhwa, 2012) and modeled the relationships between them as well as their effect on (6) creativity. Concerning the phase of idea generation, this study concentrates on the early idea initiation and elaboration phases (Kijkuit & van den Ende, 2010; Perry-Smith & Mannucci, 2017).

We transfer conceptual ideas from team research and, more precisely, rely on the input-process-output model (McGrath, 1984; Gladstein, 1984; Stock, 2014) and resource dependency theory (Pfeffer, 1982; Pfeffer & Salancik, 1978). We propose a causal chain that starts with enabling factors such as measures of the network structure and individual CWS value orientation but also trust. Individual creativity is mediated by group process variables, with one of the concepts being supportiveness (Gladstein, 1984). The network content variable is also conceptualized as a mediator since sharing information and knowledge results in more or less diverse knowledge. These are then related to creativity.

Regarding input factors, a group's size has been established as a structural characteristic in team research (Gladstein, 1984). Network size and centrality of the actor are measures commonly used in network research to describe personal networks (Hoang & Antoncic, 2003). They are integrated as input variables (enablers) into the causal chain in the context of coworking. Network structure refers to "*the pattern of direct and indirect ties between actors*"

(Hoang & Antoncic, 2003, p. 170), with the network size corresponding to the number of direct ties and centrality to the importance of a node. Both variables serve as a transfer mechanism for knowledge and resources (Rejeb-Khachlouf, Mezghani, & Quélin, 2011; Ibarra, 1993). As another input variable, Gladstein (1984) and Stock (2014) mention the openness regarding specific work norms. According to Stock (2014), the ability and willingness to exchange ideas are higher for open coworkers. In a CWS, like-minded people similarly work alongside each other pursuing entrepreneurial goals (Moriset, 2013). The providers established sharing and following mutual norms and values, e.g., core CWS values (Merkel, 2015). Due to these shared values and ideas in a CWS, there is a high level of supportiveness in terms of reciprocity and solidarity (Brinks, 2012; Fuzi, Clifton, & Loudon, 2014; Merkel, 2015; Rus & Orel, 2015).

These insights point to the mediating variables. We concentrate on the one hand on network governance mechanisms for coordinating and regulating help (Hoang & Antoncic, 2003; Hoang & Yi, 2015). Within CWS, coworker-governed networks are prevalent and somewhat informal, with coworkers themselves governing their relationships inside and outside the CWS corresponding to small-firm networks (Balestrin, Vargas, & Fayard, 2008; Parrino, 2015). At the same time, coworkers share governance by "*interacting on a relatively equal basis in the process of governance*" (Provan & Kenis, 2008, p. 234). Essential mechanisms are “trust” (Larson, 1992; Tsai & Ghoshal, 1998) and “reciprocity” (Hoppner, Griffith, & White, 2015). While there is a close relationship between trust and reciprocity (Chaudhuri, Sopher, & Strand, 2002), the meta-analysis of Bellucci, Chernyak, Goodyear, Eickhoff, and Krueger (2017, p. 1243) analyzing neuroimaging studies found evidence that both concepts "*rest on different cognitive processes*" because they stimulate different brain regions. Behavioral trust or trust in reciprocity is one facet of trust (Bellucci et al., 2017). Trust is conceptualized here for initial situations in CWS as a precursor of reciprocity. According to Pillutla, Malhotra, and Murnighan (2003, p. 448) "*reciprocation of an initially trusting act can instigate a beneficial cycle of increasing trust and reciprocation*".

On the other hand, we concentrate on facets of supportiveness (Gladstein, 1984). The coworking context mentions workplace friendship and emotional support (Spinuzzi, Bodrožić, Scaratti, & Ivaldi, 2019, p. 131). Merkel (2015) points to names of coworking-spaces such as "Camaraderie" reflecting a work style based on friendship and providing emotional support: coworkers liking each other, sharing and discussing work-related and personal issues, socializing at lunch or after work, and giving each other a helping hand (Simonelli, Scullica, Elgani, & Monna, 2018; Toomer, Caldwell, Weitzenkorn, & Clark, 2018). Reciprocity is subsumed

together with the two facets of supportiveness (workplace friendship, emotional support) under the term "social involvement". Finally, we conceptualize the diversity of knowledge exchanged between coworkers as a mediator because it can enhance creativity in the context of networking activities (Wang, Chen, & Fang, 2018). We then relate the mediating variables to creativity. Individual creativity has been defined, for example, by Perry-Smith and Shalley (2003, p. 90) "*as an approach to work that leads to the generation of novel and appropriate ideas, processes, or solutions*".

#### 4.3.3.1 Precursors of the diversity of knowledge exchanged and social involvement

**Network size**

Anderson (2008, p. 53) defines network size as "*the number of contacts an actor has*" The size of the network determines the extent of access to resources, capabilities, and information, particularly to diverse information (Anderson, 2008; Haleblian & Finkelstein, 1993; Kijkuit & van den Ende, 2010). Besides information and ideas, the number of potential solution strategies and critical judgments, as well as the range of perspectives concerning problems, increases (Haleblian & Finkelstein, 1993). Therefore, uncertainties and ambiguities can be reduced (Kijkuit & van den Ende, 2010). There is some research in favor of a curvilinear relationship of network size and information sharing due to information overload, less involvement, and distraction (Mehra, Kilduff, & Brass, 2001; Zhou, Shin, Brass, Choi, & Zhang, 2009). However, these studies investigated employees of large companies. With CWS being much smaller with, on average, 68 members in Germany (Deskmag, 2018) and the self-employed working in the main by themselves, we expect, corresponding to Kijkuit and van den Ende (2010), that larger spaces are beneficial for providing heterogeneous information and diverse perspectives. A large personal network with a relatively low density and weak ties fosters the exchange of knowledge with diverse information sources (Burt, 1992). Anderson (2008) worked out that managers with a high need for cognition and a large network spend more time searching for and finding more information. Regarding social involvement, we expect no effects since there are time and resource restrictions for coworkers who can only directly interact with a limited number of other coworkers regardless of new communication opportunities through social networks (Mayhew & Levinger, 1976; Yau, Reich, Wang, Niiya, & Mark, 2018). This leads to our first hypothesis:

> **H1**: The larger the network of a coworker, the higher is the diversity of knowledge exchanged.

**Centrality in the CWS**

The centrality of actors is another measure to evaluate their access to information and resources (Hoang & Antoncic, 2003; Rowley, 1997). Centrality is defined as the location or position of an individual actor "*in the network relative to others*" (Rowley, 1997, p. 898). It refers to an actor's direct ties, which can be used for fast communication within the network. Due to a central position within a network, an individual actor has the opportunity to communicate more frequently and to receive more detailed, accurate, relevant, and diverse information from others faster (Phelps, Heidl, & Wadhwa, 2012; Tang, 2016; Tsai & Ghoshal, 1998). Perry-Smith (2006, p. 88) proposes that individuals with a central network position "*may be less judgmental and more open-minded in considering and processing different approaches or ways of thinking*". Since the individual actor can provide other coworkers with diverse information or other resources, this benefit can be used when cooperating with others in terms of shared efforts and resources (Burt, 1992; Wincent, Anokhin, Örtqvist, & Autio, 2010). Due to a central position, the coworker has more ties, alternatives, and better access to others for emotional support and workplace friendship (Lee & Kim, 2011). Since hierarchies play no role in CWS (Bouncken & Reuschl, 2018), voluntarily provided emotional support and workplace friendship can evolve (Mao, 2006). CWS support the development of direct ties of their members through parties and events or educational programs that are also open to non-members (Merkel, 2015). These direct ties can function as indirect connections to other people in the future. Therefore, we propose:

> **H2:** The more central a coworker is positioned in her/his network inside and outside the coworking-space, the higher is the a) diversity of knowledge exchanged, b) reciprocity with other coworkers, c) emotional support, and d) workplace friendship.

**Trust**

Trust is the basis for long-lasting, stable relationships (Hoang & Antoncic, 2003; Larson, 1992). It needs an interaction-based, long-lasting process to build them (Chow & Chan, 2008; Tsai & Ghoshal, 1998). Considering each other as trustworthy means, both parties believe that the partner will fulfill all assigned tasks comprehensively and on time (Barney & Hansen, 1994; Hoang & Yi, 2015; Pruitt, 2013). This includes trust in the corresponding person as well as their skills (Larson, 1992). Furthermore, trust contains the expectation that the other party does not act opportunistically but rather honestly, e.g., concerning knowledge and for the good of both dyads (Bradach & Eccles, 1989; Hsu & Chang, 2014; Larson, 1992).

A basis of trust improves social interactions and eases the access to resources (Chow & Chan, 2008; Newbert & Tornikoski, 2012). The higher the trust level, the keener partners actively engage in knowledge exchange (Chow & Chan, 2008; Hashim & Tan, 2015; Hsu & Chang, 2014; Lin, 2007). Therefore, trust can be described as a precursor to collaboration and reciprocity (Newell, David, & Chand, 2007; Zur, Leckie, & Webster, 2012).

People considered trustworthy are more likely to get help and support from others than those who are not regarded as reliable (Tsai & Ghoshal, 1998). Especially in risky and insecure situations, trust combined with emotional support becomes a crucial factor (Hsu & Chang, 2014; Larson, 1992). When reaching a certain level of trust, actors are willing to join work-related cooperation and hold back from competitive behavior (Larson, 1992). People with like-minded work values and job attitudes as propagated and lived in CWS tend to engage faster in trusting relationships and friendships (Barber, 1983; Dotan, 2007; Gandini, 2015). However, due to the composition of the CWS of like-minded people, we expect no effect of trust on the diversity of knowledge exchanged (Watson, Kumar, & Michaelsen, 1993). The same holds for the relationship with workplace friendship. While research often conceptualizes trust as a precursor of friendship increasing intimacy in communication (Sias & Cahill, 1998), Volker (2019) argues that friendship can also be related to mistrust or established despite trust being somewhat selective. Based on this, we hypothesize:

> **H3:** The more trustworthy other coworkers are considered, e.g., regarding information exchange, the higher is a) reciprocity with other coworkers and b) emotional support.

**Individual CWS value orientation**

CWS values are a set of shared visions, norms, and values (Chiu, Hsu, & Wang, 2006; Tsai & Ghoshal, 1998). Their purpose includes providing "*shared representations, interpretations, and systems of meaning among parties*" (Nahapiet & Ghoshal, 1998, p. 244). They are proposed "*to encourage the development of trusting relationships*" (Tsai & Ghoshal, 1998, p. 466) and enhance the formation of partnerships. For example, Tsai and Ghoshal (1998, p. 467) describe visions as a "*bonding mechanism*" and manifestation of "*the collective goals and aspirations of the members of an organization*". In general, people can expect that these values are valid for all members reducing misunderstandings and conflicts and increasing the frequency and value of knowledge sharing (Chiu, Hsu, & Wang, 2006; Tsai & Ghoshal, 1998).

We regard individual CWS value orientation here as a coworker's personality characteristic, taking the core value "openness", for example, to experience, into account (Anderson, 2008; Baer, 2010; Zhou et al., 2009). Scholars proposed and showed that the need for cognition is a precursor of openness to experience, e.g., "*that persons high in need for cognition are intrinsically motivated intellectually, tend to exhibit curiosity, and are tolerant of different ideas*" (Sadowski & Cogburn, 1997, p. 311). In particular, we expect the two core values, "cooperation" and "community", to make sharing knowledge more likely and support social involvement in terms of reciprocity, workplace friendship, and emotional support. On the other hand, due to coworkers' homogenous values, there is no effect on the diversity of knowledge exchanged (Watson, Kumar, & Michaelsen, 1993). We, therefore, propose the following hypothesis.

> **H4:** The higher the coworker's individual openness to coworking values (individual CWS value orientation), the higher is the a) reciprocity with other coworkers, b) emotional support, and c) workplace friendship.

#### 4.3.3.2 Effects of the diversity of knowledge exchanged and social involvement on creativity

**Diversity of knowledge exchanged (network content)**

Personal knowledge is based on an individual's information and experience "*related to facts, procedures, concepts, interpretations, ideas, observations, and judgments*" (Yu, Lu, & Liu, 2010, p. 32), and in turn is regarded as one of creativity's critical drivers (Tang & Ye, 2015). Entrepreneurs are interested in suggestions, hints, and ideas for new business opportunities as well as "*business information, advice, and problem-solving*" (Hoang & Antoncic, 2003, p. 169). Research has highlighted the role of individuals' multiple social and work ties to access a range of diverse work-related knowledge strengthening their creative cognition (Anderson, 2008; Baer, 2010; Shalley & Perry-Smith, 2008; Tang & Ye, 2015). Actors within a network can be both the sender and recipient of information, feedback, know-how, or tangible artifacts (Cummings, 2004; Phelps, Heidl, & Wadhwa, 2012). Creativity is also enhanced due to "*access and exposure to very different thought worlds*", challenging perspectives, and providing new approaches (Baer, 2010, p. 592). Research has shown that actors strategically include contacts in their personal networks that "*they perceive to have more expertise and material resources*" (Bridwell-Mitchell & Lant, 2014, p. 401). Besides, knowledge exchange provides an excellent opportunity to expand the personal network with new contacts (Brüderl & Preisendörfer, 1998). We, therefore, propose the following hypothesis:

**H5:** The higher the diversity of the knowledge exchanged, the higher is an individual coworker's creativity.

**Reciprocity**

Reciprocity is based on mutuality and establishes the foundations for setting up, maintaining, and using relationships (Hoppner, Griffith, & White, 2015). The literature describes reciprocity as the mutual exchange of favors, with favor from one dyad leading to favor from the other dyad at a later time but for an equal value (Albinsson & Yasanthi Perera, 2012; Hoppner, Griffith, & White, 2015; Larson, 1992). Gouldner (1960) specifies the factors, naming the dimensions of 1) equality of value which can be expected regarding coworkers and 2) time. Reciprocity implies that people expect favor with equal or comparable value within a reasonable time frame in return when giving favor. Reciprocity acts as an expectation management mechanism, easing, guiding, and stabilizing interactions in a network (Gouldner, 1960; Hoppner, Griffith, & White, 2015). As long as a person fulfills the expectations regarding the exchange and the time perspective, it is considered trustworthy (Larson, 1992). Consequently, reciprocity enhances the exchange of knowledge (Chang & Chuang, 2011; Chiu, Hsu, & Wang, 2006) and thus creativity. Therefore, we assume:

**H6:** The higher the reciprocity between coworkers, the higher is an individual coworker's creativity.

**Emotional support**

Besides access to information and advice for problem-solving, relational ties provide emotional support (Anderson, Jack, & Dodd, 2016; Hoang & Antoncic, 2003) such as the provision of acceptance, encouragement, affection, empathy, love, appreciation, trust, or caring (Langford, Bowsher, Maloney, & Lillis, 1997; Slevin, Nichols, Downer, Wilson, Lister, Arnott et al., 1996). Close ties such as those to the family are of particular importance for founders in the start-up phase, providing security and stability while facing risks and uncertainties. Problems and difficulties can be openly addressed and discussed (Brüderl & Preisendörfer, 1998). Research has proposed and shown that close and supportive working and non-work relationships provide a positive effect and energy for creative cognition (Madjar, Oldham, & Pratt, 2002; Shalley, Zhou, & Oldham, 2004; Sosa, 2011; De Stobbeleir, Ashford, & Buyens, 2011). Closely related to supportive behavior are positive moods such as optimism, confidence, or enthusiasm, which facilitate creativity due to integrative and inductive thinking (George, 2000; Isen, 1999; Madjar, Oldham, & Pratt, 2002). CWS aim to provide a supportive atmosphere fostering emotional support, friendship, encouragement, and

synergies in businesses (Spinuzzi, 2012; Gerdenitsch, Scheel, Andorfer, & Korunka, 2016). Since sharing ideas, methods, or techniques and getting feedback, is an essential asset for coworkers (Spinuzzi, 2012), opinions, suggestions, and contributions of coworkers should be valued and discussed respectfully. Overall, the following hypothesis arises:

> **H7:** The higher the emotional support by other coworkers, the higher is an individual coworker's creativity.

**Workplace friendship**

Emotional support is also closely related to workplace friendship. Pillemer and Rothbard (2018, p. 3) define the latter "*as a nonromantic, voluntary, and informal relationship between current coworkers that is characterized by communal norms and socioemotional goals*". Several authors emphasize the need to belong to, for example, a work team and be related to others at the workplace (see Pillemer & Rothbard, 2018). When actors support each other, this enhances interpersonal affiliation, intimacy, easy conflict resolution, and a sense of family and belonging (Im, Montoya, & Workman, 2013; Yu, Lu, & Liu, 2010), e.g., to a coworking-space. Workplace friendship facilitates cooperative behavior and positively affects creative performance (Pillemer & Rothbard, 2018). This is due to enhanced communication and interaction, which should be direct and frequent, as well as citizenship and socialization (Im, Montoya, & Workman, 2013). The resulting close personal relationships can include spending free time together (Burt, 2000). If all involved parties are in close contact and equally trust each other, a community can evolve (Kozinets, 1999; Sosa, 2011; Tang & Ding, 2014). A designated space for social interactions offers more direct exchange opportunities and consequently improves the community-building process (Kozinets, 1999; Tang & Ding, 2014). This space can be found in CWS.

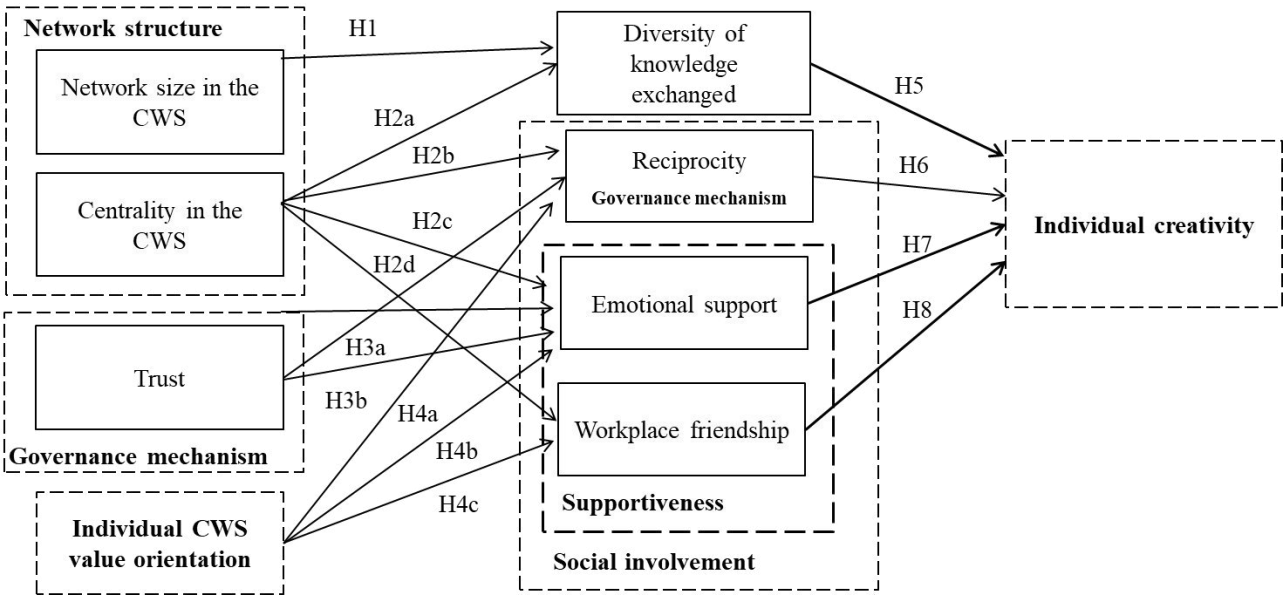
Concerning creativity, one stream of research emphasizes the positive effects of social involvement. The closeness of the involved parties results in emotional support, which reduces uncertainties (Perry-Smith & Mannucci, 2017). The closer the parties are, the more open, more intimate, and more honest are the discussions and the more prone the parties involved are towards giving and receiving feedback, advice, or other forms of help (Gruenfeld, Mannix, Williams, & Neale, 1996; Perry-Smith & Mannucci, 2017). Eventually, this improves the exchange of knowledge and resources, problem-solving (Yu, Lu, & Liu, 2010), and entrepreneurs' business ideas. Coworkers with rewarding personal relationships are satisfied by working and accomplishing tasks together (Nielsen, Jex, & Adams, 2000). However, there is also the risk of actors becoming too similar and converging in thinking with a nega-

tive effect on creativity (Im, Montoya, & Workman, 2013; Yu, Lu, & Liu, 2010). However, we expect this effect not to be prevailing in CWS since Spinuzzi (2012, p. 433) found that coworkers often work "*in the peripheries of each other's activities—working alone together*". Therefore, we developed the following hypothesis:

> **H8:** The higher the workplace friendship among coworkers, the higher is an individual coworker's creativity.

Figure 4.1 summarizes the research model tested via the proposed hypotheses.

**Figure 4.1: Research Model**




## 4.4 THE EMPIRICAL STUDY

### 4.4.1 Data Collection and Questionnaire Design

A search was made for existing CWS in Germany, resulting in 307 CWS in 90 cities in the first step. Based on these contact details in terms of location in a federal German state and the town's size, a sample selection was made while attempting to achieve a well-balanced subsample in terms of German geography and the pattern of population distribution. In particular, we selected more CWS in the south and east of Germany for the sample (see Table 4.1). As a consequence, the number of CWS in metropolitan cities increased from 63.5% to 87.3%. However, this is in line with another study reviewing the situation of CWS in Germany and showing that almost 90% of the CWS are in large metropolitan cities (Pink, 2018).

**Table 4.1: Population and sample selection**

| | German population distribution (31 December 2017) | CWS population (n=307) | CWS sample (n=63) | Chi-square (p, two-sided) |
|---|---|---|---|---|
| East Germany (without Berlin)<br>West Germany (with Berlin) | 16%<br>84% | 4.6%<br>95.4% | 9.5%<br>90.5% | 4.487 (0.045) |
| North Germany<br>South Germany | 49.8%<br>50.2% | 56.0%<br>44.0% | 36.5%<br>63.5% | 12.257 (0.001) |
| Metropolitan city<br>Non-metropolitan city | 16.9%<br>83.1% | 63.5%<br>36.5% | 87.3%<br>12.7% | 19.350 (0.000) |

We selected CWS that meet the five core values of coworking. In this understanding, large CWS like WeWork were considered as workplaces and excluded. They contradict the core value "openness" (too high number of individual offices as well as team offices; no exchange with "travelers") and "community" (no/hardly any community events and no understanding as "WeWork" coworkers). For the data collection, we contacted 63 CWS in 10 major German cities. Slightly more than half (n=33) participated in the data collection. Data was collected both on-site in-person as well as via an online questionnaire between March 1 and May 8, 2018. Two online responses of coworkers included no information about the CWS in which they currently worked. In personal interviews, 128 questionnaires were collected, of which 103 (80.47%) were complete and usable (offline sample). The online survey yielded ten usable questionnaires (26.32%) out of 38 answers (online sample). Overall, we generated a data set of 166 responses with 113 usable questionnaires. Each CWS contributed between 1 and 8 questionnaires, with an average of 3.36 questionnaires per CWS. To test for possible response biases, we compared the items of the items scales for the online and offline sample with a Mann-Whitney U-Test. We found no significant differences at the 0.05 level between the two groups. Besides, we were able to collect data at two corporate CWS. We used the results of this small sample of 15 respondents for the research outlook.

We developed the questionnaire based on the literature on topics relating to coworking and CWS, as well as networks and creativity. For our model, we included several multi-item scales, which had to be assessed on a seven-point Likert scale (1= "strongly disagree" to 7="strongly agree"). This involved the following constructs: supportiveness (emotional support, workplace friendship), governance mechanisms (trust, reciprocity), network structure (network size, centrality in the CWS), network content (diversity of knowledge exchanged), individual openness to coworking values, and the dependent variable individual coworker's creativity. Additionally, we integrated measures for the network size, e.g., no. of work ties, no. of friendship ties, no. of first contact ties, and no. of outside ties. For a detailed overview

of the items and constructs, see appendix 5.8.1. An English version of the questionnaire also addressed international coworkers in German CWS.

### 4.4.2 Measure Validation

We tested the reliability, validity, and uni-dimensionality of each construct's item scales, relying on SPSS 25 and SmartPLS 3 when calculating exploratory and confirmatory factor analysis (Gerbing & Hamilton, 1996). For most constructs, items had to be excluded, e.g., due to their low explanatory power or a VIF above 5 (see Table 4.2 and appendix 5.8.1). This also holds for the construct "diversity", which was not included in the model but used for descriptive purposes (see the item list in appendix 5.8.1). Because we removed the item referring to the ties outside the network, we needed to restrict the construct to the internal network size and termed "Network size in the CWS". Concerning individual CWS value orientation, all items were retained to include the facets of CWS values despite an AVE below 0.5 since all items loaded on one factor. To test for common method bias, seven of the model constructs were connected as independent factors to the eighth construct acting as a dependent factor. All eight constructs were used once as a dependent factor. In all cases, the VIFs of the model constructs were lower than the proposed threshold value 3.3 (Kock, 2015).

**Table 4.2: Summary statistics of measurement scales**

| **Construct** | (Original) Number of items | Mean (Std.) | Cronbach's Alpha | Variance explained | CR | AVE |
|---|---|---|---|---|---|---|
| **Mutual support** | | | | | | |
| Emotional support | (6) 4 | 5.70 (0.97) | 0.822 | 69.464 | 0.884 | 0.657 |
| Workplace friendship | (7) 5 | 3.95 (1.44) | 0.892 | 69.869 | 0.920 | 0.698 |
| **Governance mechanisms** | | | | | | |
| Trust | (5) 3 | 5.32 (1.19) | 0.857 | 77.722 | 0.913 | 0,777 |
| Reciprocity | (5) 4 | 5.79 (1.07) | 0.826 | 65.811 | 0.885 | 0.657 |
| **Network structure** | | | | | | |
| Centrality in the CWS | (4) 4 | 4.14 (1.44) | 0.851 | 69.179 | 0.899 | 0.690 |
| Network size in the CWS* | (4) 3 | 3.29 (3.74) | 0.809 | 72.480 | 0.887 | 0.724 |
| **Individual CWS value orientation** | (5) 5 | 5.61 (0.90) | 0.734 | 48.957 | 0.824 | 0.485 |
| **Individual creativity** | (8) 7 | 4.64 (1.34) | 0.928 | 70.058 | 0.942 | 0.700 |

*in numbers
Scale: 1 = 'strongly disagree' to 7 = 'strongly agree'.
AVE: Average variance extracted; CR= Composite Reliability
N=113

Except for the AVE of this construct, the suggested thresholds of Cronbach's α (>0.7) (Nunnally, 1978), composite reliability (>0.6) (Bagozzi & Yi, 1988), and average variance extracted (AVE) (>0.5) were met (Fornell & Larcker, 1981). We did not find any correlation

above the threshold of 0.65, indicating multicollinearity (see Table 4.3) (Grewal, Cote, & Baumgartner, 2004). Besides, the criteria for discriminant validity were met: the square root of AVE of the constructs was higher than the correlation of the constructs (Fornell & Larcker, 1981), the HTMT ratio of correlations did not exceed 0.85 (Henseler, Ringle, & Sarstedt, 2015) (see Table 4.3) and the value 1 was not included in the bias-corrected 95% confidence intervals relying on bootstrapping with 5,000 samples (see appendix 5.8.2). The sample size was considered large enough. The minimum-squared method (Kock & Hadaya, 2018) points to a value a little higher than 65. Daniel Soper's (2004-2020) sample size calculation tool based on the algorithm of Westland (2010) resulted in a minimum sample size of 100 respondents.

**Table 4.3: Discriminant validity (Fornell-Larcker criterion; HTMT criterion)**

| Fornell-Larcker criterion (HTMT criterion) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1 Individual CWS value orientation | **0.696** | | | | | | | | |
| 2 Emotional support | 0.463 (0.601) | **0.811** | | | | | | | |
| 3 Individual creativity | 0.619 (0.742) | 0.542 (0.612) | **0.837** | | | | | | |
| 4 Centrality in the CWS | 0.378 (0.469) | 0.406 (0.471) | 0.535 (0.594) | **0.831** | | | | | |
| 5 Reciprocity | 0.506 (0.624) | 0.606 (0.735) | 0.576 (0.641) | 0.491 (0.574) | **0.811** | | | | |
| 6 Network size in the CWS | 0.188 (0.267) | 0.044 (0.154) | 0.163 (0.201) | 0.296 (0.363) | 0.124 (0.181) | **0.851** | | | |
| 7 Workplace friendship | 0.506 (0.593) | 0.521 (0.596) | 0.546 (0.593) | 0.589 (0.670) | 0.476 (0.539) | 0.333 (0.390) | **0.835** | | |
| 8 Trust | 0.347 (0.427) | 0.491 (0.585) | 0.402 (0.439) | 0.395 (0.455) | 0.572 (0.683) | 0.092 (0.131) | 0.230 (0.247) | **0.881** | |
| 9 Diversity of knowledge exchange | 0.334 (0.385) | 0.412 (0.456) | 0.478 (0.491) | 0.451 (0.481) | 0.375 (0.413) | 0.312 (0.342) | 0.413 (0.436) | 0.312 (0.337) | **1.00** |

In bold: square root of average variance extracted estimates
N=113

We calculated a composite score, including all items belonging to that construct for mean value calculation. The value for reciprocity is highest with 5.79 on a scale from 1 = "strongly disagree" to 7 = "strongly agree", while the lowest value was for network size in the CWS measured numerically at 3.29.

## 4.5 RESEARCH RESULTS

### 4.5.1 Descriptive Results

Our survey coworkers were, for the main part, male, rather young, and often lived in small households with one (20.7%) or two persons (48.6%). More than a quarter were international users. Concerning the academic and professional level, the results are similar to Bouncken and Reuschl (2018): The educational level is very high with predominantly academics who worked as freelancers or in small companies, and in branches such as IT, consulting, or creative industries. The coworkers used CWS in general for about one and a half years and the current space for a little more than a year. Of the CWS core values, they highlight in particular openness, e.g., "*free sharing of ideas, information and people*" (Fuzi, Clifton, & Loudon, 2014, p. 2), and financial and physical accessibility (Moriset, 2013), but to a lesser extent collaboration (see Table 4.4).

The respondents work in relatively small CWS with an average of 25 members compared to the 68 members in the Deskmag (2018) study, including large workplaces. They rate their coworkers to be somewhat diverse in terms of knowledge, skills, educational background, and way of thinking. About half of the coworkers are working alone. The other half is working in teams with about three to four persons for a little more than a year. For those working in a team, the value of "collaboration" was higher (5.12 vs. 4.49, p=0.022) and "accessibility" lower, presumably due to the presence of other team members (5.79 vs. 6.29, p=0.026). Coworkers were most likely to share knowledge and ideas with others, followed by specific expertise and helpful advice to solve problems. Regarding entrepreneurial activities, about half of the coworkers exchanged ideas and suggestions for new business ideas as well as new potential interesting contacts. On average, coworkers gain access to 5.24 types of knowledge through networking in their CWS. Respondents working in a team shared valuable business information (27.9% vs. 21.8%) and solutions for work problems (29.7% vs. 21.8%) more frequently. Regarding their network inside the CWS, respondents had started with having contact with about one coworker. The direct work-related exchange increased in the meantime to about five coworkers, and with about three of them, they were befriended. While team coworkers' network is more extensive (6 up to 7 persons compared to 3 up to 4 persons), the

number is similarly high without the team members. Outside the CWS, respondents have a direct work-related exchange with about 14 persons.

**Table 4.4: Coworker characteristics**

| Properties | Sample |
|---|---|
| **Gender** | |
| Females | 31.0% |
| Males | 69.0% |
| **Age** | |
| Mean value (sd.) | 32.20 (6.762) |
| up to 29 | 36.6% |
| 30 up to 39 | 52.7% |
| 40 and older | 10.7% |
| **Nationality** | |
| German | 69.9% |
| Other | 30.1% |
| **Family status single** | 78.8% |
| **Education** | |
| PhD | 6.2% |
| Diploma, Magister, state exams | 15.9% |
| Master degree | 28.3% |
| Bachelor degree | 35.4% |
| **Profession** | |
| Web development / IT | 22.1% |
| Consulting | 15.0% |
| Marketing | 13.3% |
| Creative industries, design | 23.9% |
| **Occupation group** | |
| Freelancer | 32.7% |
| Entrepreneur | 19.5% |
| Enterprise with up to 5 employees | 15.0% |
| Enterprise with 6 up to 99 employees | 22.1% |
| Enterprise with > 100 employees | 8.8% |
| **Location of CWS** | |
| Berlin | 36.9% |
| Munich | 11.7% |
| Leipzig, Stuttgart | 9.9% |
| **Period of use (in months)** | |
| In general | 19.13 (15.390) |
| This CWS | 14.46 (11.268) |
| **Individual CWS value orientation*** | |
| Collaboration (mean, sd.) | 4.81 (1.618) |
| Community (mean, sd.) | 5.82 (1.241) |
| Sustainability (mean, sd.) | 5.42 (1.474) |
| Openness (mean, sd.) | 5.95 (1.016) |
| Accessibility (mean, sd.) | 6.04 (1.117) |

* Scale: 1 = ‘strongly disagree’ to 7 = ‘strongly agree’.

**Table 4.5: Networking characteristics**

| Properties | Sample |
|---|---|
| **Size of CWS** | |
| Mean value (sd.) | 24.79 (20.975) |
| Minimum / Maximum | 2 / 150 |
| **Diversity of coworkers** | |
| Mean value (sd.) | 5.33 (1.14) |
| **Team** | |
| Working in team | 50.2% |
| Team size | 3.54 (4.390) |
| Duration of collaboration (months) | 15.000 (19.484) |
| **Diversity of knowledge exchanged** | |
| Mean value (sd.) | 5.14 (2.783) |
| Knowledge and ideas | 79.9% (n=90) |
| Specific expertise | 60.2% (n=68) |
| Specific skills | 39.8% (n=45) |
| Valuable business information | 30.1% (n=34) |
| Access to services | 50.4% (n=57) |
| Helpful advice to solve problems | 53.1% (n=60) |
| Solutions for work problems | 31.0% (n=35) |
| General practical "hands-on" advice and assistance | 41.6% (n=47) |
| Latest information on current business topics | 30.1% (n=34) |
| Ideas and suggestions for new business ideas | 44.2% (n=50) |
| New, potential contacts | 49.6% (n=56) |
| **Direct work-related exchange inside the CWS** | |
| Mean value (sd.) | 5.29 (6.75) |
| Minimum / Maximum | 0 / 40 |
| With a friendly relationship | 2.76 (3.467) |
| in % of work-related exchange | 59.86 (39.16) |
| Contact from the beginning | 1.18 (1.767) |
| in % of work-related exchange | 39.42 (42.21) |
| **Direct work-related exchange outside the CWS** | |
| Mean value (sd.) | 14.08 (27.465) |
| Minimum / Maximum | 0 / 200 |

### 4.5.2 Hypothesis Testing

The path coefficients' significance is established with a p-value below 0.05 and bias-corrected confidence intervals, excluding the value zero, particularly the case here. The bias-corrected confidence intervals are above zero for all path coefficients with a p-value below 0.05, thus reinforcing the significance (Ringle, Sarstedt, Mitchell, & Gudergan, 2020).

Regarding the model, our data confirmed almost all hypotheses except the proposed effect of centrality on emotional support (H2c) and emotional support on creativity (H7). For the precursors of knowledge exchanged and social involvement, in particular, the centrality of the

coworkers in the CWS (0.464, p=0.00) and a high individual CWS value orientation (0.331, p=0.00) had a positive effect on workplace friendship (see Table 4.6). In addition, a central position in the CWS (0.393, p=0.000) was important for the diversity of knowledge exchanged, followed by the size of the network in the CWS (0.196, p=0.037). Like individual CWS value orientation, trust influences social involvement in terms of reciprocity (0.382, p=0.005) and emotional support (0.325, p=0.012), thus confirming hypotheses 3a and b. Higher effect sizes $f^2$ above 0.15 and described as moderate (Henseler, Ringle, & Sinkovics, 2009) demonstrated the contribution of centrality in the CWS to workplace friendship ($f^2$=0.329) and diversity of knowledge exchanged ($f^2$=0.185). Other moderate effect sizes were found for the contribution of trust to the $R^2$ value of reciprocity ($f^2$=0.223) and the one of individual CWS value orientation to workplace friendship ($f^2$=0.168).

Concerning the individual creativity of coworkers, reciprocity (0.289, p=0.001) has the strongest positive effect, followed by workplace friendship (0.243, p=0.006) and diversity of knowledge exchanged (0.204, p=0.039). We found evidence for H5, H6, and H8, but not for emotional support and H7. However, the $f^2$ values displayed only smaller effects as they were below 0.15.

Looking at how well-developed the research model is, the $R^2$ and $R^2$ adjusted values (coefficients of determination) are all above 0.25, which is a weak effect (see Table 4.7). In particular, individual creativity (0.482), reciprocity (0.477), and workplace friendship (0.440) are close to 0.50, the threshold for being accounted for a moderate effect (Hair, Ringle, & Sarstedt, 2011).

## 4.6 DISCUSSION

In this study, we analyzed the effect of social networks on individual creativity in the context of CWS. Based on the literature, we developed (multi-item) constructs that describe established networking elements such as network content, network structure, network governance, supportiveness, and network structure (Anderson, Jack, & Dodd, 2016; Brinks, 2012; Hoang & Antoncic, 2003; Hoppner, Griffith, & White, 2015). With the construct "Individual CWS value orientation", referring to the individual's openness to the five core coworking values (Schürmann, 2013), a CWS-specific element was added on the individual level (Bouncken et al., 2020). The constructs were related to each other in a research model based on the input-process-output framework (McGrath, 1984; Gladstein, 1984; Stock, 2014).

The results show that for private CWS, the networks of coworkers within the CWS are rather of the same size regardless of working alone or in a team if subtracting the number of team members. There were some but not many significant differences, for example, when it comes to the types of knowledge exchanged. When looking at the results of the small sample of corporate CWS, these are somewhat different. Coworkers of corporate CWS predominantly work in a team (93% vs. 50.2%). Not surprisingly, the mean value of the core value "collaboration" is highest with 6.47 compared to 5.12 (private CWS: team worker) and 4.49 (private CWS: working alone). When subtracting the number of team members (7.2), their network within the corporate CWS is smaller (about 2.2), but outside the CWS, their network is more extensive with on average 19.53 contacts compared to 14.08. In contrast, for coworkers in private CWS, their personal network is more diverse when it comes to knowledge and skills, educational background, and way of thinking and action (5.33 vs. 4.18).

**Table 4.6: Testing the relationships of the research model**

| Independent variable | | Dependent variable | Hypothesis | Path coefficients (Effect size - $f^2$) | T statistics (p-value) | Bias-corrected confidence interval (95%) |
|---|---|---|---|---|---|---|
| Network size in the CWS | → | Diversity of knowledge exchanged | H1 | 0.196 (0.046) | 2.089 (0.037)* | [0.0002, 0.367] |
| Centrality in the CWS | → | Diversity of knowledge exchanged | H2a | 0.393 (0.185) | 5.028 (0.000)*** | [0.224, 0.532] |
| Centrality in the CWS | → | reciprocity | H2b | 0.232 (0.080) | 3.151 (0.002)** | [0.092, 0.379] |
| Centrality in the CWS | → | Emotional support | H2c | 0.169 (0.035) | 1.560 (0.119) | [-0.031, 0.396] |
| Centrality in the CWS | → | Workplace friendship | H2d | 0.464 (0.329) | 5.616 (0.000)*** | [0.150, 0.489] |
| Trust | → | Reciprocity | H3a | 0.382 (0.223) | 2.800 (0.005)** | [0.069, 0.602] |
| Trust | → | Emotional support | Hab | 0.325 (0.132) | 2.524 (0.012)* | [0.076, 0.569] |
| Individual CWS value orientation | → | Reciprocity | H4a | 0.286 (0.126) | 3.163 (0.002)** | [0.109, 0.450] |
| Individual CWS value orientation | → | Emotional support | H4b | 0.287 (0.104) | 2.459 (0.014)* | [0.035, 0.490] |
| Individual CWS value orientation | → | Workplace friendship | H4c | 0.331 (0.168) | 3.831 (0.000)*** | [0.295, 0.616] |
| Diversity of knowledge exchanged | → | Individual creativity | H5 | 0.204 (0.062) | 2.060 (0.039)* | [0.012, 0.402] |
| Reciprocity | → | Individual creativity | H6 | 0.289 (0.095) | 3.254 (0.001)** | [0.104, 0.452] |
| Emotional support | → | Individual creativity | H7 | 0.156 (0.026) | 1.403 (0.161) | [-0.063, 0.374] |
| Workplace friendship | → | Individual creativity | H8 | 0.243 (0.074) | 2.734 (0.006)** | [0.057, 0.406] |

+: significant with p<0.1, *: significant with p<.05, **: significant with p<.01, ***: significant with p<.001

Concerning entrepreneurial activities, the exchange of ideas and suggestions for new business ideas (33.3% vs. 44.2%) as well as new potential interesting contacts (13.3% vs. 49.6%) are noticeably less frequent.

**Table 4.7: Structural model evaluation**

| | $R^2$ | $R^2$ adj. | $Q^2$ |
|---|---|---|---|
| Diversity of knowledge exchanged | 0.238 | 0.224 | 0.202 |
| Reciprocity | 0.477 | 0.463 | 0.277 |
| Emotional support | 0.361 | 0.344 | 0.215 |
| Workplace friendship | 0.440 | 0.430 | 0.296 |
| Individual creativity | 0.482 | 0.462 | 0.324 |

Our findings demonstrate that networking and related elements positively impact individual creativity for freelancers and entrepreneurs when they work in CWS. Evaluating the research model shows that a central position in the CWS, allowing a direct exchange with other coworkers and a high individual CWS value orientation, significantly influences workplace friendship and reciprocity. For centrality in the CWS, this also holds for the diversity of knowledge exchanged. In addition, trust increases reciprocity and emotional support. The literature on social cohesion is supported in the context of CWS (Burt, 2000; Im, Montoya, & Workman, 2013; Yu, Lu, & Liu, 2010). In turn, particularly reciprocity and workplace friendship, but also the diversity of knowledge exchanged positively affects individual creativity. The first two factors reflect the core ideas of CWS in terms of helping each other and supporting each other with reciprocity, also pointing to the importance of direct exchange. However, emotional support, such as a sense of family and belonging or easy conflict resolution, is less important.

Overall, the incoming factors in our model explain individual creativity, but also reciprocity and workplace friendship quite well. Nevertheless, about 50% of the variance is not explained by these factors. For diversity of knowledge exchanged and emotional support, the unexplained part is even larger. Therefore, the investigation of other factors such as the diversity of network partners or coworkers in the CWS, available resources in the CWS, e.g., training or technical services, or boundary management (Gladstein, 1984), as well as other personality factors such as empathy or emotional intelligence would be of interest.

### 4.6.1 Theoretical Implications

With the research model and the following SEM analysis, we contribute to the literature on coworking and related research, e.g., new ways of working (Gerards, van Wetten, & van Sambeek, 2020), and focus on knowledge exchanged, social interaction, and creative outcomes (Bouncken & Aslam, 2019; Garrett, Spreitzer, & Bacevice, 2017; Gerdenitsch et al., 2016; Rese, Kopplin, & Nielebock, 2020). In particular, we go beyond conceptual (Bouncken & Reuschl, 2018) and qualitative analyzes (Bouncken & Aslam, 2019; Capdevila, 2019, Spinuzzi et al., 2019) or literature reviews (Jeske & Ruwe, 2019). Relying on network elements from entrepreneurial networking, we can confirm the importance of network content, reciprocity, and supportiveness for individual creativity in the coworking context (Hoang & Antoncic, 2003). Individual CWS value orientation proved to be an important precursor of social involvement in terms of reciprocity and supportiveness (Chiu, Hsu, & Wang, 2006; Tsai & Ghoshal, 1998). While the five core values loaded on one factor and unidimensionality could be established, the value "collaboration" is a discriminator for those working alone and team workers in the CWS. This is also a finding of Rese, Kopplin, and Nielebock (2020) confirming member heterogeneity (Bouncken & Reuschl, 2018). In addition, we contribute to research on network structure and similarly to research in other contexts. Wang, Lu, Kweh, Nourani, and Hong (2021) found that direct connections (centrality) and the number of connections (network size in the CWS) are important input factors. Taking the proposed function of CWS as open creative labs into account, we contribute to research on innovative climate (Liu, Chow, Zhang, & Huang, 2019). Our results reveal the importance of workplace friendship and reciprocity in the coworking context. For early professional networks, we regarded and confirmed trust as a precursor of reciprocity (Newell, David, & Chand, 2007; Zur, Leckie, & Webster, 2012). However, for future research, it has to be considered that trust is also a result of reciprocity developing over time from collaboration with others (Newell, David, & Chand, 2007).

### 4.6.2 Managerial Implications

Our findings include important managerial implications for CWS management. First, our results indicate that a central position in the CWS fosters particularly workplace friendship and diversity of knowledge exchanged. Therefore, the formats of networking events, but also architectural elements and technical support, should ensure that direct exchange with other coworkers is enabled. When CWS support matchmaking and networking with tools (Kopplin, 2021), they should take care of as many direct exchange possibilities as possible. The spaces should not be too small, allowing for the opportunity to build networks within the space. Di-

versity of knowledge exchanged is increased, and there are more possibilities for workplace friendships. In addition, formats fostering workplace friendship should invite coworkers to spend time together and continuously reflect on their effectiveness. CWS managers should be attentive to coworkers in peripheral network positions. They should include coworkers in event planning by asking them what they would like to see/hear/do and how to approach internal and external parties. Additionally, coworkers should be encouraged to plan their own events that are suitable for the CWS. Since the results confirm the supportive climate in the CWS, the necessity for tools or guidelines for conflict management is reduced.

The importance of individual CWS value orientation calls for a careful selection of coworkers identifying and living the core CWS values. In particular, regarding the diversity of knowledge exchanged, a mix of members working in a team and working alone is advisable. Team coworkers provide more often process-related knowledge, e.g., solutions for work problems (29.7% vs. 21.8%) or general practical "hands-on" advice and assistance, while coworkers working alone offer more specific skills (47.3% vs. 32.8%). A more balanced composition is highly recommended for corporate coworking-spaces, with 93% of the members working in a team.

### 4.6.3 Limitations and Research Outlook

Of course, the study is not free of several shortcomings. First, the sample from private CWS is relatively small. The sample from corporate CWS is even smaller but should be of a similar size to allow a comprehensive comparison. In addition, we investigated only German CWS. The results of an international sample would complement the picture (Appel-Meulenbroek, Weijs-Perrée, Orel, Gauger, & Pfnür, 2020). We concentrated our data collection on CWS in metropolitan cities for Germany, where they are typically located. Contrasting the results with an analysis of a sample of coworkers in CWS in small- and medium-sized cities would be interesting. Heterogeneity regarding CWS types and communities could be taken into account (Capdevila, 2019; Spinuzzi et al., 2019).

Regarding network size in the CWS, the investigated CWS were on average smaller than German ones in general and might offer limited opportunities for personal network formation. However, there might be a maximum size where the positive properties of large CWS and potential large personal networks are reversed. Therefore, future research should investigate the size of this potential turning point.

Second, we used self-reported dependent and independent variables in this study. The results can be enriched with objective data collected, for example, on essential features of CWS such

as price, location, safety, conference rooms, kitchenette, or opening hours. Other researchers can also include other variables, for example, different personality traits such as attitudes and motivational factors to engage with others (Bock, Zmud, Kim, & Lee, 2005).

Third, for each coworker in a CWS, a holistic, ego-centric network could be mapped (Parrino, 2015). The evaluation of the nodes in the network regarding important personality traits as well as in-depth structural analyzes could enrich the understanding of social interaction and knowledge sharing mechanisms in the CWS (Bouncken & Aslam, 2019). Other social network measures, such as network density, could be investigated (Marsden, 2005). A comparison of the network structure in the CWS with the coworker's individual network, e.g., to identify structural gaps (Burt, 1992, Burt, 2004), could also be interesting. Besides the professional network, other types of personal networks such as friendship and advice networks could be more in focus (Gibbons, 2004) because they enrich the CWS network. Ties outside the CWS had a descriptive character in this study. Still, they could be investigated in more detail together with the strength (duration of contact, frequency of exchange, closeness) and diversity of ties (Perry-Smith, 2006).

Fourth, regarding network development, a process orientation can be considered (Hoang & Antoncic, 2003). Personal networks are not fixed constructs but are subject to constant change over time, e.g., due to different activation depending on the situational context (Perry-Smith & Mannucci, 2017). Looking at the entire network, complexity increases over time as new relationships can arise, enhancing network density and cohesion or structural gaps develop, making the network sparser (Hite & Hesterly, 2001; Slotte-Kock & Coviello, 2010). Therefore, an investigation at several points in time, for example, in several selected CWS, would offer additional insights. In addition, studying the usability and efficiency of tools to facilitate networking is of interest (Kopplin, 2021), particularly against the background of the COVID-19 pandemic.

### 4.6.4 Effects of the COVID-19 Crisis on future Coworking

The latest pandemic left its footprint on the work-life. The corona-virus showed that most of the work does not require a fixed workplace but can be done remotely. An increasing number of companies switched to teleworking, relying on digital technologies, such as Zoom, and alternative workspaces such as CWS seem to become obsolete (Carnevale & Hatak, 2020; Sheth, 2020). A worldwide survey of CoworkingEurope in the Spring showed that about half of the CWS in Europe (47%) were strongly affected, in particular regarding members staying at home (34%) and events being canceled (20%) (Calders, 2020). About 10% of the CWS

closed in Germany, and the rest was open with a regular or reduced service (Foertsch, 2020b). Not surprisingly, Reuschke and Felstead (2020, p. 211) raised the question regarding "*the future of the collective, open-plan office where desks and equipment are shared and the future viability of promoting co-working spaces where different workers and businesses share the same premises*". The Corona-pandemic challenged social interaction as the basis of success. Working without direct interaction becomes part of everyday life for many people. CWS implemented many distancing measures, such as decreasing the number of desks and seats or closing all meeting rooms (Calders, 2020; Foertsch, 2020a). While coworking lives from interaction and togetherness, CWS suggested coworkers working from home for two weeks or did not allow in guests. However, the pandemic is also seen as a chance for CWS to claim their place in the work environment. CWS have started to adjust their business model temporarily. In particular, they introduced a change in one area: planning to or already offering more online services and motivating coworkers to use digital technologies for working and meeting remotely (Foertsch, 2020a; Foertsch, 2020b;). Since teleworking has besides benefits also disadvantages (Baruch, 2000), experts are calling for "*a portfolio of space solutions: owned space, standard leases, flexible leases, flex space, co-working space, and remote work*" (Boland, De Smet, Palter, & Sanghvi, 2020, p. 5). Foertsch (2020a) even describes a bright future for CWS due to increased entrepreneurial activity caused by companies' lack of work perspectives. CWS can develop a leading role as places where digital business models are created (Bouncken, Kraus, & Martínez-Pérez, 2020). Lestari (2020) highlights CWS managers' role in initiating and supporting collaboration processes among startups in CWS. CWS can offer the service of innovation community building and open innovation process upsetting (Fichter, 2009, Rese, Gemünden, & Baier, 2013) to startups and established firms. However, profitability has to be in focus, and operations and the business model of CWS need to be continuously adapted to be competitive in the long run (Kraus, Clauss, Breier, Gast, Zardini, & Tiberius, 2020).

### 4.7 CONCLUSIONS

Entrepreneurial networks have been a topic of research interest (Birley, 1985; Brüderl & Preisendörfer, 1998; Hoang & Antoncic, 2003; Hoang & Yi, 2015; Slotte-Kock & Coviello, 2010). By now, research has studied entrepreneurs and freelancers in CWS, their professional networks, and the related knowledge exchange to a limited extent (Bouncken & Aslam, 2019; Bouncken et al., 2020; Bouncken, Kraus, & Martínez-Pérez, 2020; Parrino, 2015). We developed a research model based on the input-process-output framework (McGrath, 1984;

Gladstein, 1984; Stock, 2014) relating network structure and content, supportiveness, governance mechanisms, the individual openness to core coworking values, and individual creativity. A causal chain can be applied, demonstrating the importance of centrality in the network and individual CWS value orientation as input (enabling) variables as well as workplace friendship and reciprocity as mediating variables. While for private CWS we could establish that creativity can be fostered, it remains to be seen whether this concept can be successfully transferred to large companies. Our study gives initial insights that the users of corporate CWS and their professional networks are different.

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# 5 CO-CREATION IN COWORKING-SPACES: BOUNDARY CONDITIONS OF DIVERSITY

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## 5.1 ABSTRACT

Knowledge and collaboration are the basis of value co-creation in coworking-spaces (CWS). The unique and flexible settings found in these CWS enable companies and individuals to engage in fruitful discourse. The diversity of participants allows for multisided exchange relationships leading to highly innovative outcomes. Referring to the literature on service management and value co-creation, we present a qualitative study that analyzes under which boundary conditions knowledge exchange and value creation are expected to exceed predictions. We analyze data from 12 coworking-spaces and show that contradictory to established literature, in coworking-spaces there appears to be an optimal degree of diversity regarding individuals' social background and the knowledge bases. Additionally, we found that a like-minded work ethos between coworkers is crucial for value co-creation, relativizing diversity as a driver of co-creation. We also show that participants can take differing, non-predetermined roles in the process of value co-creation and contribute to different forms of value creation.

## 5.2 INTRODUCTION

The 21st-century world is characterized by a strong individualization trend (Lewis & Bridger, 2001; Windham & Orton, 2000). This trend does not only become visible in shopping or other commodity areas and also changes the nature of work. Because of this individualization trend, employees change jobs more often and are no longer deeply tied to one company (U.S. Bureau of Labor Statistics, 2017). They want to be their own individual, also affecting the corporations they work for on individual levels and promoting their individual contributions. Furthermore, employees tend to strive for independence which is reflected e.g., in the number of freelancers reaching an all-time high of 55 million (35% of the U.S. American workforce)

people in 2016 (upwork, 2016). Additionally, around 25 million Americans founded their own business (Kelley, Ali, Brush, Corbett, Kim, & Majbou, 2016).

The described trend towards more individualization and the resulting changes in modes of work are of utmost importance from a research perspective as they depict a major change in the nature of work. Especially technological breakthroughs, as well as changes of preferences and lifestyles, provide opportunities for new ways of creating value (Payne, Storbacka, & Frow, 2008). However, the strong individualization trend challenges the inclusion of economic actors into traditional ways of value creation (Vargo & Lusch, 2004, Vargo & Lusch, 2008) and the creation of a shared identity (Bouncken & Barwinski, 2021), indicating a fundamental problem for modern businesses.

Technological (digital) solutions increase flexibility with regard to workplace models and company structures. This allows employees to work from home or, more generally spoken, outside traditional workspaces, which fundamentally affects individual well-being (Garrett, Spreitzer, & Bacevice, 2017). However, this trend for individualism on many levels so far did not change the factors of emotional well-being. Talking to other people, being part of a social community, and interacting with people are still core elements to fulfill our basic needs. Also, living without belonging to any social group reduces the support that individuals can receive for any given situation. Consequently, individuals working independently and remotely often feel isolated and socially adrift, although they proactively chose this situation. This causes a strong need for a community and a joint (social) work environment (Garrett, Spreitzer, & Bacevice, 2017). This need is reflected in the rise of so-called coworking-spaces. Coworking-spaces (CWS) are basically shared office spaces. They provide infrastructure but, much more importantly, a social network and like-minded coworkers (Spinuzzi, 2012). They depict a new kind of work environment that is characterized by a strong dynamic aspect. Following the notion of service-ecosystems introduced by Vargo and Lusch (2011), CWS fulfill the conditions to be a service-ecosystem as they depict a specific infrastructure that allows for a combination of individual work, the creation of a social community, and following Vargo and Lusch (2011) the co-creation of value. CWS are a kind of a platform (cf. Eisenmann, Parker, & Van Alstyne, 2006, 2009, 2010; Täuscher & Laudien, 2017) that allow independent individuals as well as employees with flexible workplace contracts to engage in value co-creation processes that replace traditional company-bounded ways of value creation. Traditional alliances and alliance sales (Bouncken & Fredrich, 2016) are challenged and will change over time. The value creation happens on four different levels: First, by interacting with each other, coworkers have broader access to more diverse knowledge and skills. Combining the

knowledge and skills enables innovative behavior and by this creates value, among others, by increasing the well-being, the success of the project, or the results of the company. Second, working together based on free will and interacting on a personal level creates friendship. This makes the coworkers help each other with business orders and tenders from their customers, recommending other coworkers to their customer for tasks they themselves cannot fulfil alone. Third, when recognizing they complement each other in certain business matters, coworkers create service offers together or even form new businesses or ventures. Fourth, the social interaction itself is a value, especially for self-employed people and people, who would usually not interact on a regular basis with other people. This social interaction fulfils one of our basic needs as human beings.

So far, coworking-spaces and their role in value co-creation processes lack a detailed understanding. This new approach to organizing work is – apart from very few publications (for a detailed review see Gandini, 2015) – by now mainly ignored by research. CWS are of research interest and managerial interest because they allow for bridging a high demand for individualism and a coeval need for social integration. Therefore, they appear to be a solution to the inherent ambiguity of current requirements of modern work life. However, it is not clear yet, what elements foster value co-creation behavior in this context of future work. Consequently, we ask: What factors influence the value co-creation in coworking-space?

In our study, we analyze CWS as hubs of value co-creation based on a qualitative research approach. We highlight determinants of value co-creation in CWS in detail and show unique characteristics of this new type of work organization. We especially carve out the dynamics of this environment that is determined by a constant role chance of CWS users from being a recipient to being a provider of value as well as a constant chance of involved actors. In our study, we found that compatible and at least partly homogeneous social backgrounds of CWS-users are preconditions for value co-creation in CWS. In this context, we identified direct socialization as a booster for value co-creation. Diversity, on the other hand, seems to have an inverted u-shaped effect on value co-creation. Considering these and other aspects, our results suggest that working in a CWS might only be adequate for certain people.

The paper enhances value co-creation (Prahalad & Ramaswamy, 2004) literature by adding a distinct understanding of the role CWS as a new framework for value co-creation play to this literature stream. We provide theoretical reasoning as well as empirical support for the importance of CWS in 21st-century work environments and show how they function in detail. By doing so, we also make use of service-dominant logic (SDL) literature (Lusch & Vargo, 2014;

Vargo & Lusch, 2004, Vargo & Lusch, 2008; Vargo & Lusch, 2011) and try to enrich and broaden the, by now quite narrow, view on value co-creation and especially service ecosystems provided in this context.

In the following, we introduce you to the theoretical background with paragraphs on value and value co-creation, the service ecosystems, and coworking-spaces. In the subsequent section on our methodology, we explain our research method, the data collection process, and the applied data analysis. We conclude our paper with the results of our analysis, the discussion of the paper, and the overall conclusion.

## 5.3 THEORY

### 5.3.1 Value, Value Creation, and Value Co-Creation

To better understand value co-creation, it is necessary to develop a basic understanding of the value concept. Following Vargo and Lusch (2008), companies cannot deliver value on their own but only offer a certain value proposition – a statement that can be seen as critical as it is by no means clear why a company can coevally co-create and *not* deliver value.

Several approaches have been brought forward to conceptualize value (Sánchez-Fernández, Angeles Iniesta-Bonillo, & Holbrook, 2009; Khalifa, 2004; Woodall, 2003). These approaches emphasize the heterogeneity and elusiveness of this concept. Value has been approached on an individual level (Holbrook, 1999) as an evaluation of the relationship between benefits and drawbacks (Day, 1990; Zeithaml, 1988) or as a means-ends-model (Howard, 1977; Woodruff, 1997). More recently, the cognitive perspective on value has shifted into a more holistic perspective emphasizing the importance of customer experience (Heinonen & Strandvik, 2009) as well as social systems (Edvardsson, Tronvoll, & Gruber, 2011; Epp & Price, 2009). In general, value is one of the most ill-defined concepts in business research (Carù & Cova, 2003). For our study, we understand value as the outcome of the actions of involved participants who combine and transform existing resources (c.f. Bowman & Ambrosini, 2000). As a consequence, very little is known about value creation and especially value co-creation. What we do know about co-creation are motivators of consumer co-creation engagements. Following approaches from motivation theory, Roberts, Hughes, and Kertbo (2014) derive three reasons for engaging in co-creation: (1) egocentric motives, (2) altruistic motives, and (3) opportunity/goal motives.

However, value creation is a complex construct as it on the one hand encompasses so-called value-in-exchange and on the other hand so-called value-in-use (Vargo & Lusch, 2004). Val-

ue-in-exchange is considered a utility that is constantly inherent in a resource as a singular entity. It can be exchanged against other utilities or money at one point in time (Grönroos, 2008). Value-in-use as a concept describes to which extent a customer feels better off (or worse off) by making use of a certain good or service. This means that value is created during the process of usage (Grönroos, 2011). The problem arising with defining the process of value creation arises from the dualistic (Thompson, Locander, & Pollio, 1989) nature of value. Value is perceived differently by providers and customers, it may be something very different for both parties.

SDL puts the company in control of value creation processes (Vargo & Lusch, 2004) and describes the customer as invited co-creator of value. The notion of co-creation originally emerges from customer engagement literature (Heskett, Sasser Jr., & Schlesinger, 2014; Peppers & Rogers, 1993; Pine & Gilmore, 1999; Prahalad, 2004; Zeithaml, Parasuraman, & Berry, 1990). This literature stream shows the development of the customer role from involvement in self-services to co-designing and finally co-producing solutions (Prahalad, 2004).

*Value co-creation* as a concept has been brought forward considerably by Vargo and Lusch (2004). Generally speaking, the concept aims at explaining how customers and suppliers jointly design production processes with the aim of creating value. This is of interest as classical approaches to value creation ignore the customer contribution and explain value creation only from a company perspective (Porter, 1985). In line with this approach, Prahalad and Ramaswamy (2004, p. 8) define (value) co-creation as „*the joint creation of value by the company and the customer*" that "*allows the customer to co-construct the service experience to suit their context*". Prahalad and Ramaswamy (2004) add that for successful co-creation, open communication between the company and the customer is important. This includes access to information as well as transparency. Ballantyne (2004) claims that communication is the key to renewing knowledge, making it necessary for generating new knowledge. Following this idea, Ballantyne and Varey (2006) call for active communication between participating actors in value co-creation processes. They claim that communication, learning, and adaptation are basic requirements for a successful co-creation of value. Payne, Storbacka, and Frow (2008, p. 88) call it the shift "*from attention-seeking [communication] to dialog with customers*" The relevance of communication for value co-creation is also emphasized by Gupta and Bostrom (2013). Value co-creation is a customer-focused (Sheth, Sisodia, & Sharma, 2000) as well as market-driven (Day, 1999) concept. Following this train of thought,

value co-creation can be characterized by collaborative behavior, reciprocal learning, and flexibility towards change (Vargo & Lusch, 2004).

Value co-creation requires a structured surrounding. This includes rules, values, and norms that build an institution around the collaborating parties (Vargo & Lusch, 2016). Following institutional theory (Bruton, Ahlstrom, & Li, 2010; Meyer & Rowan, 1977; Tolbert, David, & Sine, 2011), structures, processes, and organizations do not only evolve by following set principles. They can also develop by relying on common beliefs on the ideal design (Meyer & Rowan, 1977; Tolbert, David, & Sine, 2011). This idea is linked to the idea of ecosystems that group actors from a certain business environment (Spigel, 2015). Institutions and organizations change over time. They are influenced by inner and outer aspects, such as changes in technology, regulations, and social values.

Furthermore, researchers show that actors pursue value co-creation activities very often in networks (Corsaro, Cantù, & Tunisini, 2012; Dhanaraj & Parkhe, 2006; Freeman, 1991). This network idea implies a static perspective. However, following the line of reasoning of Vargo and Lusch (2016), value co-creation requires a dynamic system rather than a static network. This dynamic view is supported by studies from Corsaro, Cantù, and Tunisini (2012) as well as Geels (2004).

### 5.3.2 Service Ecosystems

In contrast to the network perspective, early SDL researchers very often assumed a clear separation between providers and consumers. Companies were considered providers and customers were considered consumers of (service) offerings (Vargo & Lusch, 2011). This view limits the understanding of how multiple parties contribute to value co-creation (Vargo, Wieland, & Akaka, 2015). Taking into account that innovations are very often the result of joint efforts (Corsaro, Cantù, & Tunisini, 2012; Dhanaraj & Parkhe, 2006), the simple binary view on value co-creation needs to be extended. The central idea of service in SDL is the application of resources for the benefit of another party. Therefore, resources play a key role (Vargo & Lusch, 2004). However, there is more to it than just resources. Studies also found that additionally knowledge-seeking activities are highly relevant for considering a network as successful.

As resources and knowledge need to be obtained from different sources, network theory is closely related to co-creation. In the context of co-creation, there are further dynamic aspects that resource networks do not cover, which calls for a special view on co-creation networks. Co-creation networks are systems that have the potential to constantly reconfigure and self-

adjust because each instance of resource integration, service provision, or value creation changes the current system and the context for the following iteration process (Vargo & Lusch, 2011). Therefore, Lusch, Vargo, and Tanniru (2010, p. 20) define a value network as "*a spontaneous sensing and responding spatial and temporal structure of largely loosely coupled, value proposing social and economic actors interacting through institutions, technology, and language to (1) co-produce service offerings, (2) engage in mutual service provision, and (3) co-create value.*" Vargo and Lusch (2016, p. 10f.) later describe a „*service ecosystem as a relatively self-contained, self-adjusting system of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange*". Using a service ecosystems perspective on the process of value co-creation integrates multiple actors inside and outside the operations of a company's boundaries, thereby broadening the overall view (Akaka, Vargo, & Wieland, 2017). Being part of such ecosystems also means being connected to people from other organizations or other fields of work. Research shows that this implies a higher success for the individual participants (Ng & Feldman, 2010).

### 5.3.3 Coworking-Spaces

CWS provide infrastructure and dedicated space to facilitate professional and social interaction (Bouncken, 2018; Bouncken & Reuschl, 2018; Gandini, 2015). The professional space comprises the necessary equipment to conduct business activities. Depending on the specialization of a coworking-space, the equipment can range from simple desks with Wi-Fi to fully equipped workshops (Johns & Gratton, 2013). Cafeterias, lounges, and bars constitute the social space that drives networking, knowledge exchange, initiation of collaboration and joint leisure activities, leading to community formation (Bouncken & Reuschl, 2018; Gandini, 2015). CWS are often set up in central, exposed, and attractive locations, matching an attractive interior to the external urban space. However, CWS are also found in the countryside as centers promoting local and regional entrepreneurship (Fuzi, 2015). The interior is purposefully designed to be more informal than traditional office concepts (Schopfel, Roche, & Hubert, 2015) to create an atmosphere of coworking and to foster interaction between users (Garrett, Spreitzer, & Bacevice, 2017). In addition to the offered working environment and social aspects, CWS provide their users with special services like coaching, trainings, events, (start-up) consulting, or the access to networks with externals like incumbents, venture capitalists, or business angels (Capdevila, 2015; Spinuzzi, 2012). Incumbent firms are starting to take upon this institutional change while accessing the creative environment of CWS and experimenting with new organizational forms for innovation (Tracey, Phillips, & Jarvis, 2011). Incumbents can rent space for their employees in independent CWS. Their employees then

mingle with other coworking-users in the social and workspace (e. g., freelancers, start-ups). This new interaction creates more, new, or other ideas to pursue the regular work for the employer. Following a more strategic approach, incumbents (e.g., manufacturers as Bosch, BMW, Merck) also imitate big IT-companies (e.g. Google, Facebook) and set up internal shared work and social spaces. Very recently, consulting companies (e.g. PwC Experience Centers in Chicago, Los Angeles, and Hallandale) have started imitating the idea of CWS and provide dedicated spaces for novel ideas and project work for their internal and external clients (Bouncken, Reuschl, & Görmar, 2017).

Individuals and teams working in CWS have the opportunity to interact with others, receive feedback, build partnerships, create trusted relationships, and collaborate with other users. All of these factors improve the performance in and of the CWS (Hughes, Rigtering, Covin, Bouncken, & Kraus, 2018). Therefore, CWS can be considered innovative hubs for value co-creation (Bouncken, Laudien, Fredrich, & Görmar, 2018). They provide a dynamic environment to mutually create value with different actors inside and outside the CWS.

## 5.4 METHODOLOGY

### 5.4.1 Research Method

Due to the newness and complexity of our topic, we decided to make use of a multiple-case study approach. Especially in the realm of rather new and still insufficiently explored research contexts, case studies are likely to provide accurate and valuable theoretical insights (Eisenhardt & Graebner, 2007; Feagin, Orum, & Sjoberg, 1991) and are helpful to gather rich, in-depth data (Anteby, Lifshitz, & Tushman, 2014; Bluhm, Harman, Lee, & Mitchell, 2011; Yin, 2009). Furthermore, Welch, Piekkari, Plakoyiannaki, and Paavilainen-Mäntymäki (2011) emphasize that case study research also contributes to contextualization and thus helps to illustrate and communicate theory. Although we investigate a rather novel phenomenon, our main objective is not to set up a radically new theory but to advance existing theory (Lee, Mitchell, & Sablynski, 1999; Bluhm et al., 2011; Graebner, Martin, & Roundy, 2012). Therefore, especially systematic combining (Dubois & Gadde, 2002) is an appropriate procedural method to reach our research objective. In contrast to grounded theory (Glaser, 1992; Glaser & Strauss, 1967), which mainly focuses on the process of data collection and theory discovery without taking prior research into account (Eisenhardt & Graebner, 2007; Langley, 1999), systematic combining places emphasis on theory development. It is characterized by a systematic matching of empirical data and literature (Dubois & Gadde, 2002). Hence, abductive logic is employed that integrates inductive and deductive reasoning (Durand & Vaara, 2009).

Therefore, it allows for an integration of existing literature and new empirical insights. Systematic combining is also utilized by other researchers (e.g. Erkama & Vaara, 2010; Edvardsson, Holmlund, & Strandvik, 2008; Harryson, Dudkowski, & Stern, 2008) who emphasize the benefits of this method.

### 5.4.2 Data Collection

We pursued a purposeful sampling strategy (Denzin & Lincoln, 2005; Patton, 2002) to select a sample that fits our predefined criteria: (1) the CWS under research needed to be in business for at least two years to avoid startup effects. (2) The CWS needed to be located in major cities with at least 250,000 inhabitants as we wanted to eliminate ecosystem inequalities. (3) We looked for an equal number of independent and company-internal led CWS to allow for a comparison between both types of CWS. (4) We only included CWS in our analysis that allowed us to access the provider as well as the customer side as we wanted to gather objective information on value co-creation determinants. Those criteria guarantee similar features, which raises the probability that differences and similarities are of general relevance and allow for theorizing (Gerring, 2007).

We base our analysis on unique, self-collected, primary data that fulfilled the above-mentioned criteria. Our cross-country sample includes twelve CWS (six independent CWS and six company-internal CWS). In each CWS, we interviewed one provider and one user. Additionally, in four company-internal CWS, the collected data on the user-side implied the need for further investigation. Consequently, in each of these four company-internal CWS, we interviewed a second user. Thus, for the twelve CWS we have a total of 28 interviews.

The interviewed CWS are located in Germany and the USA. We chose these countries for specific reasons. The concept of coworking was first developed in the USA and from there spread all over the world. Investigating the early roots of the coworking-spaces allows us to analyze the first one in the lane of the whisper game. Second, Germany was an early follower and adopted the idea to support the slacking of entrepreneurial activities. It is interesting to see if adopting a system with the same goal is easily possible and transferrable in a new context.

We used semi-structured interviews to get a wide range of both past- and present-oriented accounts from people who are experiencing the CWS phenomenon. The interview guideline we used was developed out of theory. All interviews took place between October 2016 and November 2017. The initial interviews that lasted about 1.5 hours were conducted face to face whenever possible. Additionally, we conducted interviews via telephone as we approached

each interviewee several times. To guarantee anonymity, we use pseudonyms for the respondents and coworking-spaces.

In the course of the study, we carefully revised the initial interview guideline, concentrating on emerging themes (Glaser & Strauss, 1967; O'Reilly, 2012). Analyzing the data did not necessarily follow the data collection in a linear way but was rather a recursive process, as data collection and data analysis overlapped with each other – a way of proceeding that is in line with Eisenhardt (1989).

In a second step, we supplemented the interview data with internal and external archival data such as, e.g., press coverage or company internal documents to allow for data triangulation with the aim of delimiting a possible retrospective bias.

### 5.4.3 Data Analysis

Our data analysis is based on a two-step coding procedure as described by Gioia, Corley, and Hamilton (2013) that we applied to the synthesized data of both data sources. Following a thorough transcription process, we used an open coding technique, sticking close to the words originally used by the informants whenever possible (in-vivo codes). Otherwise, we summarized the statement in a simple descriptive phrase (first-order codes) (Strauss & Corbin, 1998; Van Maanen & Schein, 1979). To begin with, we grouped the data in first-order concepts according to underlying basic concepts. Then we looked for similarities and differences between the categories using axial coding in order to condense the first-order concepts into second-order themes. Only after this task had been completed we conducted an extensive literature analysis that allowed us to go back and forth between literature and emergent theory and thereby to support confidence in the findings as well as to re-sharp our emergent theory in confrontation with conflicting literature (Eisenhardt, 1989). This process was again iterative in nature; constantly cycling between data, emerging patterns, and relevant literature resulted in a synthesis embedded in both the collected data and theory developed in the literature. Last, we made use of selective coding to further condense related themes into overarching dimensions (Strauss & Corbin, 1998).

In order to further enhance the trustworthiness of our data, we took several steps, including careful management of our data (contact records, interview transcripts, documents). This includes that one member of the research team took an external role as devil's advocate with the aim of enhancing objectivity and keeping the higher-level perspective crucial for informed theorizing (Eisenhardt, 1989; Gioia, Corley, & Hamilton, 2013; Nemeth, Brown, & Rogers, 2001).

## 5.5 RESULTS

The results of the coding process are displayed in Table 5.1. We decided to jointly present the provider and customer perspective as we focus on value co-creation in the CWS understood service ecosystem that encompasses both parties. The codes emerged from the data analysis during the employed open coding procedure. Additionally, we combined the results into a conceptual model (Figure 5.1).

Our results point to the insight that value co-creation in CWS is heavily determined by the CWS structure (I3: "*It depends, how we set up our coworking-space. Depending on what we offer and how we offer it, users can co-create value. We see this with our different coworking-spaces that we have all over the country.*" and I14: "*The users tell us what they need so that they can actually work together. They need our support, our frame that we create with our coworking-space for their work.*"). Most importantly, social differences seem to play a role in this realm. Our data shows that differences in the social background of CWS users and also between the CWS users and the CWS management seem to cause a lack of acceptance of the other partners (I7: "*But when it comes to trusting and accepting each other, users here always need people that are similar. It is not that opposites attract, it is much rather that equals stick to equals, at least at the beginning.*" and I5: "*Eventually, people like the diversity. But for starting the interaction, people need similarities to start on.*"). This delimits the willingness to cooperate and results in negative effects on value co-creation. This insight is interesting as it contradicts the idea that a higher divergence in CWS has a positive effect on interaction – an aspect that needs further clarification. According to our data, at least a certain degree of homogeneity seems to be necessary to make CWS work properly.

**Table 5.1: Coding results**

| 1st order concepts | 2nd order themes | Aggregate dimensions |
|---|---|---|
| Degree of homogeneity/heterogeneity of the individual social backgrounds<br>Ability to overcome social boundaries; lack of a feeling of superiority/inferiority<br>Need for displaying social status (e.g., by wearing expensive clothes or jewelry)<br>Perspective on gender and /or cultural equality<br>Openness to share (personal) information with others<br>Homogeneity/heterogeneity of private interests (e.g., politics, sports, hobbies)<br>Age structure of CWS users | *Existence and acceptance of social differences* | Social compatibility |
| Individual personal characteristics (shy, outgoing)<br>Degree of embeddedness in other social structures (e.g., strong family ties, established social relations stemming from non-work contexts)<br>Fear of being used by others; existence of former negative experiences in social interaction<br>Amount of self-confidence<br>CWS-triggered offering of opportunities for social connection | *Openness to socialization* | |
| Educational background of CWS users in terms of industry background and qualification level<br>Focus of the CWS (industry focus vs. openness cross-industry users)<br>Change rate of CWS users; long-term vs. short-term usage of the CWS<br>National/international focus; CWS diversity regulations (e.g., definition of a specific work language) | *Homogeneity / heterogeneity of knowledge base* | Knowledge base characteristics |
| Existence of a knowledge management system<br>Degree of formalization; independence of work vs. embeddedness in quasi-company structures<br>CWS offering of tutorials or specific learning programs; active management of the knowledge base of the CWS users<br>Documentation of CWS knowledge | *Establishment of knowledge management system(s)* | |
| Ability to work independently<br>Cultural background; influence of cultural standards<br>Perception of individual achievements<br>Ability to ask for help<br>Experience with collaborative work<br>Perspective on knowledge protection/ intellectual property rights<br>Degree of mutual trust between CWS users | *Attitude toward voluntary interaction* | Work behavior |
| Need for supervision vs. intrinsic motivation to achieve results<br>Degree of performance readiness of CWS users<br>Existence of joint goals vs. focus on individual goals<br>CWS support for creating specific `project-teams`<br>Degree of pre-defined tasks | *Goal orientation* | |

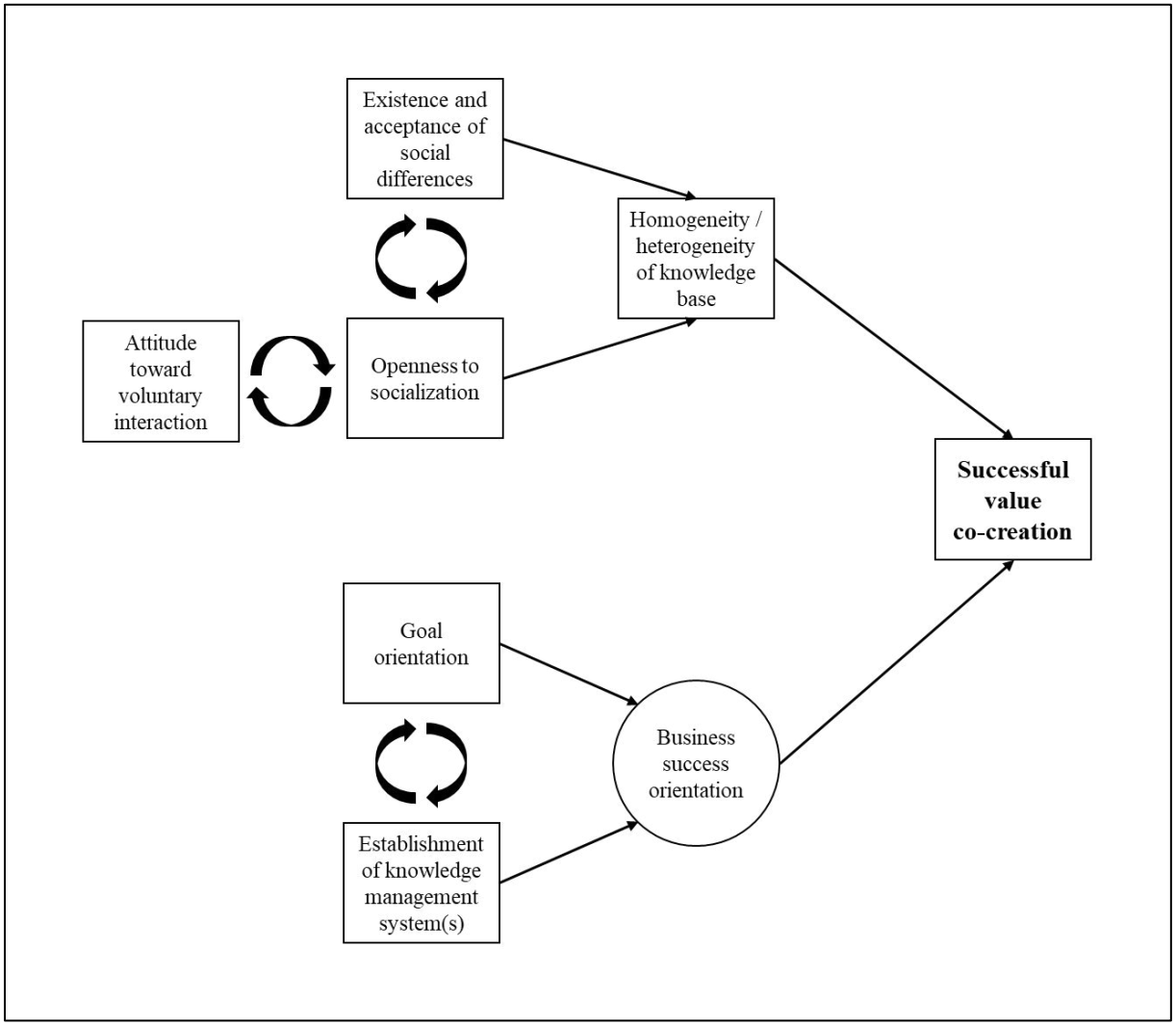
Second, social interaction capabilities need to be highlighted as value co-creation is a dynamic process that takes very often place in highly complex settings. Our data supports the insight that CWS are only suitable for people with at least a certain openness against socially interacting with others. Communication seems to be the main driver of CWS value co-creation (I13: "*You will not find any introverts here. Everyone is outgoing and talkative. Now that you mention it, most of us [coworkers] don't really favor rules or contracts.*" And I27: "*You can see that when focusing on the interaction. At some point, everyone talks to everyone, especially in the evenings.*"*)*. Therefore, CWS attract a certain type of person and are not generally suitable for everyone. More formal structures that provide guidance and security will, therefore, most likely not completely be replaced by CWS. CWS are a new form of work and a new opportunity to jointly create value – but they are not a cure-to-all solution.

We also see that the knowledge base gathered in the CWS deserves attention in the context of value co-creation. Interestingly, again too much diversity does not seem to be beneficial for fostering value co-creation processes. CWS users need to have a mutual basic understanding which calls for management of CWS to ensure that they are more than a shared office space. Interaction requires at least a partly shared knowledge base. Too much homogeneity seems to be problematic – this allows for the assumption that an optimal degree of knowledge diversity exists for CWS (I19: "*We continuously increase the member-diversity of our space. However, first new coworkers need to be integrated, especially by creating a common basic understanding of work ethics and a knowledge base so that everyone can talk about everything.*" and I20: "*We [coworkers] enjoy the diversity. But sometimes you just want to talk to people who are like you, no discussing, just enjoy the victory of your favorite team.*"*)*. This insight is very interesting as it imposes a high challenge for CWS management. Being able to deal with this challenge may distinguish successful from unsuccessful CWS. Comparing independent and company-run CWS, both types of CWS fight different challenges. While company-installed CWS are very often too identical in terms of knowledge base, independent CWS face the problem of a very broad and very often not controllable knowledge base. Company-installed CWS are in a position to establish knowledge management systems and to systematically develop their knowledge base, while independent CWS are affected by a lack of an institutional framework that ties their users together. This is important to achieve competitiveness (Bouncken & Pyo, 2002). Therefore, planned co-creation of value is very difficult to achieve in independent CWS. It more or less happens by chance in this context as active management of knowledge is due to a high fluctuation of users and unsolved problems in terms of intellectual property rights nearly impossible.

Finally, the work behavior of CWS users deserves attention. Experience with collaboration and a certain amount of mutual, unconditional trust seem to be necessary preconditions for value co-creation in a CWS environment. Along with that, our data shows the importance of focusing on a specific goal. Value co-creation is more likely to happen when the CWS is designed to fulfill a specific goal – an aspect that may develop into a major drawback for independent CWS (I24: "*I personally like that we all work on similar topics. I think, we all benefit from this.*" and I27: "*Having all these people around me that work in the same branch allows me to get deep insides into the topic. Before, I worked in a different space where I was able to work very efficient with support, but I also visited several spaces where that was not the case.*"*)*. However, our data allows for the assumption that this drawback is likely to be diminished when independent CWS are managed properly.

While analyzing our cross-country dataset, we also looked for differences in the perception of certain topics. However, we did not find country-based differences.

**Figure 5.1: Conceptual model of the results**




## 5.6 DISCUSSION

Following SDL literature (Vargo & Lusch, 2004; Vargo & Lusch, 2008), both parties – customers and suppliers – are seen as co-creators of value. However, the contribution of both parties remains unclear (Grönroos & Ravald, 2011). Our findings support the idea that value is very often co-created by different parties. However, especially in CWS, the roles in the co-creation process seem to be flexible; they are in contrast to prior findings not pre-defined. CWS users are very often coevally contributors and recipients in the process of value co-creation or at least switch their roles with regard to different projects. This shows that value emerges as a result of an ongoing evaluative act (Mattsson, 1991). In other words: value is an accumulating experience that arises during the process of resource and knowledge integration. In line with this finding, our data supports the widely ignored idea first brought forward by Eiglier and Langeard (1975) that both parties – customers and suppliers – may trigger and

control the value co-creation process and invite the other partner to join the process. Due to the changing roles of contributors, we also see that the value co-creation process in CWS is normally not straightforward but a result of phases of construction and destruction – an insight that is supported by findings from Echeverri and Skålén (2011). This finding is further supported by the idea of Schumpeterian innovation and the process of *creative destruction* (Schumpeter, 1942; Tripsas, 1997).

Another important aspect is the aspect of interaction. This aspect has mainly been recognized in the realm of buyer-seller relationships or network models (Hakansson, 1982; Snehota & Hakansson, 1995) and is considered a key construct (Grönroos, 2011). The core of interaction is an element of physical or virtual contact. Interaction, therefore, requires opportunities for different parties to mingle (Grönroos & Ravald, 2011). CWS provide such opportunities and are therefore starting-points of value co-creation as long as the CWS users are willing and able to make use of the given interaction opportunities. The willingness is, according to our data, on the one hand, influenced by the acceptance of the interaction partner, which is a result of its social status – a finding that is supported by a study from Berger, Cohen, and Zelditch Jr (1972). The more social backgrounds are alike, the easier people seem to interact with each other. This may be a matter of trust as people a more likely to trust each other when there is a basic mutual understanding between them (Lewicki, McAllister, & Bies, 1998). This could explain why social background needs to be taken into account in the context of value co-creation. Interestingly, this quite old insight has up to now not found its way into the literature. Our data clearly shows the relevance of homogeneity of social status for interaction processes in the context of value co-creation. This is a clear contradiction to literature emphasizing the benefits of diversity (Dahlin, Weingart, & Hinds, 2005; Richard, Devinney, Yip, & Johnson, 2009). We see that at least social diversity negatively affects value co-creation in CWS. However, we believe that this insight does not point to a call for homogeneity of social backgrounds in CWS, but rather to a need for adequate diversity management as well as a need to create a distinct corporate culture.

On the other hand, the prior experience needs to be taken into account. A positive/negative interaction experience is, according to our data, the second main influence factor for interaction. This insight is also supported by extant literature (Sonnentag, 2003). However, CWS may be affected by a self-selection bias as CWS users, at least according to our insights, voluntarily enter these collaboration hubs – no matter whether we talk about independent CWS or company-created CWS – which may be a result of a basic openness to interaction. It may, therefore, be reasonable to assume that CWS users normally have at last basic positive collab-

oration experience. This puts even more emphasis on the social background issue as a determinant of successful value co-creation outlined above.

We also learned that interaction is a dialogical process – a phenomenon that is also described by Ballantyne and Varey (2006). Talking to each other is a major precondition to value co-creation as maximum value only emerges if the interests of all involved parties are satisfied. Therefore, all parties should participate in the value co-creation process as the outcome of this process is interdependent on the actions of all involved parties (Botsman & Rogers, 2010). This holds especially true for CWS, where interaction takes place on a temporary base.

Value co-creation is fostered by certain societal developments that are also of relevance for the recent rise of CWS. According to O'Hern and Rindfleisch (2010), the growing importance of value co-creation results from the widespread application of digital technologies that allows short-term interaction between different parties, empowerment of smaller business partners, and especially form a need to overcome information asymmetries between suppliers and customers. Also, digital business models are an increasing part of the business environment (Bouncken, Kraus, & Roig-Tierno, 2021). We live in a world that is characterized by complexity and a growing specialization of jobs – this calls for an emphasis on the integration of work. Therefore, CWS may be one way to guarantee a holistic outcome of value creation processes by means of value co-creation.

Our study shows that CWS are for sure not a cure-to-all solution to challenges of modern work life. However, they depict a new type of (service) ecosystem that allows for a flexible, temporary, or long-term integration of collaborators that fuel value creation processes with specific knowledge. However, CWS users and also providers need to be equipped with a set of basic interaction capabilities and a mutual openness to new experiences as they depict a precondition for making CWS work as hubs of value co-creation.

## 5.7 Conclusion

Our study shows, based on decent empirical insights, preconditions for and determinants of value co-creation in CWS. We uncover the importance of compatible, at least partly homogeneous social backgrounds of CWS users as a precondition for successful participation in value co-creation. The results of our study also support the importance of socialization in the context of value co-creation. We, therefore, enhance the up to now limited insights on the social construction of value (Edvardsson, Tronvoll, & Gruber, 2011).

Furthermore, we point to the relevance of intertwining knowledge of CWS users and the importance of managing the knowledge base present in CWS as means to allow for successful value co-creation. Our findings allow for the assumption that knowledge diversity has an inverted u-shaped effect on value co-creation – an insight that calls for further (quantitative-empirical) research.

We also highlight that individual work behavior needs to be taken into account in the context of CWS-based value co-creation. This leads to the insight that working in a CWS may only be beneficial for persons with certain personal characteristics, which calls for a deeper analysis of the linkage between CWS design and management and value co-creation performance.

In general, our study broadens the understanding of CWS as innovative hubs of value co-creation in a highly individualized world where the two growing ambivalent needs of independence and community need to be balanced. We, therefore, contribute to value co-creation and also service management literature. By showing that CWS can be understood as (service) ecosystems, we also enrich this literature stream.

In terms of managerial aspects, we enhance the by now very often one-sided perspective that value co-creation is mainly triggered by companies. We show that value co-creation is a process that links different actors. These actors change their roles over time and may be providers and also recipients of value which calls for a new way of managerial thinking. As roles are likely to change over time, it is important to treat contributors to value creation processes equally and to approach them at eye level. Our findings also show the need for adequate management of CWS as this is a precondition for them becoming frameworks for value co-creation. Even though in many CWS value co-creation by now mainly happens by chance, future challenges call for an active design of value co-creation processes that involve especially the establishment of a clear focus of the CWS and also setting up entry and probably also exit barriers to be able to control the knowledge availability and knowledge flow within the CWS.

Naturally, we admit that our study is not free from limitations. As we approach a very new phenomenon, we can only provide first insights as relevant longitudinal data on CWS is by now not available. We decided to approach CWS through a value co-creation lens which is, from our point of view, reasonable and well-explained, but for sure only one way to understand the functioning of CWS. In addition, our sample consists only of CWS located in big cities, which makes it somewhat difficult to transfer our findings to smaller environmental settings. As we rely on qualitative data, our findings are not generalizable in a statistical

sense. However, we are confident that they are analytical generalizable and therefore can serve as the background for future studies dealing with this research field. Further research regarding the SDL could, for example, elaborate on the starting points, cycles, or ownership of the co-creation process. We encourage future researchers to take on where we have left off and hope for interesting future conceptual as well as qualitative- and quantitative-empirical insights on the interesting topic of CWS-based value co-creation. There is for sure still much to discover!

## 5.8 APPENDIX

### 5.8.1 Item list (translated from German)

**1) Network Content**

**Knowledge Exchange** (Anderson, Jack, & Dodd, 2016; Capdevila, 2013; Fuzi, Clifton, & Loudon, 2014; Gerdenitsch, Scheel, Andorfer, & Korunka, 2016; Hoang & Antoncic, 2003; Lin, 2007; ; Tang & Ding, 2014; Tohidinia & Mosakhani, 2010)

Because of networking with others in my coworking-space, I receive…

1. … access to knowledge and ideas of others.
2. … access to specific expertise. (dropped)
3. … access to specific skills.
4. … valuable business information.
5. … access to services.
6. … helpful advice in solving problems.
7. … solutions for my problems at work.
8. … general practical "hands-on" advice and help
9. … the latest information about current business issues.
10. … ideas and inspiration for new business ideas.
11. … new, potential customers.
12. Other: _____

**2) Supportiveness**

**Emotional Support** (Brinks, 2012; Brüderl & Preisendörfer, 1998; Garrett, Spreitzer, & Bacevice, 2017; George, 2000; Jehn & Mannix, 2001; Lin, 2007; Sánchez-Franco & Roldán, 2015; Spinuzzi, 2012)

At my coworking-space…

1. … the mood among coworkers is positive and characterized by optimism.
2. … enthusiasm for new ideas is exciting and motivates me. (dropped)
3. … I can openly speak about all problems and difficulties I have at work. (dropped)
4. … we deal with and discuss suggestions and contributions of members in a respectful way.
5. … coworkers are open-minded and sympathetic to me.
6. … I feel accepted and understood.

**Workplace friendship** (Anderson, Park, & Jack, 2007; Brinks, 2012; Capdevila, 2013; Garrett, Spreitzer, & Bacevice, 2017; Gerdenitsch et al., 2016; Lin, 2007; Nielsen, Jex, & Adams, 2000; Sánchez-Franco & Roldán, 2015; Spinuzzi, 2012)

At my coworking-space…

1. … we like to spend time together outside of work.
2. … we stick together and support each other.
3. … we often celebrate together.
4. … we get along well together. (dropped)
5. … we all do our own thing. (reverse: dropped)
6. … I was able to develop close relationships with the coworkers.
7. … I found personal friends.

**3) Governance Mechanisms**

**Trust** (Jehn & Mannix, 2001; Larson, 1992; Tang, 2016; Tsai & Ghoshal, 1998)

At my coworking-space…

1. … everyone is honest and sincere in dealing with me in terms of knowledge. (dropped)
2. … no one takes advantage of me and my know-how. (dropped)
3. … everyone deals constructively and carefully with my information.
4. … the information I receive is totally truthful.
5. … everyone keeps the promises they make to me.

**Reciprocity** (Bock, Zmud, Kim, & Lee, 2005; Chen & Hung, 2010; Hoppner, Griffith, & White, 2015; Pai & Tsai, 2016)

1. If a coworker helps me, I will try to offer him/her comparable support. (dropped)
2. If I receive help in my coworking-space, I feel it is only right to help others as well.
3. Members of my coworking-space would help me if I need help.
4. I would feel an obligation to help members of the coworking-space if they need my support.
5. Solidarity between members plays a very important role in my coworking-space.

**4) Network Structure**

**Network size** (Hoang & Antoncic, 2003; Hoang & Yi, 2015; Tang & Ding, 2014; Tang & Ye, 2015)

1. Define the number of people within your coworking-space you are currently engaged in a direct work-based exchange. (Internal)
2. To how many of these coworkers are you closely connected/friendly? (Internal)
3. With how many of these coworkers were you already in contact with from the first moment of using the coworking-space? (Internal)
4. Define the number of people outside your coworking-space you are currently engaged with for direct work-based exchange. (External)

**Centrality in the CWS** (Hoang & Antoncic, 2003)

At my coworking-space…

1. I directly receive helpful information from each coworker.
2. I can directly ask each coworker for advice.
3. I directly discuss current business issues with each coworker.
4. I quickly receive important news from coworkers.

**5) Individual CWS value orientation** (Schürmann, 2013)

Rate how important the following core values of a coworking-space are to you.

1. Collaboration (dropped)
2. Community (dropped)
3. Sustainability
4. Openness
5. Accessibility

**6) Diversity** (Baer, 2010; Fuzi, Clifton, & Loudon, 2014; Gandini, 2015; Mumford & Gustafson, 1988; Perry-Smith, 2006; Pohler, 2012; Spinuzzi, 2012; Tang, 2016; Tang & Ye, 2015)

In my coworking-space coworkers differ especially in…

1. … their knowledge and skills
2. … their educational background.
3. … their way of thinking and course of action.
4. … their views and opinions (world view). (dropped)
5. … their beliefs about what is right or wrong. (dropped)

**7) Individual Creativity** (Chen & Hung, 2010; Tang, 2016)

Networking with others in my coworking-space…

1. … is a good source of new creative ideas.
2. … increases the number of my creative ideas.
3. … increases the originality of my work.
4. … makes me aware of completely new working methods.
5. … helps me to reinterpret my existing ideas.
6. … provides insights into ideas and concepts of others that are useful to my work.
7. … enables me to solve specific problems optimally.
8. … enables me to solve work-related problems creatively.

### 5.8.2 Discriminant Validity (HTMT Confidence Interval)

| | Bias Corrected 95% Confidence Interval |
|---|---|
| Emotional support -> Individual CWS value orientation | [0.399, 0.827] |
| Individual creativity -> Individual CWS value orientation | [0.559, 0.880] |
| Individual creativity -> Emotional support | [0.412, 0.773] |
| Centrality in the CWS -> Individual CWS value orientation | [0.325, 0.641] |
| Centrality in the CWS -> Emotional support | [0.291, 0.684] |
| Centrality in the CWS -> Individual creativity | [0.452, 0.717] |
| Reciprocity -> Individual CWS value orientation | [0.498, 0.806] |
| Reciprocity -> Emotional support | [0.548, 0.896] |
| Reciprocity -> Individual creativity | [0.467, 0.767] |
| Reciprocity -> Centrality in the CWS | [0.404; 0.716] |
| Size of network in CWS -> Individual CWS value orientation | [0.189; 0.460] |
| Network size in the CWS -> Emotional support | [0.110; 0.325] |
| Network size in the CWS -> Individual creativity | [0.101; 0.359] |
| Network size in the CWS -> Centrality in the CWS | [0.231; 0.506] |
| Network size in the CWS -> Reciprocity | [0.098; 0.355] |
| Workplace friendship -> Individual CWS value orientation | [0.463; 0.757] |
| Workplace friendship -> Emotional support | [0.422; 0.746] |
| Workplace friendship -> Individual creativity | [0.410; 0.746] |
| Workplace friendship -> Centrality in the CWS | [0.512; 0.802] |
| Workplace friendship -> Reciprocity | [0.392; 0.672] |
| Workplace friendship -> Network size in the CWS | [0.241, 0.559] |
| Trust -> Individual CWS value orientation | [0.276, 0.657] |
| Trust -> Emotional support | [0.360, 0.802] |
| Trust -> Individual creativity | [0.240, 0.640] |
| Trust -> Centrality in the CWS | [0.247, 0.650] |
| Trust -> Reciprocity | [0.376, 0.886] |
| Trust -> Network size in the CWS | [0.067, 0.276] |
| Trust -> Workplace friendship | [0.141, 0.458] |
| Diversity of knowledge exchanged -> Individual CWS value orientation | [0.212, 0.572] |
| Diversity of knowledge exchanged -> Emotional support | [0.222, 0.648] |
| Diversity of knowledge exchanged -> Individual creativity | [0.285, 0.657] |
| Diversity of knowledge exchanged -> Centrality in the CWS | [0.317, 0.628] |
| Diversity of knowledge exchanged -> Reciprocity | [0.257, 0.541] |
| Diversity of knowledge exchanged -> Network size in the CWS | [0.129, 0.542] |
| Diversity of knowledge exchanged -> Workplace friendship | [0.233, 0.614] |
| Diversity of knowledge exchanged -> Trust | [0.175, 0.489] |

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# 6 THE ROLE OF SOCIOMATERIAL ASSEMBLAGE ON ENTREPRENEURSHIP IN COWORKING-SPACES

Published in "International Journal of Entrepreneurial Behavior & Research" under the title "The role of sociomaterial assemblage on entrepreneurship in coworking-spaces".

## 6.1 ABSTRACT

**Purpose**: Coworking-spaces are considered as a new formula to facilitate autonomy, creativity, self-efficacy, work satisfaction, and innovation, yet they also might overburden their users who in that course intend to limit social interaction and collaboration in the workspace. Thus, the question is how coworking-spaces shape entrepreneurial ventures.

**Methodology**: We used an inductive research methodology based on data from three different data sources, including observations, archives, and interviews from managers and entrepreneurs.

**Findings**: The findings suggest that the materiality in the form of spatial architectures (working, socialization, and support structures), shared facilities and infrastructures (utilities, luxuries, and specialties), and integrated digital technologies (applications and platforms) influence the flow of communication, internal and external linkages, as well as functional uniformity and distinctiveness. However, there exists an inherent dualism in sociomaterial assemblage in coworking-spaces, which can lead to instrumental and detrimental outcomes for entrepreneurs.

**Originality**: This study explains the role of sociomaterial assemblage on the working of entrepreneurs in shared workspaces.

**Keywords:** Coworking-spaces, spatial design, permeability, connectivity, slack.

## 6.2 INTRODUCTION

Coworking-spaces are proliferating globally and offer affordable workspaces with inspirational and playful work environments to more than two million people (Clayton, Feldman, & Lowe, 2018; Foertsch, 2019; Waters-Lynch & Duff, 2021). Professionals, such as freelancers, remote workers, and employees of firms, use coworking-spaces to raise their productivity (Bueno, Rodríguez-Baltanás, & Gallego, 2018), optimize work-life balance (Orel, 2020), and expand their social networks (Rus & Orel, 2015; Spreitzer, Bacevice, & Garrett, 2015). Companies are also participating in coworking-spaces to get themselves connected with the local talent and broaden their innovation pipelines (Bouncken & Reuschl, 2018; Nagy & Lindsay, 2018). Yet, how coworking-spaces shape entrepreneurial ventures.

The extant literature points out that coworking-spaces combat the feelings of social isolation and promote communication, collaboration, and co-creation among spatially collocated entrepreneurs (Bouncken, Aslam, & Qiu, 2021; Clayton, Feldman, & Lowe, 2018; King, 2017). The underlying assumption in most of the studies is based on the notion that socialization is the key to productivity (e.g., Blagoev, Costas, & Kärreman, 2019; Bouncken & Reuschl, 2018; Garrett, Spreitzer, & Bacevice, 2017) while omitting the role of spatial and physical aspects of coworking-spaces. Spatial aspects (e.g., spatial designs and physical layouts), visible facilities (e.g., office desks, chairs, and computers), and less visible components (e.g., information systems and online forums) form the materiality inside coworking-spaces. We argue that the practices, which the existing studies term as 'social' (e.g., collaboration, creativity, and innovation) are the results of the 'constitutive entanglement' of social and material elements. Constitutive entanglement means the social and material aspects are always and everywhere inseparable in all the practices in any organization (Orlikowski, 2007). This entanglement creates a unique organizational design that promotes entrepreneurship by connecting entrepreneurs with other entrepreneurs, startups, and innovators through physical spaces, shared infrastructures, and digital technologies (Nambisan, 2016).

The purpose of this study is to analyze the social and material environments in coworking-spaces that contribute to entrepreneurship. The theoretic background is the sociomateriality theory (Leonardi, 2013; Orlikowski & Scott, 2008), explaining how the social and material environment shapes entrepreneurial ventures. We collected primary data through observations, participation in online forums and groups, and interviews with the founders, managers, and users of coworking-spaces. In line with the principles of grounded theory (Corbin & Strauss, 1990; Mäkelä & Turcan, 2007), we conducted an inductive data analysis in two stag-

es (Miles & Huberman, 1994). We conclude that the materiality in the form of spatial architectures (working, socialization, and support structures), shared facilities and infrastructures (utilities, luxuries, and specialties), and integrated digital technologies (applications and platforms) influence the flow of communication, internal and external linkages, as well as functional uniformity and distinctiveness. Our study further points out the duality of sociomaterial assemblage in coworking-spaces that leads to instrumental (relational and behavioral slacks) and detrimental (territorial and defensive behaviors) outcomes for entrepreneurs.

The paper is structured as follows: We begin with a brief description of entrepreneurship in coworking-spaces and sociomateriality perspective to build our theoretical foundation. We then describe the research methodology and findings section, followed by a discussion section.

## 6.3 THEORETICAL BACKGROUND

### 6.3.1 Entrepreneurship in Coworking-Spaces

Coworking-spaces are modern, aesthetically designed workspaces that offer shared office facilities to people from diverse backgrounds (Clayton, Feldman, & Lowe, 2018; Spinuzzi, 2012). Aesthetic and playful office settings inside coworking-spaces develop a serendipitous climate that stimulates communication and collaboration among diverse professionals (Gregg & Lodato, 2018; Orel & Almeida, 2019; Waters-Lynch & Duff, 2021).

Entrepreneurship flourishes in Coworking-spaces (Bouncken, Kraus, & Martínez-Pérez, 2020). Firms, entrepreneurs, and startups use coworking-spaces to connect with the local talent (Bouncken & Aslam, 2019; Rese, Kopplin, & Nielebock, 2020). The direct interactions can develop a sense of community which underlies many collaborative and motivational advantages (Garrett, Spreitzer, & Bacevice, 2017; Rus & Orel, 2015; Spinuzzi, Bodrožić, Scaratti, & Ivaldi, 2019). Entrepreneurs can learn from each other's experiences and share knowledge (Bouncken & Aslam, 2019), facilitating the initiation of joint projects (Cabral & Van Winden, 2016; Waber, Magnolfi, & Lindsay, 2014). The knowledge-sharing process in coworking-spaces can use the 'wisdom of the crowd' (Bouncken & Aslam, 2019; Schopfel, Roche, & Hubert, 2015) to solve complex problems (Bizzarri, 2014; Rus & Orel, 2015). Resource sharing in coworking-spaces allows to overcome resource bottlenecks and enable entrepreneurs to work on novel and innovative ideas (Capdevila, 2015; Moriset, 2013). The serendipitous working environment of coworking-spaces promotes creativity and innovation (Bilandzic & Foth, 2018; Bizzarri, 2014; Orel & Almeida, 2019) through connecting entre-

preneurial spirit with the dynamic demands of the external environment (Schürmann, 2014). Large multinational companies can also profit from the innovative atmosphere in coworking-spaces (Bouncken & Reuschl, 2018). Corporates such as Google, Microsoft, SAP, etc., establish their coworking-spaces for connecting themselves with local talents and broadening their innovation pipelines (Bouncken, Qiu, & Clauss, 2020; Nagy & Lindsay, 2018; Spreitzer, Garrett, & Bacevice, 2015).

Spatial designs of coworking-spaces vary from private offices to cubicles to open-plan offices (Davis, Leach, & Clegg, 2011). Spatial parameters such as open vs. closed offices, size of the office spaces, density inside office spaces, and interpersonal distances influence communication patterns among incumbents and can lead to perplexing, capricious, and complicated outcomes for the individuals, groups, and teams working in organizations (Khazanchi, Sprinkle, Masterson, & Tong, 2018; Peponis, Bafna, Bajaj, Bromberg, Congdon, Rashid et al., 2007; Rashid, Kampschroer, Wineman, & Zimring, 2006). For example, spatial collocation of users enhances face-to-face communication, facilitates sharing of ideas as well as joint exploration, and increases individuals' task as well as group performance (Bouncken & Aslam, 2019). However, shared facilities (e.g., photocopier, coffee machine) near open-plan offices can bring unwanted distractions (Bouncken, Aslam, & Reuschl, 2018). The existing studies indicate an essential yet understudied role of complex and interweaving relationships of coworking-spaces on entrepreneurs. Through this inductive research, we aim to address the question: How do coworking-spaces form, and how do they influence the outcomes for entrepreneurs? We employ the lens of sociomateriality to understand the role of coworking-spaces on entrepreneurs. In the next section, we explain how this perspective provides new insights into the interaction of social and material aspects, which helps to frame our analysis.

### 6.3.2 Sociomateriality perspective

The concept of 'sociomateriality' (Leonardi, 2013; Orlikowski, 2007; Scott & Orlikowski, 2014) highlights the importance of the interactive effect of social and material elements in the emergence of organizational structures and behaviors. Orlikowski (2007, p. 1437) contends that "the social and material are considered to be inextricably related – there is no social that is not also material, and no material that is not also social." The domains of social and material cannot be separated, as materiality is created through social processes, and it is understood in social contexts, whereas all social actions comprise some materiality (Leonardi & Barley, 2010). Sociomateriality refers to the recognition of materiality taking a meaning

when entangled with a phenomenon considered as 'social,' such as decision making, strategy formulation, or categorization (Leonardi, 2013).

Orlikowski (2007, p. 1435) proclaims that "…dealing with materiality in organizational research is critical if we are to understand contemporary forms of organizing that are increasingly constituted by multiple, emergent, shifting and interdependent technologies". Coworking-spaces represent a contemporary form of organization that influences entrepreneurial processes and creates numerous entrepreneurial opportunities (Bouncken & Reuschl, 2017; Bouncken & Reuschl, 2018). For instance, the membership of Copass (copass.org) provides flexibility to the entrepreneurs and companies to carry on their business activities anywhere within the pool of 788 coworking-spaces located in 476 cities of 81 countries. Copass offers its services to individuals, startups, and companies and accommodates geographically distributed teams located in different proximities. On the one hand, Copass provides flexibility to the independent professionals, entrepreneurs, and companies to carry on their business operations from separate locations. On the other hand, it increases the profitability of coworking-spaces by sending new members. Similarly, other companies, such as International Workplace Group (IWJ), WeWork, Onecocoworking, and Coworker also offer freedom to their users to work at the place of their choice.

The sociomateriality perspective (Leonardi, 2013; Orlikowski, 2007; Orlikowski & Scott, 2008) can explain new forms of collaborative workspaces that are influenced by architectural factors. Sociomaterial elements and their assemblage in emerging work environments explain how social interactions take place. In addition, it elaborates the meanings of these interactions for the users; how these meanings become available to other users; and how the meanings and uses of these interactions change with the change in materiality. The use of the concepts of sociomateriality to understand the shared routines or practices inside collaborative workspaces can address two crucial research goals. First, it responds to the call of research in the domain of performativity of the sociomaterial assemblage that produces fleeting, fragmented, intended, and unintended outcomes (Leonardi, 2013; Orlikowski, 2007; Orlikowski & Scott, 2008). Second, we contend that the change in work practices is continuously shifting the existing structural boundaries, leading to flexible, inconsistent, and unsteady routines (Marchegiani & Arcese, 2018). Therefore, the understanding of constitutive entanglement of social and material elements can provide useful insights into the emergence of new social practices in a shared workspace.

### 6.4 RESEARCH METHODOLOGY

Our study is based on an inductive research methodology (Corbin & Strauss, 2012; Mäkelä & Turcan, 2007). We collected data from different data sources (observations, archives, interviews from managers and entrepreneurs) for the triangulation of evidence (Eisenhardt, 1989). First, we visited different coworking-spaces in Germany to observe the work environment and social practices. Second, we collected data from online archives such as coworking forums, slack channels, google groups, etc.

**Table 6.1: Characteristics of respondents (Managers) and coworking-spaces.**

| ID | Gender | Profession of the Respondent | Target Users | Area of Space (SQM) | Total No of Users | Characteristics of the Space |
|---|---|---|---|---|---|---|
| P-1 | F | Community manager | Entrepreneurs and freelancers. | 500 | more than 60 | Open-plan working area with simple and elegant chairs and tables. Two small meeting rooms and a café. Artwork on the walls for inspiration. Basic office facilities with printer and internet. Flexible membership plan, assigned and unassigned workplaces. |
| P-2 | F | Chief operating officer | Diverse users, e.g., freelancers, bloggers, entrepreneurs, corporations. | 4200 | 200-220 | Large coworking-space spreads over three floors containing open-plan offices, private working areas, and socialization areas. Contemporary office designs with rearrangement options. Flexible membership plans, assigned and unassigned workspaces, and private offices. |
| P-3 | M | Founder | Open for startups teams. | 400 | 50-60 | Small coworking-space provide open-plan working area with comfortable and cozy furniture, four private areas for meetings, and a café. Memberships for small startups only. |
| P-4 | F | Managing director | Creative freelancers e.g., artists, musicians and digital nomads | 2500 | 60-70 | Medium size coworking-space spreads over different floors containing open-plan offices, private offices for teams, and socialization areas. |
| P-5 | M | Expansion Liaison | Social Entrepreneurs | 3000 | 150-180 | Large coworking-space build on a warehouse with functional design. |

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|---|---|---|---|---|---|---|
| P-6 | M | Founder | Freelancers, startups, entrepreneurs, and firms with 3 to 15 employees working in the social sector. | 4300 | 150-200 | Large coworking-space build on a large warehouse spreads over three connected buildings. It consists of maker space, workshop space, open-plan office spaces, private offices, kitchen, and library. |
| P-7 | M | Co-founder | Open for all users. | 600 | 40-50 | Small size centrally located coworking-space consists only of open-plan offices without workplace assignment, a small private space, a hardware lab, and a pantry kitchen. |
| P-8 | M | Founder | Startups and businesses on the green economy. | 350 | 30-40 | Coworking-space is built in an old convent mansion from the sixteenth century. It consists of working areas on the ground floor while meeting and socialization areas on the first floor. |
| P-9 | M | Co-founder | Open for all users. | 500 | 40-50 | Small size coworking-spaces provide open-plan working areas, private spaces, hardware labs, a kitchen, and a café. Lively and vibrant ambiance with comfortable furniture. |
| P-10 | M | Founder and Manager | Startup working in the technological sector. | 500 | 50 | Modern small coworking-space with open-plan working areas, socialization areas, and support structures. It offers flexible membership plans. |

Third, we interviewed founders and managers of coworking-spaces as well as entrepreneurs working therein to gain more profound insights into the sociomaterial designs and practices. Table 6.1 and Table 6.2 describe the characteristics of the respondents and coworking-spaces. The framework of this study is based on key aspects and features of coworking-spaces (Bouncken & Reuschl, 2018; Fuzi, 2015; Garrett, Spreitzer, & Bacevice, 2017; Spinuzzi, 2012).

**Table 6.2: Characteristics of respondents (Entrepreneurs) of coworking-spaces.**

| ID | Focus Area | Venture Phase | Membership Status | Expectations from Coworking-spaces | Services Acquired from coworking-spaces | Challenges in Coworking-spaces |
|---|---|---|---|---|---|---|
| E-1 | Marketing services | Startup | Monthly subscription | Networking, creativity, and accessibility to resources, e.g., human resources | Assigned desks in an open-plan office, seminars, social events, and get-togethers. | Lack of a diverse community. |
| E-2 | Enterprise management | Growth | Personal coworking-space | Direct access to co-workers and evaluation of their products in real-time. | Private office, meeting rooms, and café. | Distraction due to noise. |
| E-3 | Venture development | Startup | Yearly subscription | Affordable private office space, direct access to a broad audience, and a creative work environment. | Private office, unassigned desks, meeting rooms, and social spaces. | Distraction and unavailability of meeting rooms and shared resources. |
| E-4 | Innovation consultancy | Pre-startup | Multiple coworking-spaces | Socialization with other entrepreneurs for partnership and other business opportunities. | Unassigned desks and social space. | Hygienic factors and poor infrastructure. |
| E-5 | Public relations | Growth | Daily subscription | Training, learning, as well as networking opportunities for business deals. | Assigned desks, social spaces, and meeting rooms. | Improper layout of coworking-space thwarts networking opportunities. |
| E-6 | IT solution provider | Growth | Yearly subscription | Affordable workspace and direct access to customers. | Private office, shared desks, social spaces, and meeting rooms. | Lack of structure, distraction, and unsolicited socialization. |
| E-7 | Online solution provider | Startup | Monthly subscription | Affordable workspace to perform office in a creative work environment. | Assigned desks in an open-plan working area. | Lack of creative atmosphere. |

| | | | | | | |
|---|---|---|---|---|---|---|
| E-8 | Big data | Pre-startup | Weekly subscription | Affordable workspace with networking opportunities. | Unassigned desks in an open-plan working area. | The location is far away from the city center. |
| E-9 | E-commerce | Startup | Monthly subscription | Flexible workspace. | Assigned workspace in an open-plan working area. | Distraction and privacy issues. |
| E-10 | Film and documentaries | Growth | Monthly subscription | Networking with diverse professionals. | Unassigned workspace and socialization area. | Noise. |
| E-11 | E-commerce | Startup | Annual subscription | Shared infrastructure and facilities at an affordable price and direct accessibility to versatile professionals. | Private office and socialization area. | Dull ambiance, lack of natural light, and uncomfortable chairs. |
| E-12 | Online music store | Startup | Monthly subscription | Affordable and flexible workspace with networking opportunities. | Unassigned desks in an open-plan working area, socialization area. | Unavailability of shared infrastructure and resources. |
| E-13 | Tech platform | Startup | Monthly subscription | Flexibility with networking opportunities. | Assigned workspaces, hardware lab, and socialization area. | Noise, distraction, privacy, lack of shared infrastructure. |

### 6.4.1 Data collection

We collected data based on the principles of appropriateness and adequacy (Gaskell, 2000; Guest, Bunce, & Johnson, 2006). Our preliminary data consists of field notes collected during our field visits (February to June 2017) of various coworking-spaces located in Germany. We spent, on average, eight working days in a coworking-space. As non-participating researchers, we observed the work practices and attended training programs and social events arranged by coworking-spaces. Most of the field observations consist of informal discussions with entrepreneurs regarding their work, area of interest, and available services in coworking-spaces. The notes already showed that most of the coworking-spaces provide similar services but vary a lot in respect of size, structure, design, and the local community. For example, some coworking-spaces focus on particular user groups like artists, consultants, or freelancers. Others provide hosting to (social) entrepreneurs, startups, or knowledge professionals.

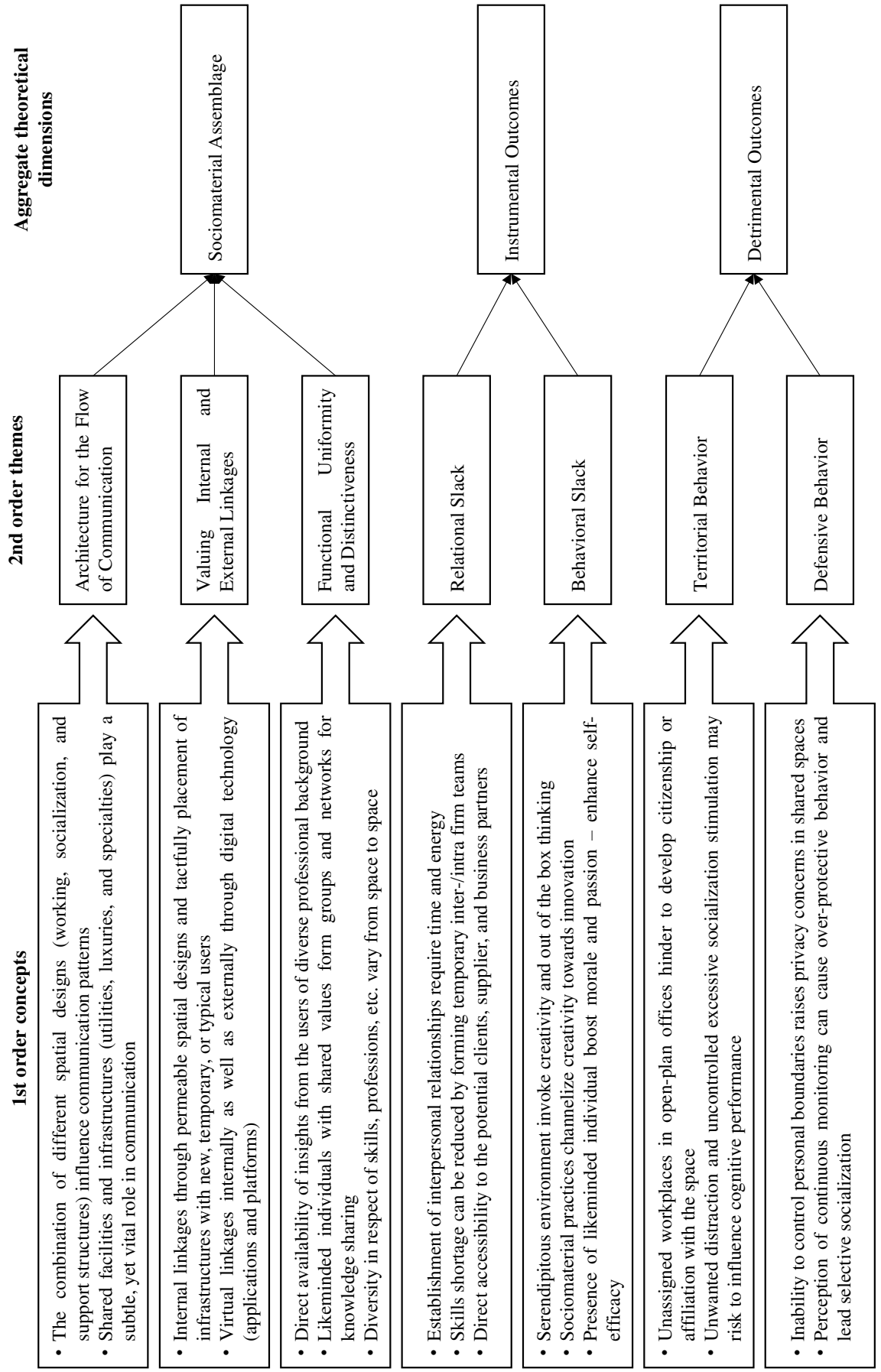
In the next step, we collected data from online forums on coworking-spaces. In line with the principles of inductive research, we followed and analyzed the discussions on these forums and also posted our queries until a consistent theme started to emerge (Corbin & Strauss, 1990; Glaser, 1965). Our field observations and online archival data helped us to define themes for semi-structured interview guidelines.

In the end, we conducted interviews with the founders or managers, independent users, and members of entrepreneurial firms located in coworking-spaces. We adopted a purposive sampling technique (Williams, 2007). To attain a sample based on maximum variation, we selected our participants (entrepreneurs) based on the following criteria: (1) participant must represent an entrepreneurial firm in a coworking-space, (2) participant must be incumbent in coworking-space for at least six months, and (3) in case of a firm consisting of multiple partners, the respondents must be active business partners. Interviews were used for data collection due to three reasons. First, in-depth interviews are beneficial in areas of research where the domain of knowledge is new (Eisenhardt & Graebner, 2007). Second, interviews are more flexible than surveys, allowing spontaneous discussions and follow-ups on the topics that arise during interviews (Neergaard & Ulhøi, 2007). Third, entrepreneurs prefer to talk about their experiences—sharing their success stories as well as challenges (ibid). We started with two semi-structured interview guidelines to collect data from the managers as well as entrepreneurs of coworking-spaces. We asked the founders or managers of coworking-spaces about their space designs, facilities, target users, and their future goals. At the beginning of each interview with the entrepreneurs, we asked questions about their motivations, expectations, and goals they want to pursue in coworking-spaces. They were asked to explain their working environment and how it influenced their work. Further questions referred to their business models, processes, product or service development, involvement to work on innovative ideas, and available techniques and technologies. Participants were also questioned about the nature of personal and professional relationships with other users.

### 6.4.2 Data analysis

We collected and analyzed data simultaneously by using a constant comparative method of qualitative data analysis (Strauss & Corbin, 1998). In line with the principles of inductive research, we conducted a two-stage inductive analysis of the data (Cassell & Symon, 2004). The procedure started with the data collection, followed by an iterative process of step-by-step data reduction until the emergence of common themes, which we verified through feedback loops (Miles, Huberman, & Saldana, 2014; Strauss & Corbin, 1998).

**Figure 6.1: Analytical coding process to induce theoretical dimensions.**



We carefully and independently read all the notes (online discussions and field observations) and interviews. Then, we coded the data line by line 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 (Strauss & Corbin, 1998). We compared our codes and clustered them based on emerging ideas and relationships between data to define first-order concepts (Gioia, Corley, & Hamilton, 2013). These concepts were further used to create aggregated second-order themes. We continually considered existing literature and related our second-order themes with the existing literature. Finally, higher-level dimensions were defined based on emerging relationships between themes. Figure 6.1 depicts the analytic coding process to induce the theoretical dimensions.

We took several steps to ensure the validity of our analysis and results. First, we shared the transcripts of data with the respondents to establish confidence in the data. Second, two independent outsiders assessed our codes and coding scheme. The initial consensus on the codes was 62 percent. The codes were discussed, revised, and developed further until we reached a consensus on the coding scheme. In the end, we corroborate our findings with the initial field notes from our observations and archival data.

## 6.5 FINDINGS

Our findings suggest that spatial architectures, shared facilities and infrastructures, and integrated digital technologies form the materiality of coworking-spaces. The imbrications of social actors with material elements form the sociomaterial assemblage in coworking-spaces and influence the flow of communication, internal and external linkages, and functional uniformity and distinctiveness. This sociomaterial assemblage shapes the contours and possibilities for entrepreneurs and leads to instrumental and detrimental outcomes. In the following, we explore sociomaterial assemblage in coworking-spaces, followed by their instrumental and detrimental outcomes.

### 6.5.1 Sociomaterial assemblage in coworking-spaces

#### 6.5.1.1 Architecture for the flow of communication

Coworking-spaces vary across spatial designs, shared facilities, and infrastructures. The spatial design of a coworking-space consists of working, socialization, and support structures. The working area offers users professional office environments with desks in different formats, mostly in the form of open-plan offices with or without workplace assignments, private

offices with lock and key, and small cubicles for a person or small teams. The socialization area includes cafeterias, bars, kitchens, lawns, lounges, and other common areas for socializing. Coworking-spaces also offer support structures to entrepreneurs in the form of receptions, locker rooms, and storage areas. Three types of facilities are being offered to users of coworking-spaces, i.e., utilities, luxuries, and specialties. Utilities are the necessary facilities relating to the work of users, and almost every coworking-space provides, e.g., desks, computers, printers, and internet access. Luxuries are those facilities that are not directly related to the work of users but enhance users' efficiency, e.g., fully serviced kitchens, secretarial services, or memberships of fitness studios. Some coworking-spaces are highly specialized and keep in view the needs of target users, e.g., by offering specialized services, e.g., hardware lab equipped with tools and equipment for professionals in technological sectors.

The spatial design of a coworking-space plays an essential role in the communication of users, as it influences the ambiance of the space. The ambiance describes the ethereal features of a coworking-space, e.g., lighting, color schemes, furniture designs, and general look and feel. An inspiring ambiance promotes serendipity and fosters spontaneous interaction. Coworking-spaces studiously make efforts to create a balance between working, socialization, and support structures that provide autonomy to users to work independently or along with others. Users can focus on their work without being distracted or can interact with other users of coworking-spaces in a less formal and causal environment of common areas. A founder of the space described: "The interior is important because it supports people [in communication]. We have nice tables and chairs and a nice natural wood floor—a good balance between new materials and an old feel [referring to the ambiance of coworking-space]. We have a good balance between inside space and outside space [referring to common areas for outdoor and indoor activities]. We also have open spaces and close team rooms and conference rooms [to create a balance between working and socialization]" [P-3]. In contrast to that, an uninspiring spatial design can create a dull or monotonous ambiance and might thwart communication. An entrepreneur working in a coworking-space exemplified: "What people are missing in x-coworking [pseudonym] is a big kitchen or big table, where all people can sit and eat together—because this is a big building divided into floors"[E-5]. This example portrays how the absence of facilities or physical layouts of the spaces influence the perception and communication pattern among users.

The Chief Operating Officer of a coworking-space stated: "Our coworking-space is [offering] the design line [spatial arrangement of infrastructures] and the facilities—everything you

[users] need to work in a very efficient way. But also connecting those people [users]…we put some effort into connecting people" [P2]. The availability of socialization areas enables users of coworking-spaces to interact and socialize with each other. Users can switch between the working area and the socialization area and do not need to ask for permission or obey formalities when moving towards the social or inspirational space. This autonomous traversing within and across working and socialization environments enhances immediate inspiration, feedback, and serendipity.

#### 6.5.1.2 Valuing internal and external linkages

Coworking-spaces connect users through spatial designs, shared infrastructures, and digital technologies. Permeable spatial boundaries allow linkages of internal users with new members or temporary or atypical users, who are often professionals from incumbent firms that give presentations, search for experts, technologies, ideas, or investments in coworking-spaces. Externals might also connect with users when they use the infrastructure of the coworking-spaces. Shared printers in open-plan offices, availability of coffee machines, table tennis, foosball, etc., are deliberately and purposefully placed in social spaces to connect and promote social interactions among users. An entrepreneur in coworking-spaces reported: "You go to the kitchen to get coffee and you met with someone, and you talk… that is why coffee is so important for networking because, in front of a coffee machine, a lot of things happened" [E-5].

Technology is also an integral part of coworking-spaces. Digital technology enhances linkages of users within and outside of coworking-spaces through applications and platforms. Applications are the software that facilitates users in a coworking-space to perform different tasks, e.g., monitoring the billing, booking a meeting or conference room, requesting an event or mentor, or connecting with other users of a particular profession. Our respondents reported the use of the following software for their respective coworking-space: Optix, Coworkify, and Cobot. Coworking-spaces also offer digital platforms to facilitate communication and collaboration among their users. Some coworking-spaces employ group chat tools, e.g., Slack, Microsoft Teams, and Cisco Webex Teams, to enhance interaction and collaboration among teams. P-5 uses community management software, which displays the personal and professional profiles of users physically available in their coworking-space to other users and eases the process of social connectivity. Digital technology not only enhances the connectivity within space but also connects other coworking-spaces. The expansion liaison officer of P-5 stated: "We are a part of the coworking-space network. There are eighty-five locations

around the world—our members have access to them over an online portal" [P5]. Coworking-spaces thus help users to break down the existing temporal and spatial boundaries and, by this, source knowledge and resources. For example, E-6 is a firm located in a coworking-space. It has 235 member communities in around 100 countries and uses the pooled demand of the whole network (consisting of 18,959 members) to retain a business solution at bulk-buying prices.

Connectivity in coworking-spaces thus refers to the link established between individuals and collectives (e.g., groups, teams, and organizations) through materiality. The spatial architecture enables physical connectivity while integrated technology creates virtual connectivity among users. Coworking-spaces connect their typical users (freelancers and startup members) with externals, even temporary users. The shared facilities and infrastructures (e.g., open-plan offices, shared desks, or foosball) enable collaboration, knowledge sharing, and learning among users and provide opportunities to interact and develop social and professional networks. The facilities and the value set in coworking-spaces connect users with other like-minded individuals, possibly from different function domains, who can learn from each other's experiences, share knowledge, and improve entrepreneurial activities.

#### 6.5.1.3 Functional uniformity and distinctiveness for innovation

Coworking-spaces host users of distinct disciplines. Interactions among users from diverse backgrounds in the professional and social spaces transport fuzzy as well as specific insights, which inflame idea generation or encourage users to discuss their ideas with other users constructively. For example, entrepreneurs can connect with other entrepreneurs or professionals. The collocation of users with diverse functional backgrounds and shared values helps to develop relationships while also promoting mutual learning and knowledge exchange. Planned and unplanned interactions, discussions, and gatherings of members bring conscious and unconscious input to creative processes, as a respondent stated: "When you go to coworking [space], it helps you because you can talk to people [other users] about your plans and share it" [E-5].

The presence of other users, especially entrepreneurs or startups who are also struggling, creates synergies and provides learning and knowledge exchange opportunities. An entrepreneur describes this phenomenon in the following words: "It is nice to be in an environment [referring coworking-spaces] where you got like-minded people, who think the same way or who are trying new things. Great things happen when you [users] are surrounded by other innovators and creative thinkers" [E-4]. Another respondent working in a venture development firm

explained how the presence of individuals from diverse functional backgrounds helps them to create and improve new products and services: “Sometimes, for us, it is nice to have direct access to users or potential users. Ask the engineers for their opinions on certain things. Access to that kind of feedback on our products is very useful” [E-3].

The direct availability of the insights from different professional backgrounds and skillsets is augmented by the shared values which advance creativity and entrepreneurship. Idea generation and opportunity assessment improve by the multiplex feedback on new business ideas, changes in products or services, or improvements in business processes. Coworking-spaces allow users to create and participate in networks for sharing skills and helping each other in their projects. A ‘culture of openness’ encourages users to share their ideas, experiences, and feedback. A respondent explains this phenomenon by citing her example: “I joined a group, it says productivity entrepreneurship group, where we [referring other users of the space] essentially meet four times a week, and we share skills. We help each other with projects. We share knowledge, and we help each other to stay productive and on task with their goals. People here share knowledge and all willing to help each other out for no cost” [E-1].

Feeling the motivation of others, seeing others as role models, and potential success boost creativity and entrepreneurial behaviors. Additionally, the collocation of highly motivated individuals and the sharing of mindsets provide knowledge sharing and mentoring opportunities. Coworking-spaces thus allow advantages for idea creation, and evaluation from conscious and unconscious information exchange among users from diverse backgrounds eased by shared mindsets and motivational infection.

### 6.5.2 Instrumental outcomes

#### 6.5.2.1 Relational slack

We define relational slack as the resource available to the entrepreneurs by establishing and maintaining interpersonal relationships with other users. Our respondent dealing with public relations explained how establishing interpersonal relationships with other users of coworking-spaces could help: “If you want coworking-space to make your business grow—you have to invest time and energy into knowing the community… So, they can get to know you, and they can refer people to you. Saying, Ah! Yeah, the team for PR … However, this needs time and energy” [E-11].

Relational slack can be supportive in a variety of ways. Entrepreneurs can reduce their skills shortage gap by forming teams with other users in coworking-spaces. Several skilled profes-

sionals, including designers, lawyers, architects, consultants as well as financial- and marketing experts, use coworking-spaces. Users, especially entrepreneurs, can hire these independent professionals for a specific project for a certain period. They do not have to pay a fixed salary or any other benefits to the freelancers. Thus, coworking-spaces not only enable entrepreneurs to attain human resources but also help them to optimize their resource allocation, as an entrepreneur explained: “I do not have to hire [employees on] fixed cost. I have many freelancers around. When I have a project, I can hire them, and when the project is finished, I do not have to pay them a fixed salary. This is very good for my business because it is flexible” [E-5]. Coworking-spaces attract highly skilled professionals. Entrepreneurs can approach the skilled workforce and can reduce their skills deficits by forming teams and collaboration or can seek help and guidance from other skilled professionals.

Relational slack also enables entrepreneurs to acquire information, skills, and resources from their networks. The presence of like-minded individuals assists entrepreneurs with mutual learning and sharing resources and skills. Entrepreneurs share their expertise and knowledge with other like-minded persons and hold implicit expectations that other individuals in their network will also reciprocate the favor. This cooperation is not limited to the sharing of information, ideas, or resources, but entrepreneurs look for common grounds for establishing long-term relations. An entrepreneur working in the eCommerce sector elaborated: “I have access to a network of highly skilled people in different aspects of my business that if I need help or input, I can find someone very easily… So, being resourceful is one of the largest benefits of being working in a coworking-space” [E-1].

Our findings suggest that spatial architectures, communities, social events, and gatherings enable entrepreneurs to develop social ties with other users of coworking-spaces. These social ties help entrepreneurs to find their potential team members, clients, investors, and business partners. This configuration helps to fill skills shortages while offering the chance to create new avenues for creativity, innovation, and venturing.

#### 6.5.2.2 Behavioral slack

We define behavioral slack as the resource (e.g., financial, human, or intellect) available to the entrepreneurs for experimentation that enables them to pursue novel and innovative ideas. Individuals in isolation cannot afford much experimentation, as they have limited skills and resources. However, porous structures in coworking-spaces can help entrepreneurs to overcome this barrier and to gain new skills and expertise from interpersonal relationships as well as mutual learning and knowledge-sharing opportunities. Porous and fluid boundaries of

coworking-spaces make the process more straightforward compared to the traditional office structure, where the boundaries are definite and stable, thwarting the process of creativity or innovation. Entrepreneurs can inspire each other and discuss their ideas in a friendly and informal environment, as one participant explained: "If I have to do something that I really need to focus on, I would probably do it in office [working area of the coworking-spaces]. If I need some sort of creativity to guide me, then I would rather go in a social or common area of the space"[E-7].

Nevertheless, spatial architecture is not the only factor in coworking-spaces that promotes creativity. Porous structures and collocation of users from diverse functional backgrounds broaden users' ambitions, especially entrepreneurial attitude and vision. While the collocation of different users and their different viewpoints bring insights into diverse approaches to work and problem-solving techniques, it encourages failure tolerance and strengthens experimentation. Entrepreneurs do not have to rely on their resources and skills to pursue their novel ideas, but they can seek help in or outside of the coworking-space. Entrepreneurs can also work on joint projects with team members from other participants. The permeable boundaries enable entrepreneurs to look inside and beyond the boundaries of their space to find potential team members, investors, and business partners. Coworking-spaces can also connect entrepreneurs with potential partners to channel creativity towards innovation; as a founder of a coworking-space stated: "Our space is like a marketplace, where you can sell your idea and a place where you can find collaboration for expanding and scaling your business. We facilitate all this by proposing teams consisting of people that have a common goal, like reaching this project, bidding for this, or making this out of joint projects" [P-8].

### 6.5.3 Detrimental outcomes

#### 6.5.3.1 Territorial behavior

Unlike traditional office space designs, coworking-spaces specifically aim for social interaction and collaboration in open-plan shared offices. Such shared office spaces without workspace assignment can be challenging for the users of coworking-spaces, who want to have a personalized touch or sense of ownership in their workplaces. For example, an entrepreneur reported his personal experience: "I need a space to visualize my work. I need a wall to stick poster notes on it. I need to have a business canvas. It is hard to find that in a coworking-space" [E-4]. However, most of the coworking-spaces offer private offices, desks, or cubicles to their members at extra charges, but these decrease physical proximity and compromise the chances for interactions and collaborations.

Excessive social interactions or 'crowding' is another concern that can constrain the interaction process in coworking-spaces. Entrepreneurs can sometimes get too involved in social interactions and can end up wasting most of their time socializing rather than working. E-5 recorded her concerns in the following manner: "Coworking may be time-consuming because when you work on networking—you spent time with people. [For example,] you meet people and just entering the cafe or let's say … reception, kitchen, and you say hello to everybody, and it can take one hour…" [E-5]. Apart from such crowding, coworking-spaces can also cause unsolicited socialization and unwanted distractions from other users. Our respondent elaborated: "[It is] sometimes time-consuming in such a way that I am working, and someone will arrive and say hello, and I sit back, [want] to say I am really busy but …" [E-5].

In the sociomaterial assemblage of coworking-spaces, the size of the community is a decisive factor for fostering or constraining interpersonal relationships. Small size communities are usually easier to handle, and the members of the community inside a coworking-space are more likely to form shared routines and observe social norms. The likelihood of interaction and collaboration among smaller communities is usually high as compared to large communities. An entrepreneur stated: "Small coworking is not a problem when you are small, you interact and know a lot of people, even [through] word of mouth. In big coworking-spaces like x-coworking [pseudonym], it is very difficult to find the right people" [E-2].

#### 6.5.3.2 Defensive behavior

Open-plan shared office spaces brought the challenge of privacy, which is generally important for all the users of coworking-spaces. However, it is a paramount concern for the entrepreneurs working on the novel idea. Privacy is not only the concern for such entrepreneurs who work in shared spaces without workspace assignment, but it is also a point of concern for such users who work in their private offices inside coworking-spaces. For example, an entrepreneur who holds a private office inside a coworking-space stated: "Concentration can be a problem, especially when you are dealing with the hardware. You do not want people to be wandering around like taking pictures" [E-3]. The word 'concentration' here depicts a state of alertness or concern that users have to mind during their venture in a coworking-space. This defensive behavior can lead to a lack of social interaction and collaboration with other users of coworking-spaces.

A lack of privacy also thwarts the process of knowledge sharing among entrepreneurs. Our respondent shared her privacy and knowledge protection concerns in the following words: "People seeing what we are working on… It is something we are worried about, and that is

one of the challenging beings in coworking-space" [E-3]. However, the presence of private offices under lock and key can be a possible solution for entrepreneurs, as our respondent further described, "…but we have a locked room, where we put a lot of our stuff there" [E-3].

Whereas the presence of like-minded individuals brings several opportunities, it can be challenging if entrepreneurs are working in the same domain or field. Diverse communities inside coworking-spaces bring synergetic effects. However, homogeneous communities aggrandize the challenges of privacy and knowledge protection issues. In such cases, entrepreneurs exhibit defensive behavior and become overprotective, as the following example suggests: "So sometimes meeting an important client in a coworking-space is not the best thing. It is like a potential big client that is going to give you much money for something—you do not want to meet him in the presence of others" [E-1]. This defensive behavior in entrepreneurs leads to trust issues with other members and gainsay the shared norms and values of coworking-spaces.

## 6.6 DISCUSSION

Our study aimed at understanding the attributes of coworking-spaces and their influence on the work of entrepreneurs. We conclude that spatial architectures, shared facilities and infrastructures, and integrated digital technologies are directly related to the ambiance, proximity, connectivity, and privacy of coworking-spaces. This sociomaterial assemblage in coworking-spaces influences the flow of communication, internal and external linkages, as well as functional uniformity and distinctiveness. Our results indicate the 'duality' in the sociomaterial assemblage of coworking-spaces that determine the positive and negative consequences for the entrepreneurs.

### 6.6.1 The duality of sociomaterial assemblage in Coworking-spaces

The perspective on sociomateriality highlights the importance of materiality to understand the routines in contemporary forms of organizing that are constituted by loosely coupled social actors in an emerging, shifting, and fluid working environment (Dale, 2005; Leonardi, 2012; Orlikowski, 2007; Orlikowski & Scott, 2008). In coworking-spaces, artifacts (e.g., desks, chairs, computers, projectors, and coffee machines), visible and invisible infrastructures (e.g., working spaces, hardware labs, internet networks, and slack) form the materiality. Broadly, we categorize materiality in coworking-spaces to spatial architectures, infrastructures and facilities, and technologies.

Materiality influences the routines (behaviors and attitudes) of entrepreneurs. These routines can be observed in the form of collaboration, knowledge sharing, and community building in workspaces. However, these routines are neither solely dependent on materiality nor the social configurations or their interactions, rather sociomaterial due to imbrication of social and material elements (Leonardi, 2012), which alter the specific aspects for entrepreneurs and spaces. The ambiance, proximity, connectivity, and privacy in coworking-spaces can be changed by changing the spatial architectures, the arrangement of shared facilities and infrastructures, or technologies. For example, changing the layouts or arrangements of desks in working areas of a coworking-space can change the orientation of space from singular to multifaceted, sparse to concentrated, and can increase interactions (or distractions) among users. Changing the color scheme on walls of a coworking-space changes the ambiance and can elevate or descend the mood of entrepreneurs. Materiality in coworking-spaces with the social actors thus determines the properties and shapes the affordances and constraints (routines) for the entrepreneurs.

The findings of our study suggest that materiality channelizes social interactions, e.g., where, when, and with whom to communicate or socialize, or where and with whom to collaborate or shared knowledge. The sociomateriality in coworking-spaces contours and creates possibilities for utilization, interaction, and collaboration of users—especially entrepreneurs who need more than they currently have at hand, e.g., search for inspiration, idea generation, experimentation, and implementation, and access to resources. The spatial designs of coworking-spaces play a significant role in the development of social ties and interpersonal relationships among entrepreneurs. These interactions help users in collaborative workspaces to build relational slack. We deliberately use the term ‘slack’ to define auxiliary resources that are not required for day-to-day business operations but can contribute significantly to the success of any venture (Dolmans, van Burg, Reymen, & Romme, 2014; Iyer & Miller, 2008). Our results suggest that entrepreneurs develop relational slack with the expectations to seek support (Gerdenitsch, Scheel, Andorfer, & Korunka, 2016), information (about ideas, opportunities), team members, clients, and business partners.

Spatial proximity in the form of open-plan offices with shared infrastructures reduces distances between entrepreneurs and enhances social interactions and collaborations (Spinuzzi, 2012; Spreitzer, Bacevice, & Garrett, 2015). Permeable structures regulate the information flow and intensity, horizontally and spatially (Saebi & Foss, 2015; Workman, 2005). Internally, permeability defines the perceived possibility to move from one team, group, or network

to another (Ellemers, Van Knippenberg, De Vries, & Wilke, 1988). Several studies conclude that permeability positively influences spatial design and promotes decentralization in the organizational structure (e.g., Colignon, 1987; Jacobides & Billinger, 2006). An increase in permeability in the vertical architect of workspaces can provide efficient and effective operational capabilities, intensify communication, and nurture innovations (Jacobides & Billinger, 2006; Workman, 2005). Coworking-spaces that are based on an open system improve the flow and exchange of information in and outside of these spaces and make the creative process more accessible and easier. Entrepreneurs with diverse professions inside the permeable boundaries of coworking-spaces enhance strategic capabilities and develop behavioral slack, which nurtures creativity and innovations. Behavioral slack is thus based on the skills, competencies, and capabilities developed by entrepreneurs during work that encourages experimentation and enables them to pursue novel and innovative ideas.

Undoubtedly, sociomaterial assemblage in collaborative workspaces supports entrepreneurs in developing relational and behavioral slack. However, entrepreneurs can also exhibit defensive and territorial behavior in response to their inability to control the circumstances in coworking-spaces. Our results show that over stimulus of social interaction, lack of privacy control, and unwarranted distractions are the significant factors that might raise the feeling of crowdedness or be continuously monitored by others. Resultantly, entrepreneurs might avoid interacting with other members of the spaces. Similarly, permeable boundaries of collaborative workspaces might bring in new talent, enhance the collaboration among teams in and outside of collaborative workspaces, intensify communication, and foster innovation (Jacobides & Billinger, 2006; Taylor & Levitt, 2007). However, porous boundaries, flexible structures, and a lack of institutionalizing mechanisms limit the use of this knowledge to a particular time. Permeable boundaries continuously change the groups, teams, and space dynamics, bringing fluidity instead of stability in workspaces (Faraj, Jarvenpaa, & Majchrzak, 2011). Communities thus remain growing or shrinking—influencing interpersonal dynamics, respectively. The excessive permeability inside group boundaries can enhance upward mobility from low- to high-status groups and can reduce or augment in-group identification in low- or high-status groups, respectively (Ellemers et al., 1988). We thus contend that there is an inherent duality in the sociomaterial assemblage design of coworking-spaces, which determines the positive and negative consequences for the entrepreneurs.

Contrary to existing studies (Bouncken, Laudien, Fredrich, & Görmar, 2018; Clayton, Feldman, & Lowe, 2018; Spinuzzi, 2012), we argue that coworking-spaces are more than

provisioning of office and social spaces for entrepreneurs. The duality in the sociomaterial assemblage of a coworking-space can be addressed by taking into account the role of materiality on the social phenomenon. The merely spatial collocation of diverse users in open-plan office spaces might not lead to communication, collaboration, or knowledge exchange. Instead, it might create challenges. Therefore, owners, managers, and designers might consider factors like individuals' need for privacy, personal preferences, group dynamics while designing contemporary workspaces. At the same time, researchers might also need to consider the role of materiality while describing the routines inside shared workspaces.

### 6.6.2 Theoretical contributions and directions for future research

Our study contributes to the literature of contemporary workspaces (Bouncken & Aslam, 2019; Clayton, Feldman, & Lowe, 2018; Garrett, Spreitzer, & Bacevice, 2017; Khazanchi et al., 2018; King, 2017). We use the sociomaterial perspective to analyze the mechanisms and processes in coworking-spaces. Existing studies on the concept of sociomateriality are either focusing on the theoretical development of the concepts (Jones, 2014; Lee & Amjadi, 2014; Leonardi, 2012; Leonardi, 2013; Orlikowski, 2007; Scott & Orlikowski, 2013) or taking technology or information systems as the main concept of materiality (Cecez-Kecmanovic, Galliers, Henfridsson, Newell, & Vidgen, 2014; Hultin & Mähring, 2014; Jones, 2014) – taking organizations as a 'practice'. Our research fills this gap by introducing the dimensions of spatial architectures, shared facilities and infrastructures, and digital technologies that shape the routines of entrepreneurs in coworking-spaces. Furthermore, this study has two significant theoretical contributions to the existing literature of sociomateriality and entrepreneurship.

First, this study explains how sociomaterial assemblage in coworking-spaces influences the working of entrepreneurs (Bjørn & Osterlund, 2014; Davidson & Vaast, 2010; Nambisan, 2016). We define sociomaterial assemblage based on spatial designs, permeable structures, and the collocation of users from diverse functional backgrounds. The existing studies on spatial designs or workplace relationships indicate the potential advantages and disadvantages for employees (Hua, Loftness, Heerwagen, & Powell, 2011; Khazanchi et al., 2018; Pillemer & Rothbard, 2018; Rashid et al., 2006). Our study extends this argument further and underscores the interactive role of sociomateriality in entrepreneurship. We specifically define the role of spatial architectures, communities, social events, and gatherings that enable or constrain entrepreneurs to find their potential team members, clients, investors, and business partners. Advancing the findings of Irving, Ayoko, and Ashkanasy (2020) that describe the

strategies employees use to avoid future collaboration and reinforce their group boundaries, our study suggests that entrepreneurs may also avoid interactions in coworking-spaces when they feel crowding, unwanted spillovers, or potential competitors.

Secondly, our study explains how entrepreneurship can flourish in shared workspaces, e.g., in incubators, accelerators, and maker spaces which are proliferating worldwide. The extant studies mostly highlight the benefits of shared workspaces for entrepreneurs, such as affordability, new contacts, knowledge exchange, mutual learning, and joint experimentation (Bouncken, Aslam, & Qiu, 2021; Clayton, Feldman, & Lowe, 2018; Cohen, Fehder, Hochberg, & Murray, 2019). Our study extends this understanding by explaining how and under what circumstances shared spaces help to foster entrepreneurship, such as the presence of like-minded individuals, interactive design baked with digitized technologies, or permeable structures.

There are also certain limitations associated with our research. First, coworking-spaces are not the only form of shared workspaces. Other contemporary organizations such as incubation centers, accelerators, innovation hubs, fab labs also host entrepreneurs. Coworking-spaces have some advantages over other forms of shared spaces, such as flexible plans and membership criteria. Therefore, future research on sociomateriality in other forms of shared workspaces can also bring interesting insights. Second, we collected cross-sectional data from entrepreneurs who have established their businesses in coworking-spaces. We include participants from different venturing phases, yet, a longitudinal data set over a period might bring some additional insights. Finally, our study suggests that architecture, especially the interior design of a coworking-space can facilitate or restrict desired outcomes for the entrepreneurs. Therefore, future research, specifically focusing on the architectural designs of coworking-spaces and their role in the work of various actors, can be promising for in-depth understanding.

## 6.7 Conclusion

Different sorts of organizations, such as coworking-spaces, accelerators, startup hubs, etc., are providing shared workspaces for entrepreneurs. These organizations not only provide an affordable workspace to the entrepreneurs but also offer socialization and interaction opportunities which lead to creativity and innovation. However, how can the best results for entrepreneurs from the shared workspaces be achieved? Our study responds to this question by employing the sociomateriality perspective, which focuses on the social and material envi-

ronment of workspaces to understand the entrepreneurial routines. Our study is the first step to look through the lens of sociomateriality at the shared workspaces that foster shared routines and practices among entrepreneurs. We hope that our study inspires other entrepreneurial scholars to look beyond the traditional structures towards modern and contemporary workplaces.

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# 7 COOPETITION IN COWORKING-SPACES: VALUE CREATION AND APPROPRIATION TENSIONS IN AN ENTREPRENEURIAL SPACE

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## 7.1 ABSTRACT

Coopetition has the potential to improve entrepreneurship and innovation. It will be prevalent in coworking-spaces building a growing field for individual and corporate entrepreneurship. The individuals' physical closeness in the professional and social space of the coworking-space eases multifaceted transfers of explicit and implicit knowledge, stimulating their creation, transfer, overhaul, and implementation of entrepreneurial ideas. While entrepreneurs in these coworking-spaces collaborate on sharing knowledge and resources and on finding creative ideas which can breed new venture concepts, they simultaneously compete on the appropriation of values. Thus, entrepreneurs in coworking-spaces face coopetitive tensions of creating and appropriating the values. From interview data and secondary sources, this paper explains four different prototype institutions of coworking-spaces: the corporate coworking-space, the open corporate coworking-space, the consultancy coworking-space, and the independent coworking-space. The study explains different tensions of value creation and appropriation that occur within the coopetition in the different forms of coworking-spaces.

## 7.2 INTRODUCTION

Researchers are increasingly interested in new avenues for entrepreneurship and innovation (Gruber, MacMillan, & Thompson, 2013). The last decade shows a growing interest in how coopetition can improve innovation, turning towards entrepreneurship very recently (Le Roy & Czakon, 2015). In the context of entrepreneurship, coopetition occurs among individuals and collaborating corporates or new ventures (Devece, Ribeiro-Soriano, & Palacios-Marqués, 2019; Le Roy & Czakon, 2015). For example, Google or Facebook develop corporate coworking-spaces to allow their members greater autonomy to improve entrepreneurship and innovation (Gandini, 2015). Individuals working in those less hierarchical relationships in the

campus-like coworking-spaces face stronger coopetition. Coopetitive tensions will even be stronger in independent coworking-spaces. These spaces offer a working environment with infrastructure, typically desks with telephones, internet access, printers, meeting rooms, or fully equipped laboratories for individual and corporate users (Bouncken & Reuschl, 2018). Independent coworking-spaces also resemble a new form of service firm (Ribeiro & Collins, 2007). Individual users, start-ups, and established firms typically join these coworking-spaces for exchanging knowledge and improving entrepreneurship and innovation (Bouncken & Reuschl, 2018). The collaboration among users and externals in coworking-spaces has overlaps with open innovation processes (West, Salter, Vanhaverbeke, & Chesbrough, 2014), yet demanding physical co-presence of the users in the space instead of a possibly only virtual collaboration. The agglomeration of entrepreneurship in coworking-spaces has similarities with entrepreneurship in incubation centers, yet the community aspect is strong and essential in coworking-spaces (Bouncken & Reuschl, 2018). Coworking-spaces occur in different forms. The common ground of coworking-space is the sharing of both office and social space, additionally enabling resource and information sharing. The direct contact among individuals and teams and in these collaborative workspaces allows knowledge exchanges and collaborative work for new concepts and ventures (Bouncken, Aslam, & Reuschl, 2018). Previous research shows that entrepreneurs rely upon prior experience and knowledge for opportunity recognition (Kraus, 2011; Miller, Steier, & Le Breton-Miller, 2003; Shane, 2000; Richter, Kraus, & Syrjä, 2015). In coworking-spaces, entrepreneurs can reflect on and discuss their business ideas with others using collective inspiration from each other to advance their concepts. Yet, while knowledge exchanges, learning, idea exchange, and joint work can improve entrepreneurial value creation, it simultaneously bears competitive risks of value appropriation. Users of coworking-spaces might lose some or all returns of their ideas and knowledge when competing with others, appropriate values from absorbing knowledge or ideas, and/or behaving opportunistically (Bouncken, Aslam, & Reuschl, 2018). Research on coworking-spaces is still scarce (Gandini, 2015). We lack an understanding of how different forms of coworking-spaces improve entrepreneurship and innovation (Schopfel, Roche, & Hubert, 2015) and how coopetitive tensions in coworking-spaces improve or inhibit value creation and appropriation.

This study aims at analyzing the coopetitive tensions in different types of coworking-spaces. We direct our attention to the value creation-appropriation tensions that are core to coopetition (Ritala & Tidström, 2014). To explore the value creation-appropriation tensions among entrepreneurs in coworking-spaces, we apply a multiple-case study approach. We develop a

configuration approach of different coworking-spaces, understanding them as proto-institutions. For these proto-institutions, we identify and model value creation-appropriation tensions. Our results underline the dissimilarities among forms of coworking-spaces. The still changing field supports our understanding of coworking-spaces as prototype institutions. Findings of our paper center on four types of coworking-spaces. Our multiple-case study extracts typical tensions for value creation and value appropriation in these prototype institutions. Findings indicate that coopetitive tensions among coworking-users differ related to value creation-appropriation tensions. We develop a conceptual model from our empirical insights.

Our study contributes to the emergent literature stream on coopetition tensions in entrepreneurship and innovation (Bouncken, Fredrich, Ritala, & Kraus, 2018; Bouncken, Gast, Kraus, & Bogers, 2015; Bouncken & Kraus, 2013; Kraus, Meier, Niemand, Bouncken, & Ritala, 2018; Le Roy & Czakon, 2015; Ritala & Tidström, 2014). We add to the research on coopetition among individuals and among emerging firms (Devece, Ribeiro-Soriano, & Palacios-Marqués, 2019; Le Roy & Czakon, 2015). Our findings specifically advance research on coopetition and entrepreneurship in an entrepreneurial environment, specifically coworking-spaces. We add empirical findings to the research on coworking-spaces which is still in an early and conceptual state (Bouncken, 2018; Bouncken & Reuschl, 2018; Capdevila, 2015; Garrett, Spreitzer, & Bacevice, 2017; Leclercq-Vandelannoitte & Isaac, 2016).

## 7.3 THEORETICAL BACKGROUND

### 7.3.1 Coworking-Spaces as Institutions

'Institutions' refer to common beliefs or generally accepted ways how to design structures and processes of organizations (Tolbert, David, & Sine, 2011). The institutional theory suggests that the design of business processes, structures, organizations, and transactions follows not solely economic principles but is predetermined through common beliefs of how they should be designed (Meyer & Rowan, 1977; Tolbert, David, & Sine, 2011). Institutions can differ between regions, industry sectors, or along value creation stages. For example, business patterns differ between western and eastern cultures, between the media and industry sector, or between manufacturers and vendors. DiMaggio and Powell (1983) introduced organizational fields to describe entities with common institutions. Organizational fields are a complex unit of analysis comprising the total group or set of relevant actors (suppliers, customers, regulatory institutions, competitors) and their structures, processes, and transactions in a certain delimited environment (DiMaggio & Powell, 1983). Institutional theory is closely related to

business ecosystems which try to group actors that constitute a part of a delimited business environment (Spigel, 2015). We argue that the emerging and diverse forms of coworking-spaces depict novel institutions for entrepreneurship and innovation.

Coworking-spaces provide their users with shared workspaces, office utilities, and amenities (Bouncken & Reuschl, 2018; Gandini, 2015) but also community, based on shared values of "*collaboration, openness, community, accessibility and sustainability*" (Bates, 2011, p. 46). Coworking-spaces emanate the concept of 'working alone together' (Fuzi, 2015; Spinuzzi, 2012) and facilitate interactions among their users (Gandini, 2015; Rus & Orel, 2015; Spreitzer, Garrett, & Bacevice, 2015). Coworking-spaces indorse to their users' autonomy in a professional office environment while allowing them to interact in social space (Bilandzic & Foth, 2013; Gandini, 2015). Single entrepreneurs or start-up teams use the infrastructure and social exchanges of coworking-spaces. Individual and team entrepreneurs operate under low hierarchical structures and under undefined property rights. Collaboration builds on intermediate knowledge flows and their transfer into new solutions (Capdevila, 2013; Gandini, 2015). Coworking-spaces attract users from diverse backgrounds. Independent coworking-spaces primarily attract freelancers, entrepreneurs, small and micro enterprises (Butcher, 2013; Garrett, Spreitzer, & Bacevice, 2017). Coworking-spaces provide a supportive and productive business climate to flourish entrepreneurship (Bouncken & Reuschl, 2018). Both the professional and social spaces enable collaboration, knowledge sharing, and learning among single and corporate entrepreneurs providing opportunities to interact and to develop social and professional networks (Cohen, 2011; Moilanen & Vadén, 2013). Especially the open-plan offices and shared desks promote social interaction and as such collaboration among entrepreneurs (Bilandzic & Foth, 2013; Cabral & Van Winden, 2016). Coworking-spaces also provide a solution to the social isolation of entrepreneurs (Bates, 2011; Moriset, 2013). Entrepreneurs can connect on joint projects (Bilandzic & Foth, 2013; Cabral & Van Winden, 2016). Bouncken and Reuschl (2018) argue that coworking-spaces can improve entrepreneurial self-efficacy through professional and social ties. Entrepreneurs feel a sense of belonging in an environment where other entrepreneurs operate their businesses (Birley, 1985; Lamine, Mian, & Fayolle, 2014). Users can learn from each other's experiences and share knowledge (Semrau & Werner, 2014). Knowledge sharing and employing the collective wisdom can help to solve complex problems (Bizzarri, 2014; Rus & Orel, 2015) for novel and innovative ideas (Capdevila, 2015; Moriset, 2013). The social exchange and creative atmosphere will improve serendipitous idea creation which can promote entrepreneurship and innovation (Bilandzic & Foth, 2013; Bizzarri, 2014). Coworking-spaces can build an entrepreneurial spirit with the

dynamic demands of the external environment (Schürmann, 2014). Entrepreneurs can get aspiration from other entrepreneurs and seize new business ideas (Capdevila, 2014). The improved resource base and social arena might assist entrepreneurs in risk taking and proactiveness building entrepreneurial orientated teams (Covin & Lumpkin, 2011).

Examples by big IT and Software companies, Google, Microsoft, SAP, etc., directed the attention of large multinational companies towards using independent coworking-spaces and also in establishing internal – corporate – coworking-spaces (Bouncken & Reuschl, 2018). Corporate coworking-spaces extend the firms' internal research and development department and open new horizons for corporate entrepreneurship (Fichter, 2009; Lakhani, Lifshitz-Assaf, & Tushman, 2013). Corporate coworking-spaces can integrate entrepreneurial networks of external users (Weiblen & Chesbrough, 2015). In sum, coworking-spaces improve value creation on the level of individuals, teams, ventures, and corporates. Merits are typically based on the sharing of ideas, knowledge, and resources. Yet, the sharing can cause ambiguities and conflicts when it comes to the appropriation of value (Le Roy & Czakon, 2015).

### 7.3.2 Value Creation and Appropriation in Coworking-Spaces as Multi-Level Coopetition

The ability to create and appropriate value is fundamental to the existence, success, and survival of firms (Adner & Kapoor, 2010). Value refers to customers' willingness to pay for products, goods, or services (Brandenburger & Stuart, 1996). Value creation comprises activities to create these products, goods, or services, while value appropriation refers to mechanisms allowing firms to capture or capitalize the created value (Lavie, 2007). Coworking-space users create and capture value themselves in their teams, projects, or organizations. Value creation and appropriation activities build upon simultaneously balancing cooperative and competitive actions at different levels of analysis (Lepak, Smith, & Taylor, 2007). In the 1960s, Sawyer described the value that individuals attribute towards the well-being of others in relation to their own well-being within the concept of altruism. Cooperative, competitive or individualistic behavior depends on how individuals categorize each other as friends or antagonists (Sawyer, 1966). On the more aggregated group level, individuals distinguish between the in- and out-group and rely on universal emotional algorithms that help them to resolve the fundamental dilemma of pursuing private versus common interests. Striving for resources and the need for reciprocation are two major motives for competition and cooperation within groups (Loch, Galunic, & Schneider, 2006). Raza-Ullah, Bengtsson, and Kock (2014) identify tensions in the simultaneous pursuit of **coop**eration and comp**etition** – coopetition – at multiple levels and call for an integrative approach. In order to fully grasp the underlying complex-

ity and dynamic interdependencies of coopetitive relationships, coopetition studies must increase between-level knowledge and recognize coopetition as a multi-level phenomenon (Gnyawali & Park, 2009). So far, research on coopetition mostly focuses on inter-organizational coopetition in alliances or networks and suffers from incompleteness in terms of a theory to describe value creation and appropriation in coopetition at the micro- and meso-levels (Bengtsson, Raza-Ullah, & Vanyushyn, 2016; Klein & Kozlowski, 2000). Early game-theoretic attempts looked at the industry level of all market actors involved in the value net. Value appropriation focuses on realizing a bigger piece of an existing pie at the expense of other market actors in a zero-sum game. Market growth in terms of value creation enables a positive-sum game with innovation rates, industry, and product life cycles dynamically affecting short- and long-term advantages of coopetitive strategies (Brandenburger & Nalebuff, 1996). While some research streams in the field of coopetition are well analyzed, others are nearly unexplored (Bengtsson & Raza-Ullah, 2016; Bouncken et al., 2015). Collaboration among competitors is not necessarily a new field in strategic management (Bengtsson & Kock, 2014) with the first studies published in the 1980s (von Hippel, 1987). One of the basic agreements is that coopetition is based on joint value creation and individual value appropriation. In pursuing these private and common benefits in dyadic alliances the relative scope is of great importance to avoid negative consequences such as learning races and opportunistic behavior (Khanna, Gulati, & Nohria, 1998).

One of the most commonly analyzed contexts of coopetition is innovation. Researchers reach a consensus of coopetition being highly relevant in innovation studies (Ritala, Kraus, & Bouncken, 2016). Although recent studies present contradictory findings (Nieto & Santamaría, 2007; Ritala & Sainio, 2014), coopetition has strong merits depending on the different innovation types and innovation processes (Bouncken & Fredrich, 2012; Bouncken et al., 2018). Consequently, coopetition is powerful for pursuing innovative activities. Although coworking-spaces intuitively must include high levels of coopetition, there is no empirical study investigating coopetition of value creation and capture dynamics in coworking-spaces.

Coworking-spaces may be regarded as a breeding ground or incubator for upstream idea generation processes necessary for new product development and value creation activities in general. The tensions of creating and appropriating value among individuals and teams in coopetition breeds innovation (Bouncken et al., 2018; Le Roy & Czakon, 2015). Coopetition fosters incremental innovation outcomes along all stages of the innovation process, whereas radical innovation outcomes require later stages of the innovation process focusing on value

appropriation (Bouncken et al., 2018). Empirical in-depth results on relative value creation and capture dynamics are still missing. In coworking-spaces, the social ties allowing resource and knowledge exchanges combined with at least temporary cooperation enable the creation of value. But, similar to coopetition, the value appropriation can have competitive elements as different actors compete for their share of the created value (Lavie, 2007). Securing the share of value creation becomes especially problematic because of the uncertainties in innovation and knowledge transfer. Specifically, the direct interaction allows implicit knowledge transfers and reciprocal learning in coworking-spaces. Yet, the fear of rivalry and weakening the own value by sharing knowledge and helping others is prevalent. In this specific context reciprocity as signaling of future interactions may reduce information asymmetries from bounded rationality, moral hazards, and uncertainty of future outcomes. However, coworking occurs in different forms. The different forms of coworking-spaces might differ in their practices for value creation and appropriation and in associated coopetition challenges. So far, we lack understanding about it.

## 7.4 METHODOLOGY

Coworking-spaces are still a new research object emerging in business practice around the world. Research lacks information about this new and highly relevant entrepreneurial work. We decided on a qualitative research approach as this is suitable when there is a need to understand new and complex phenomena (Graebner, Martin, & Roundy, 2012). We aim at understanding the role coopetitive behavior plays in coworking-spaces and thus at developing theory (Eisenhardt & Graebner, 2007; Feagin, Orum, & Sjoberg, 1991). As we acknowledge prior work, systematic combining (Dubois & Gadde, 2002) is an appropriate way of proceeding with our research. In contrast to grounded theory (Glaser, 1992), which mainly excludes prior research, systematic combining explicitly considers existing theory and focuses on theory advancement based on a systematic matching of empirical data and extant literature (Dubois & Gadde, 2002). We choose a multiple-case study approach (Anteby, Lifshitz, & Tushman, 2014) that helps to dig deeper into micro-aspects of coworking-spaces.

Our multiple-case study uses a purposeful sampling approach to cover the different facets of coworking. Purposeful sampling (Patton, 2002) allows building a sample capable of providing an in-depth understanding of a specific phenomenon by ensuring richness of information. We selected the cases based on the following criteria: (1) we focused on key informants (Kumar, Ow, & Prietula, 1993) such as founders, co-founders, coworking-space managers, and coworking-space users. We acknowledge the possible existence of a key informant bias. To

delimit its effect, we included a huge amount of archival data into our study, taking suggestions by Homburg, Klarmann, Reimann, and Schilke (2012). (2) To avoid a sample bias, the sample consists of coworking-spaces situated in Germany as this erases cultural influences. (3) We purposefully included different types of coworking-spaces into our sample to avoid a systematic data collection bias. The different types of coworking-spaces were identified based on extensive online research conducted prior to the multiple-case study. Applying the explained criteria, we ended up with a sample of 12 coworking-spaces – a case number that exceeds the number of necessary cases suggested by case study literature (Eisenhardt, 1989; Yin, 2009). Due to confidentiality reasons, we do not uncover the names of the coworking-spaces included in this study. Table 7.1 presents a brief description of the coworking-spaces that are part of this study.

**Table 7.1: Characterization of the coworking-spaces in the study**

| Number | Average number of users | Interviews | Basic Description | Classification |
|---|---|---|---|---|
| 1 | 60 users | 1a: user<br>1b: owner | Coworking-space with a specific focus on high-tech. Social value is very important as the coworking-space focuses on building bridges between developers and users of innovative technology. Competition between users is common. | Independent coworking-space |
| 2 | 80 users | 2a: firm representative<br>2b: user | Coworking-space with a clear focus on unfreezing firm routines. Users join the coworking-space only for a limited time; social value is not of major importance. | Corporate cowork-ing-space |
| 3 | 25 users | User | Coworking-space with a clear social focus. Aim is to build contacts between users that have literally never met before. Fostering creativity and the development of new ides stands at the forefront in this coworking-space. Cooperation is a major issue, competition between users seems to be a rare. | Independent coworking-space |
| 4 | 40 users | 4a: firm representative<br>4b: user | Coworking-space in an experimental state. Firm employees join the coworking-space on a regular base (job rotation). Social value is of importance; users emphasize open cooperation as major benefit. | Corporate cowork-ing-space |
| 5 | 75 users | 5a: space manager<br>5b: user | Coworking-space with a focus on creative industries. It builds a platform for creatives that allows for sharing their ideas. High degree of cooperation, but also competition for customers among users. Social value, but also monetary benefit (cost sharing) are of special relevance related to this coworking-space. | Independent coworking-space |
| 6 | Flexible based on the project | Consulting firm employee | Consultancy-owned coworking-space. Very much alike to an outsourced project that is determined by customer needs. High degree of flexibility, the specific design is changed in line with customer needs. Very few stable elements. | Consultancy coworking-space |

| Number | Average number of users | Interviews | Basic Description | Classification |
|---|---|---|---|---|
| 7 | Flexible, but a maximum of 50 users | 1a: user<br>1b: owner | Coworking-space that aims at bridging firm boundaries. Designed by a consultancy to allow for collaboration beyond firm boundaries. High degree of flexibility. Competition between the coworking-space and “ regular” firm units. | Independent coworking-space |
| 8 | 25 users | 2a: firm representative<br>2b: user | Coworking-space established in order to follow a new trend. Lack of a clear concept. Harsh competition between coworking members; collaboration only when it is absolutely necessary. Isolation tendency against “ regular” firm units. | Corporate coworking-space |
| 9 | 60 users | User | Coworking-space established by a firm to benefit from external knowledge. Designed as meeting point for firm members and externals, main focus on joint value creation. Coopetition as major issue. | Independent coworking-space |
| 10 | 30 users | 4a: firm representative<br>4b: user | Coworking-space provided by a well-established firm. Main task is to provide a workplace for firm members that are normally home office workers. Opening due to a lack of usage by firm members. Social value is of importance, no special cooperation fostered by the firm. External knowledge transfer only happens by chance. | Corporate coworking-space |
| 11 | 15 users | 5a: space manager<br>5b: user | Small coworking-space installed by a firm to experiment with this new form of organizing work. Focus on openness and the creation of social ties that reach beyond firm boundaries. Competition especially between firm-internal users, cooperation with external users. | Independent coworking-space |
| 12 | no information | Consulting firm employee | Coworking-space set up by a well-known consultancy. Main aim is to provide a secure platform for collaboration with external partners in predetermined projects. Social value is of little importance, main focus on new ideas for value creation and especially improved value capture.. | Consultancy coworking-space |

Next, we developed an interview guideline based on prior literature for our semi-structured interviews (Eisenhardt, 1989; Gioia, Corley, & Hamilton, 2013; Yin, 2009). Whenever we had the opportunity, we accessed all founders of one coworking-space to include into our study multiple perspectives on the coworking-space. While increasing the insights about coworking-spaces, we adapted the interview guideline. The in-depth interviews each lasted between 40 and 90 minutes and were conducted between April and November 2016. We transcribed the interviews carefully and sent the transcripts back to the interviewees to ensure data accuracy. We evaluated the interviews by making use of the well-accepted Gioia methodology (Gioia, Corley, & Hamilton, 2013). Additionally, we analyzed a vast amount of archival data, such as from firm websites, press publications, and material provided by the informants to improve data quality.

## 7.5 RESULTS

First, our analysis (see Table 7.2) for the coding results points at four distinct archetypes of coworking-spaces, the corporate, the open corporate, the consultancy, and the independent coworking-spaces (see Table 7.3). In these coworking-spaces, we find different value creation and value appropriation tensions that inform about the chances and challenges of coopetition in an environment for entrepreneurship and innovation.

**Table 7.2: Results of the coding procedure.**

| 1st order concepts | 2nd order themes | Aggregate dimension |
|---|---|---|
| Firm determines how value is created by designing the coworking-space framework; firm-centric view on value creation<br>Cooperation as important element of value creation<br>Focus on monetary value; cost sharing as main driver of value creation<br>Value creation processes are bound to the firm hierarchy; top-down thinking | Traditional ways of value creation | **Value creation logic** |
| Combination of knowledge as driver of value creation<br>Necessity to be flexible on a very short time scale due to an embeddedness in project work<br>Use of external knowledge to fuel knowledge deficiencies<br>Blurring of firm boundaries; relevance of competition among and between external and internal coworking-space users<br>Communication and joint creation of ideas as distinct value<br>Socialization as driver of value creation; increased importance of social ties<br>Community building with the aim to foster a specific design of value creation activities | Enhanced value creation by combination of internal and external elements | |
| Value creation on a network level that overcomes firm boundaries<br>Coworking-space as incubator for new business ideas<br>Innovativeness as distinct value of the coworking-space<br>Balance between cooperation and competition between coworking-space users<br>Value understood as complex, multi-dimensional construct; special focus on social value | Novel value creation | |
| Firm revenues are mainly based on product- or service sales; monetary value understanding<br>Importance of cost reduction<br>Fee-based usage of coworking-space facilities<br>Pay-per-transaction<br>Financial understanding of value<br>Firm focus; short-term orientation | Traditional ways of capturing value | **Value appropriation logic** |
| Modular pricing system; pay-per-use<br>Non-monetary contributions of coworking-space provider and coworking-space users are part of the payment system; importance of the community<br>Coworking-space as “cafeteria system”<br>Broader understanding of value; social value as new type of value | Enhancement of traditional ways of capturing value | |
| Membership-based payment system<br>Identification and separation of user groups<br>New services (e.g. restaurant; coaching services) set up to open new opportunities for capturing value<br>Network-focus, long-term orientation | Novel ways of capturing value | |

**Table 7.3: Value creation and value appropriation in types of coworking-spaces.**

| Coworking-space type | | Value creation logic | | Value appropriation Logic | |
|---|---|---|---|---|---|
| **Name** | **Description** | **Value creation (basic)** | **Value creation (extended)** | **Value capture (basic)** | **Value capture (extended)** |
| **Corporate coworking-space** | Firms practices of open and flexible work spaces for novel avenues to creativity, projects processes, and internal entrepreneurship | Following a firm's traditional value creation logic, new organizational practices for reducing rigidities | Exploration and exploitation of creativity, innovation, and employee empowerment | Following a firm's traditional value capture logic | Capturing new values of projects processes, and of new business models by selling products and service offerings |
| **Open corporate coworking-space** | Firms create internal coworking-spaces (see above) and open them for external users integrating greater variety of expertise and creativity | Extending traditional value creation logics through the integration of externals, with similarities to open innovation (projects) | Exploration, exploitation, and integration of external potentials for new processes, products, and business models of the firm | Traditional value capture logic and profit margin of externals work, IP, and expertise | Selling products and service offerings but need for additional schemes for payment, participation and benefit of the externals |
| **Consultancy coworking-spaces** | Firms, e.g. consulting agencies create coworking-spaces to organize and manage projects, relationships, and networks of firms, even competing ones | Novel value configuration by using corporate networks and the management of project networks with externals | Novel ways of marketing, service provision, customer retention, and lock-in effects, selling process and method-expertise, hub of and for new business models | Service charge or profit margin for initiating projects, expertise, acquisition of new customers, and provision of further services | Capturing value through participation in and of organization networks and coopetition |
| **Independent coworking-spaces** | Provider establishes coworking-spaces and offer membership to the public | Provision of office and social space, with its attractiveness of potential ties and networks | Provision of additional services, e.g., venture capital, coaching, training, linkages to firms | Membership fees, catering, rents | Fees for services and coaching, provision and participation in new ventures |

### 7.5.1 Corporate Coworking-Spaces

Incumbent firms establish open offices for improving creativity, knowledge exchange, and for innovation (Anderson, Potočnik, & Zhou, 2014; Dul, Ceylan, & Jaspers, 2011). Companies such as Google or Facebook arrange their offices as coworking-spaces in campus-like man-

ners. Employees can use flexible places to work and establish teams for innovation targets. Coworking-spaces reduce inertia and functional boundaries by providing an open innovation climate through flexible workplaces and social interaction (West et al., 2014). Coworking-spaces can occur on an innovation project basis in addition to normal offices or functional lines. Laboratories and workstations may accomplish the open office structures (Bouncken & Reuschl, 2018). For example, Bosch (www.bosch-startup.com) searches for project and innovation proposals within its organization. Single employees and teams apply and pitch for realizing their innovation proposal in the coworking-spaces. Bosch selects proposals and grants a budget, offices, and additional resources for flexible and autonomous work in the coworking-spaces. Typically, these initiatives center on a specific innovation field and include several projects that have overlapping, even competing targets. The flexible work in the coworking-spaces profits from dynamic processes of competition and collaboration.

***Value creation*** occurs as idea generation, creativity in general, incremental and radical innovation, pathways for process and product innovation, and as entrepreneurial ideas and concepts. Interview partner 2a told us: "*We look for new sources of creativity – we know that our employees are clever, but we are also aware of the daily routines that block creativity. We need to unfreeze routines. Coworking-spaces are one way to increase communication and openness.*" Value creation can be attributed to individuals and teams. Yet, ownership is dominantly on the company level. It takes advantage of organizational practices, dominantly of innovation initiatives, pitches for project selection, and project-related institutions. Employees benefit from the creative atmosphere and the community, leaving behind narrowing offices with closed doors and inefficacy or open-plan offices with concealed structures. Employees profit foremost on intangible levels, i.e., greater job satisfaction, increased social interaction, motivation, autonomy, and an increase in knowledge exchange. Interview partner 4b explained: "*I love to work in a coworking-space. It is not about money – I experience a new quality of social life here. I will miss this when I have to go back to my old workplace.*"

***Value appropriation*** also centers on the company level by selling or implementing the entrepreneurial concept and the innovation in the firm or the market. Employees might benefit financially through gratifications, bonus payments, and participation in the innovation return scheme. Interview partner 2a told us: "*We are happy about the higher innovativeness we experience since we utilized the coworking-space. We want to give something back to our employees that is more than only kind words.*" Value creation-appropriation tensions might occur among individuals on competing projects (Adner & Kapoor, 2010), rivaling for bonus systems or participation in projects, products, or corporate spin-offs. Balancing the tensions is

important for succeeding with projects. The central challenge is to balance the mechanics of stable routines (ambidexterity) and dynamic processes (Stettner & Lavie, 2014). Interview partner 2b explained: "*Of course, there is competition in the coworking-space. Please do not get me wrong, we all want the project to be successful, but we are individuals. You do not make friends for life here, you build temporary ties that help to advance your career.*"

### 7.5.2 Open Corporate Coworking-Space

Open corporate coworking-spaces have great overlaps with 'normal' corporate coworking-spaces. Similar to open innovation, the integration of externals can bring additional expertise and requires additional practices for finding, integrating, and compensating externals (West et al., 2014). Value creation-appropriation tensions become greater when externals' expertise is involved. Further, different to open innovation processes in which externals might work virtually, innovating in coworking-spaces requires physical presence. Thus, externals have to be on the company site and become involved in direct-interpersonal influences. For example, TUI founded the coworking-spaces "Modul 57" in Hannover (www.modul57.de) to access, evaluate, and integrate external talents for their internal innovation. Ottobock in Berlin (www.ottobock.de) provides large R&D and testing infrastructure to potential coworking-spaces users, i.e., laboratories.

***Value creation*** also relates to idea generation and creativity but especially towards targeting incremental and radical innovation, finding process and product innovation, and pursuing entrepreneurial ideas and concepts, even creating new business models. Value creation can be attributed to individuals and teams. Ownership is dominantly on the company level, but we also have to take the property rights of externals into account. Interview partner 9a told us: "*Joint value creation can be problematic. Look – as a coworking-space user that is not employed by the host company, you are in a weak position when it comes to property rights. You want to benefit from the environment, and you are willing to contribute, but you do not want to give away your ideas for nothing.*" Value creation improves by the use of innovation initiatives, pitches for project selection, and project-related institutions which are open to externals. Employees benefit from the creative atmosphere and the community and from the knowledge flows to externals. Interview partner 9b explained: "*It is a good thing when externals challenge your ideas. This forces you to think twice as you cannot expect that your idea is accepted due to, e.g., your hierarchical position in the company. This enhances quality but also fosters competition.*"

Value creation strongly depends on the identification and integration of externals into internal innovation processes. Project structures need to secure an entrepreneurial collaboration of internal employees and external experts who need to be motivated and who aim to secure their property rights. Value creation on the level of externals occurs as interaction and learning among different users, often coming from diverse backgrounds. Thus, core practices for value creation are the knowledge exchange and joint experimentation of co-located individuals from different backgrounds and organizations working in (temporary) project structures. Firms can establish community managers and institutional managers for the coworking-space. Community managers and institutional managers are core institutions for value creation because they initiate relationships between the corporate targets, employees, and external coworking-spaces users and might facilitate an innovation climate. Interview partner 11 told us: "*Every coworking-space needs a kind of a janitor that takes care of everything. Collaboration in coworking-spaces is, at least in our case, not a question of self-organizing, it is based on rules and a specific culture that need to be established. Remember – everyone has their own goals to follow, which may result in opportunistic behavior that has to be prevented in order to keep the coworking-space running*." Coopetition tensions center on misunderstanding different routines of individuals from different backgrounds and organizations and tactics of withholding or abusing ideas and knowledge.

***Value appropriation*** occurs on the company, employee, and external coworking-user levels. Employees participate by their salary or by commissions. Externals might appropriate value from hourly payments, commissions, free of charge offices and workshops, participation in pitches or shares of the innovation, spin-off, or start-up. Interview partner 9a explained: "*Well – I pay for being a part of the coworking-space. But from my point of view, the benefits in terms of social interaction and especially of getting access to knowledge are much higher.*" Corporates appropriate value by selling, licensing, or implementing the innovation, possibly by further exploration and exploitation in spin-offs. Value capture among participants is highly dependent on the corporates, which can asymmetrically appropriate value because of their infrastructure, project practices, hierarchical power, and contractual expertise. Especially for uncertain innovation tasks, contracts can partly define obligations and value appropriation rights. Coopetition tensions are strong for the collaboration between internals and externals, especially when they cannot identify and separate their inputs to value creation. Interview partner 11 stated: "*In the end, friendship and understanding end when it comes to value appropriation. Everybody wants a bigger share – you need distinct rules to avoid a run for benefits that might destroy any kind of cooperation.*" Using isolation mechanisms or building

mechanisms for joint value appropriation is necessary when the output is more entrepreneurial or innovative. In the easiest case, external coworkers might receive an hourly, daily, or weekly fee or receive a percentage of a newly founded venture.

### 7.5.3 Consultancy Coworking-Spaces

Consultancies establishing coworking-spaces offer their clients a network of internal and external experts (consultants) for innovation projects and provide the infrastructure for collaborative innovation (Bessant & Rush, 1995). PricewaterhouseCoopers created a coworking-spaces as 'sandbox', a fully configurable open space where customers can experience simulations (Carr, 2014) and collaborate on projects for product improvements or business model innovations. Consultancies establish permanent staff for organizing the coworking-spaces and externals from media and IT-backgrounds that use the coworking-spaces also for other projects. We find that consultancies have developed prototypes for projects defined by complexity, uncertainty, and project duration.

***Value creation,*** as in the other forms of coworking-spaces, occurs based on the collaboration of participants from different technological and functional backgrounds. Practices implemented by consultancies help to identify experts, match partners in teams and projects, moderate the teamwork and project processes. Value creation is the result of the interplay of clients, consultants, coworking-space expert staff, and externals. Clients typically approach the coworking-space with a problem and then choose specific arrangements for the solution of the problem. Interview partner 6 explained: "*It is like a recipe. We provide the ingredients to create the meal the client wants. However, we do not cook the meal, so we are not responsible if something goes wrong. It is important to distinguish between preparation and execution in this context.*" The consultancy provides experts that work for the clients in the coworking-space on the defined problem. The specific expertise of consultants and external experts related to the coworking-space allows a target-orientated value creation using experts. The project structure can use organizational structures of hierarchies and standardized project management tools. Value creation is thus based less on autonomous structures but instead on the purposeful selection of experts and the selection of a predefined project structure.

***Value appropriation*** occurs at the level of the consultancy, client, externals, and consultants. The consultancy captures value fees for usage, projects, and consulting days. Additionally, the consulting firm can acquire knowledge that might be leveraged in other projects. Offering the innovation network of a coworking-spaces might further improve customer loyalty, attract new clients, advance the network, and improve the image of the consulting firm. Interview

partner 7 shared the following with us: "*Look – we do not really know how beneficial coworking-spaces will be for our business. Maybe they are the future, maybe not. But we know that they let us look young and innovative. They can be a starting point as they provide a platform for creating new ideas and solutions.*" Clients appropriate value through improving their innovation process that leads to new business models, product sales, licenses, and improved processes. Participation schemes and contracts with internals and externals also secure their value appropriation. The consultancy serves as a reputation giver and focal contract partner to control legal aspects. The well-developed practices and contracting models of the consulting firm reduce value creation-appropriation tensions.

### 7.5.4 Independent Coworking-Spaces

Coworking-spaces offer individuals, freelancers, start-ups, and incumbent firms a social and professional space for innovation. Innovation potentials specifically emerge from the open and flexible collaboration among actors, often stimulated by creative architecture and contemporary design elements. The portfolio and fluctuation of assets are high because coworking-spaces users may only temporarily join the coworking-spaces (Bouncken & Reuschl, 2018). Users might only use the space for hours or days. Yet, users might also use the space over an extended period and establish relationships with other users, potentially finding mates for entrepreneurship concepts and start-ups. In independent coworking-spaces, we find social entrepreneurship besides business-oriented entrepreneurship. The core difference between both is that social entrepreneurship is a broader understanding of value while the focus of the business-oriented entrepreneur is on economic returns (Simón-Moya, Revuelto-Taboada, & Ribeiro-Soriano, 2012). Social entrepreneurship can also have economic returns also, but the gains are meant to support social causes (Simón-Moya, Revuelto-Taboada, & Ribeiro-Soriano, 2012).

***Value creation*** centers on the variety of social interactions among coworking-space users based upon autonomy, flexibility, and knowledge sharing in self-organized systems. Interview partner 1b explained: "*Coworking is great because every day you can meet new people and get access to new ideas. You never know who will sit next to you in the office. You just feel motivated!*" Value creation is supported by the different entrepreneurial projects or start-up teams that meet in the social room, share insights, and then carry on with working on their own and also other projects in large office buildings that may host many entrepreneurs (see www.techquartier.com). Value creation takes advantage of institutionalizing a community manager who facilitates an innovative work climate and collaboration among coworking-space users. The community manager rays internally and externally, attracting the interest of

externals for membership in the coworking-spaces. The community manager can facilitate and establish practices, such as project structures, project pitches, creativity sessions, participation in open innovation projects, and opportunities for project work for incumbents. Interview partner 3 told us: "*A coworking-space is heavily influenced by the community manager. A community manager helps to keep the coworking-space up to date, to detect tensions, and to solve any kind of occurring problems.*"

For example, the community manager at betahaus in Berlin (www.betahaus.com) initiates and mediates collaborations between Deutsche Bahn AG and coworking-spaces users. Value creation under high degrees of autonomy, flexibility, and knowledge sharing in self-organized systems includes high positive but also negative tensions for value creation. The lack of established structures, conflict resolution tools, and the difficulty to identify right ways and individual inputs makes value creation a complex and difficult task.

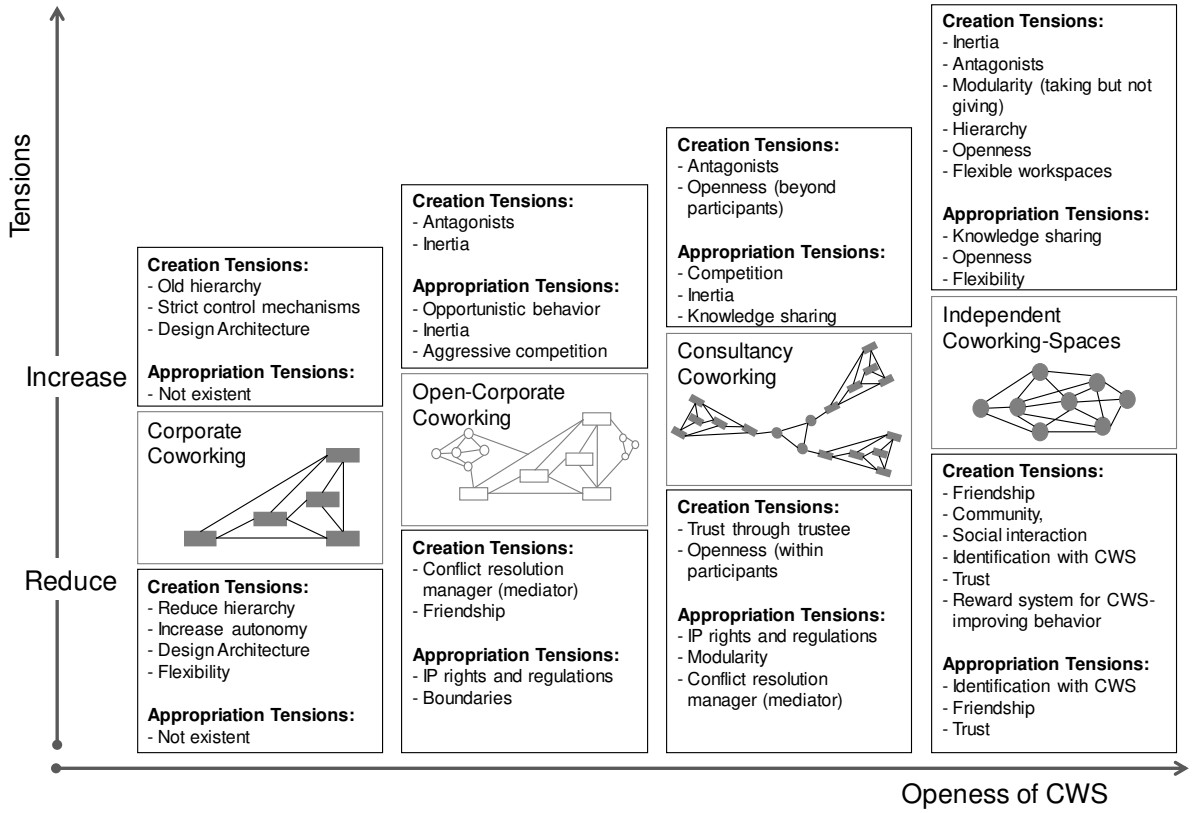
***Value appropriation*** can face high tensions because different actors and organizations create value in a mutual process, often under high behavioral and technological uncertainty with poorly defined property rights and missing hierarchical structures for regulating each actors' value capture. Single entrepreneurs and entrepreneurial teams within the environment of coworking-spaces often work in the same industry, in a similar field, or on similar tasks. In this process, they share knowledge and help each other while competing for the same resources and the same clients. The value creation is consequently a jointly pursued process. Interview partner 5a said: "*Value – this is difficult. How to adequately measure and share the created value? For me, this is a question of trust. One time you are the one who benefits most, another time, someone else is the lucky one. We need to get rid of the idea that everything has a specific price. In the long run, every participant will be satisfied from my point of view.*" The coworking-space users create value in the context of a relationship and/or a mutual business model. Consequently, coworking-space users simultaneously collaborate and compete. Tensions increase as actors often start to collaborate without a clearly defined target. Finally, value appropriation occurs by selling services and products to external customers but benefits from learning among coworking-spaces. Value creation-appropriation-tensions especially relate to opportunism risks from unintended knowledge leakage and competition through the interaction of coworking-spaces users (Bouncken & Reuschl, 2018). Particularly, incumbent firms can asymmetrically appropriate the value of the collaboration, embedding them for their product-, process-, and business model innovation. Incumbent firms that use coworking-spaces to extend their innovation management can take advantage of their matured project practices and contractual know-how. Individual coworking-spaces users may only receive

hourly wages or fees for specific inputs. Among individual coworking-spaces users and start-ups, value appropriation might be dynamic. To date, individuals join and leave teams, start with joint start-ups, terminate/proceed start-ups, possibly experience firm growth, making the move into own company facilities. The community manager, in some of our cases, organized workshops and trainings about project management, intellectual property rights protection, and contracting. These practices help individuals and start-ups to protect and appropriate value.

## 7.6 DISCUSSION

This study examined coopetition in the entrepreneurial context of coworking-spaces. Entrepreneurship is about pursuing opportunities, the search for ideas, the identification of opportunities, their evaluation, and the path to exploit opportunities (Soriano & Montoro-Sanchez, 2011). Entrepreneurship demands new ideas, knowledge, and resources. Coopetitive relationships can increase innovation and entrepreneurship (Le Roy & Czakon, 2015), but tensions around value creation and appropriation are inbuilt (Bouncken et al., 2018). Coworking-spaces might improve the transfer of those ideas, knowledge, and resources within different stages of entrepreneurship, the search for ideas, the identification of opportunities, their evaluation, and the path to exploiting opportunities. Single and corporate users from diverse backgrounds and organizations collaborate and compete on value creation and appropriation of innovation and entrepreneurship. While the users communicate or work together, they can share resources and knowledge for value creation and appropriation. Simultaneously they compete for fair input-output ratios and for the value appropriation. Our research shows that diverse forms of coworking-spaces have specific coopetition tensions. Figure 7.1 shows a model of the different coworking-spaces and their different positive and negative coopetitive tensions. Figure one also indicates that increasing levels of openness are a main trigger for the different value creation and appropriation tensions.

**Figure 7.1: Influencers on coopetition tensions in coworking-spaces**




Our study finds four different types of coworking-spaces. The corporate coworking-spaces profit from the creative and flexible collaboration of their employees under higher degrees of freedom and lower formalities. Corporate coworking-spaces can also extend the possibilities to that value creation by including shared R&D facilities, labs, and workshops. Value creation-appropriation tensions in corporate coworking-spaces are low because of the still-existent hierarchical relationships and organizational routines and rules for the pursuit of returns that dominantly belong to the corporate. The extension to externals in open corporate coworking-spaces has stronger demands for the development, implementation, and management of new institutions for value creation and appropriation that include externals and the uncertainty of innovations.

Consultancy coworking-spaces are just about to emerge. Value creation and appropriation emerge and are managed by institutions of project structures, billing rates, project budgets, intellectual property, and safeguards. Consultancies have institutionalized their experiences about matching customer requirements, their consultant's expertise, and the capabilities of micro-firms in their coworking-spaces that have purposeful socio-material structures. Predefined and standardized project structures regulate the integration of consulting expertise, e.g.,

tools and professional networks. This purposeful composition of expertise and creativity of customers with consultants and digital experts drives the joint value creation and the predefined fields for value appropriation. Value appropriation-tensions depend on accountability, predictability, and other relational aspects between the involved actors.

The many independent coworking-spaces around the world are drivers of value creation by affordability, autonomy, flexibility, social relationships, modernity as well as technology and infrastructure (Butcher, 2013; Fuzi, 2015; Spinuzzi, 2012). The openness, sharing of resources, and creative atmosphere promote interaction, collaboration, and co-creation (Bilandzic, Schroeter, & Foth, 2013). Institutionalizations of social and professional offerings like events, workshops, or networking services drive value creation (Bouncken & Reuschl, 2018). Value appropriation faces several tensions since actors in the coworking-spaces are independent and collaborate freely. Only implicit rules for collaboration guide value appropriation and general behavior in the community. Users of coworking-spaces users are mostly self-reliant to contracting and agreements that safeguard their interests. Studying coworking-spaces offers the unique chance to observe how the disruptive thrust of a technological and social impetus creates novel institutions and induces isomorphic behavior in traditional organizational fields (Greenwood, Suddaby, & Hinings, 2002). Independent coworking-spaces develop as open organizations that create value through enhancing innovation and creativity related capabilities. With open spaces that provide social and professional resources and without hierarchical boundaries, individuals in coworking-spaces are free to unfold their full creative potentials.

As Figure 7.1 indicates, openness is a key driver to the coopetition tensions. The openness and the development of coworking-spaces as entrepreneurial spaces also draw attention to the changes in today's world. Coopetition and openness in entrepreneurial spaces demand and indicate the change of institutions, highlighting the dynamic perspective of institutionalization theory (Bruton, Ahlstrom, & Li, 2010 Dacin, Goodstein, & Scott, 2002). Coworking-spaces support the view that institutions and organizational fields are subject to change. Institutions adapt to social, technological, or regulatory changes (disruptive thrusts). Novel institutions diffuse in the organizational field, leading to an isomorphic equilibrium (Greenwood, Suddaby, & Hinings, 2002). DiMaggio and Powell (1983) argue that stability in an organizational field emerges through coercive (adaption to enforced institutions), mimetic (adaption to successful institutions), or normative pressure (adaption to professionalization). We relate the different forms of coworking-spaces to proto-institutions. Proto-institutions as institutions that begin to unfold their disruptive power and start to diffuse in an organizational field but are not

yet fully implemented as institutions (Lawrence, Hardy, & Phillips, 2002). Thus, coworking-spaces and their different forms are proto-institutions that might change organizations or build an institutional field in the future. Coworking-spaces (might) create new – coopetitive – organizational fields and build micro-innovation-ecosystems with a new set of institutions. The concept of ecosystems refers to a group of localized actors and institutions (firms, investors, universities, etc.) that create an environment for innovation (Spigel, 2015). Specific institutions for interaction, communication, knowledge exchange and processes of creative infection build the core of these innovation-ecosystems. Coworking-spaces can build the core of such innovation-ecosystems using the positive tensions of collaboration and competition. Coworking-spaces can create social and organizational institutions to support coopetiting individuals, and organizations in defining existing and finding new ways for value creation and appropriation.

Coworking-spaces can establish internal organizational institutions that emphasize the positive value-creation tensions and reduce the problematic value-creation-appropriation-tensions (see Figure 7.1). Considering the different forms, we find that openness is a strong influencer on the form and strength of coopetitive tensions.

Our interview study shows that community managers are an essential institution in coworking-spaces. Community managers serve as hosts and are responsible for creating an atmosphere, setting up rules, and channeling conflicts. Community managers can develop specific mechanisms for value creation and appropriation and thus balance or mediate coopetition tensions. The community of a coworking-space is a social proto-institution itself. The community manager promotes and cultivates the norms, space culture, and its innovative spirit. These norms enhance value creation through motivation and protection but also through the punishment of violations.

Combining the community management of independent coworking-spaces with the currently emerging consultancy coworking-spaces points at novel avenues to create the coopetitve world of innovation-ecosystems (Spigel, 2015). Especially independent coworking-spaces can develop towards coopetitive microsystems by integrating actors like business angels, trainers, consultancies, and laboratories partly specialized in specific industries or technologies. Developing innovation-ecosystems as microsystems that have to cope with coopetition tensions demands new institutions. The development offers the chances for novel ways of value creation and appropriation. Membership in such microsystems could involve access to all re-

sources and support for the whole process, from ideation, investor pitches, and consulting to the start-up formation.

The discussion of coworking-spaces and their proto-institutions is often limited to the creation of inventor-garages in a collective room. However, the effectiveness of coworking-spaces is rooted in an organization's ability to create institutions for a creative, open, and flexible atmosphere with flat hierarchies and motivated users. Building these institutions in established companies requires processes for rearranging structures, adjusting corporate cultures, employing technology, and creating communities.

Since the idea of coworking-spaces is partly based on sharing a common office and partly on open and social interaction in general, coworking-spaces fit exactly in the idea of the sharing economy. Given the increasing demand for work-life balance and the rather flexible and constant working models that are especially younger generations ask for (Kelly, Moen, Oakes, Fan, Okechukwu, Davis et al., 2014), coworking-spaces fit in the gap. Richter, Kraus, Brem, Durst, and Giselbrecht (2017, p. 301) define the sharing economy as "*an economic model […] in which users systematically share underutilized assets for monetary or nonmonetary benefits*". Richter et al. (2017) further derive three fields of contribution for business models in the sharing economy: economic, environmental, and social issues. They additionally claim that an open and positive mindset is required to effectively take part in this.

Our study is among the first empirical studies on coworking-spaces. We deliver the first study that addresses coopetitive tensions in such spaces. Coworking-spaces and the value creation and appropriation tensions require additional future empirical research. We motivate future research to focus on specific archetypes or proto-type institutions of coworking-spaces and measure the influence of mechanisms for value creation and value appropriation.

Although this study is the result of sound research and to the best of the authors' knowledge, we are aware of some shortcomings. Coworking-spaces are a new phenomenon for academia. This makes it a scarce topic in top-tier journals and aggravates a fundamental placement in research. We know that we are among the first who elaborate on this topic and want to encourage other researchers to improve the theoretical basis as well. Besides that, in upcoming research, we want to improve our sample. In this study, we drew on a homogenous sample of 12 coworking-spaces from Germany. Considering this and the lack of research, we focused on explorative results rather than on quantitative analysis. The methodological advantage is also

a disadvantage. The results of our study are not statistically generalizable or transferable. However, a causal transmissibility on other coworking-spaces is possible. This lays the ground for future (quantitative) research, which also could analyze specific mechanisms for dealing with the coopetitive tensions of coworking-spaces or look and personality antecedents for the entrepreneurs in those spaces. We also encourage international research because the national contexts will have strong influences on value creation and capture and, as such, the coopetitive tensions in coworking-spaces.

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# 8 ENTREPRENEURIAL ORIENTATION IN COWORKING-SPACES FOR CORPORATE ENTREPRENEURSHIP AND VENTURING

Published in "Multidisciplinary Business Review" under the title "Entrepreneurial Orientation in Coworking-Spaces for Corporate Entrepreneurship and Venturing".

## 8.1 ABSTRACT

Firms search for new ways of improving their innovativeness and internal entrepreneurship. Entrepreneurial orientation has been shown to be a powerful facilitator for these tasks. Previous research has shown that entrepreneurial orientation increases by empowerment and proper leadership, yet we know little about the spaces in which it proliferates. We argue that social interaction and autonomy, as prevalent in coworking-spaces, strengthens and complements entrepreneurial orientation. Following the literature on entrepreneurial orientation, as well as coworking-spaces, we pursue a multiple case study analysis. We find that the elements of entrepreneurial orientation as outset by previous studies do not fully describe the entrepreneurial orientation in corporate coworking-spaces. Our findings stress that corporate entrepreneurship research and practice needs to pay more attention to the spatial and interior settings for improving innovativeness and internal entrepreneurship.

## 8.2 INTRODUCTION

Corporate entrepreneurship describes what firms do in terms of internal and external venturing (Block & MacMillan, 1993; Glinyanova, Bouncken, Tiberius, & Cuenca-Ballester, 2021). It covers intrapreneurship (Pinchot, 1985), internal or intra-corporate entrepreneurship (Jones & Butler, 1992), new business venturing (Stopford & Baden-Fuller, 1994), venturing (Hornsby, Naffziger, Kuratko, & Montagno, 1993), and strategic entrepreneurship (Ireland, Hitt, & Sirmon, 2003). A key concept for those activities is the entrepreneurship orientation (EO) of or in firms that can be exposed by their managers, subordinates in units, and teams (Covin, Rigtering, Hughes, Kraus, Cheng, & Bouncken, 2020; Hughes, Rigtering, Covin, Bouncken, & Kraus, 2018). EO is defined as "*an organizational attribute that exists to the degree to which that organization supports and exhibits a sustained pattern of entrepreneurial behavior, reflecting incidents of proactive new entry*" (Covin & Wales, 2019, p.3). EO re-

search has investigated its outcomes, its forms, its corporate and its individual personality antecedents, yet is has ignored the spatial aspect of where and how EO happens.

The recent trend of coworking-spaces gives rise to this question. Initially developed in Silicon Valley for freelancers and start-ups, coworking-spaces offer a physical space for breeding innovative ideas (Bouncken, Cesinger, & Tiberius, 2020; Fuzi, 2015; Gandini, 2015). The first, and still the majority, of coworking-spaces, operate as shared offices with infrastructure that support freelancers and start-ups (Gandini, 2015). Coworking-spaces are regarded as workplaces (Gandini, 2015) that are flexible and rentable with a strong focus on the community (Fuzi, 2015). Overall, coworking-spaces are likely to support firm entrepreneurial activities (Bouncken & Reuschl, 2018; Fuzi, 2015) by social interaction and empowerment of employees (Bouncken, Ratzmann, Barwinski, & Kraus, 2020). Assuming that firm innovativeness is mainly driven by its entrepreneurial orientation, which is characterized by innovativeness, proactiveness, and risk-taking behavior (Covin & Slevin, 1991; Covin & Slevin, 1989; Miller, 1983), coworking-spaces are important means to enhance a firm's competitiveness. This is particularly because entrepreneurial orientation greatly influences the overall long-time well-being of a company and its performance (Madsen, 2007). Thus, 'corporates' – established firms – are starting to take upon the idea of (independent) coworking-spaces and use other spaces to implement it in their venues (Bouncken, Ratzmann, & Kraus, 2021; Bouncken & Reuschl, 2018; Tracey, Phillips, & Jarvis, 2011).

However, the question is, how does corporate entrepreneurship occur in coworking-spaces? More specifically, how do corporate coworking-spaces align with and foster entrepreneurial orientation? Considering that the design of the space and the vibe of the social interaction are core to coworking-spaces, these questions require considering features of the coworking-space and how they trigger the entrepreneurial orientation of corporate employees located in the space.

Hence, the purpose of the current study is to study how entrepreneurial orientation materializes and what factors help firms to flourish entrepreneurial orientation in a dedicated open and entrepreneurship orientated space. Considering the knowledge void on coworking-spaces and their influence on entrepreneurial orientation in corporate firms, we employed a qualitative, deductive research approach. A qualitative research design is suitable for complex research settings with little knowledge on the investigated topic (Graebner, Martin, & Roundy, 2012). We uncover determinants of entrepreneurial orientation in corporate coworking-spaces and explain the mechanisms that determine entrepreneurial orientation in this research context.

We contribute to EO and coworking-space literature. To the former, we contribute material and special elements. First, we show that entrepreneurial orientation experienced in new forms of organizations is based on factors other than those suggested in the established literature (e.g., Lumpkin & Dess, 1996a; Rauch, Wiklund, Lumpkin, & Frese, 2009). Second, we show that the established elements describing entrepreneurial orientation do not fit new organizational forms such as coworking-spaces. To coworking-space research (Orel, 2019; Waters-Lynch & Duff, 2021; Bouncken et al., 2020; Bouncken, Aslam, & Qiu, 2021), we contribute a theoretical foundation in corporate entrepreneurship research that has been lacking so far. Our research has managerial implications, stressing that incumbents need to be aware of new and different factors for designing their work environment and their working habits in order to enable entrepreneurial orientation in their company.

## 8.3 THEORETICAL BACKGROUND

### 8.3.1 Corporate Entrepreneurship and Entrepreneurship Orientation

The last decades showed a large rise in corporate entrepreneurship (Glinyanova et al., 2021) that pertains to intrapreneurship (Pinchot, 1985) and institutional entrepreneurship (Tiberius, Rietz, & Bouncken, 2020; Block & MacMillan, 1993; Glinyanova et al., 2021). It covers intrapreneurship (Pinchot, 1985), internal or intra-corporate entrepreneurship (Jones & Butler, 1992), new business venturing (Stopford & Baden-Fuller, 1994), venturing (Hornsby et al., 1993), strategic entrepreneurship (Ireland, Hitt, & Sirmon, 2003), internal or intra-corporate entrepreneurship (Jones & Butler, 1992), new business venturing (Stopford & Baden-Fuller, 1994), venturing (Hornsby et al., 1993), and strategic entrepreneurship (Ireland, Hitt, & Sirmon, 2003). Entrepreneurial orientation describes antecedents of the entrepreneurial processes on a company level as opposed to the innovativeness of a dominant person in the company (Miller, 1983; Covin et al., 2020; Hughes et al., 2018). With this, entrepreneurial orientation is the thrive towards new entries (Lumpkin & Dess, 1996a). A new entry can be achieved "*by entering new or established markets with new or existing goods or services*" (Lumpkin & Dess, 1996a, p. 136). It can furthermore be any kind of venturing activity. The first prominent five dimensions (Lumpkin & Dess, 1996a) were later often reduced to three dimensions: innovativeness, proactiveness, and risk-taking (Covin & Lumpkin, 2011; Covin & Miller, 2014; Rauch et al., 2009). Innovativeness is the basis of engaging in creating and developing processes, e.g., through introducing new products and services to gain technological leadership (Lumpkin & Dess, 1996a; Rauch et al., 2009). Proactiveness describes the activeness of a company to introduce new products or services as an action rather than a reac-

tion and anticipating future developments (Lumpkin & Dess, 1996a; Rauch et al., 2009). Risk-taking means the inclination to take uncertain opportunities and chances such as dicey venturing activities or significant resource allocations to uncertain projects (Lumpkin & Dess, 1996a; Rauch et al., 2009).

The establishing construct (Martens, Lacerda, Belfort, & Freitas, 2016) applied in various studies (George & Marino, 2011; Anderson, De Dreu, & Nijstad, 2004), shows that there is anecdotal as well as empirical evidence for the positive impact of entrepreneurial orientation on a firm's performance. Researchers found that strong entrepreneurial orientation leads to higher business performance (Vij & Bedi, 2012), eventually proving that entrepreneurial orientation positively influences company performance (Fellnhofer, Puumalainen, & Sjögrén, 2016; Pearce, John, Fritz, & Davis, 2010; Rauch et al., 2009).

As initially stated by Miller (1983), entrepreneurial orientation is a construct of strategic nature. By evaluating innovativeness, proactiveness, and risk-taking, it evaluates how entrepreneurial companies are in their strategic posture (Covin & Slevin, 1989). Consequently, entrepreneurial orientation is a core element of strategic renewal, and research shows that strategic renewal is important for constant company success (Agarwal & Helfat, 2009). In order to survive in the global business context, established firms need to apply entrepreneurial strategies (McGrath & MacMillan, 2000; Morris, Kuratko, & Covin, 2008). These entrepreneurial strategies propose ideas to revive current organizations and improve innovativeness (Cooper, Markman, & Niss, 2000). Consequently, the outcomes that Amit, Brigham, and Markman (2000) observed – that is *"entrepreneurial strategies allow people to be innovative, creative, and responsible for decisions that they make"* – are highly desirable (Ireland, Covin, & Kuratko, 2009, p.19).

Following Covin and Slevin (1989), companies that are considered entrepreneurial employ managers with high entrepreneurial skills and this spills over into strategic decisions and the operating management. Additionally, mentality and behavior are analogous to the prospector firms from Miles and Snow (1978) and the entrepreneurial organizations from Mintzberg (1973). Today's examples of these categories are young, dynamic start-ups, such as innovative companies like Google or Facebook. The latest element that supports entrepreneurship in all its facets are the recently mushrooming coworking-spaces (Fuzi, 2015). While several antecedents, moderators, and outcomes of EO have been reported, we still face an almost complete knowledge void on the spatial component of EO and corporate entrepreneurship. Still,

the void is most prevalent given the coworking-space trend that has arisen in the past few years (Hughes et al., 2018; Bouncken, Qiu, & Clauss, 2020; Bouncken, Aslam, & Qiu, 2021).

### 8.3.2 Coworking-Spaces

Coworking-spaces are regarded as shared workplaces that combine the necessary infrastructure as well as the social surroundings for work, especially the digital facilities (Bouncken & Reuschl, 2017). The provider usually offers workspaces with desks and IT infrastructure as well as a social space for social interaction. Regarding the infrastructure, coworking-spaces often provide conference rooms, a kitchen, a lounge or a cafeteria, and fully equipped workshops (Bouncken & Reuschl, 2018). Regarding the surroundings, they offer social spaces and many opportunities for their users to communicate (Capdevila, 2014). The sense of community and the community itself are important means to foster creativity (Fuzi, 2015) and to enhance innovativeness (Greenwood, Díaz, Li, & Lorente, 2010).

Additionally, having pre-selected like-minded colleagues increases the chance for valuable cooperation and alliances while supporting business model innovation activities (Bouncken & Fredrich, 2016; Bouncken, Kraus, & Roig-Tierno, 2021). This reciprocal support and interaction further help young, developing ventures to gain and establish legitimacy in the market (Täuscher, Bouncken, & Pesch, 2021). In combination with regular feedback from peers and open collaboration, these factors improve the work results as well as innovativeness in coworking-spaces (Hughes et al., 2018). Enhancing innovativeness is also of relevance for established firms that have recently started to apply the coworking aspect in order to create a creative environment (Tracey, Phillips, & Jarvis, 2011) – so-called corporate coworking-spaces. Furthermore, coworking-spaces bring people together, allowing them to create a shared identity (Bouncken & Barwinski, 2021). Users of coworking-spaces are like-minded coworkers (Spinuzzi, 2012) who often build a sense of community (Moriset, 2013). Coworking-spaces allow independent and temporary work, as well as new spaces for incumbent firms to foster fluidity, flexibility, and innovation (Bouncken & Kraus, 2013). Recognizing the common grounds and acknowledging them is the most important step for creating a vivid community (Waters-Lynch & Duff, 2021). This allows them to better combine and exploit existing knowledge (Bouncken, Laudien, Fredrich, & Görmar, 2018b) and assess the full potential of their employees (Bouncken & Aslam, 2019).

The corona-pandemic, during 2020, showed that remote work such as ‘working from home’ is possible for a broad part of the workforce; however, people miss social interaction. Since coworking-spaces offer not only a place to work, but with their community concepts also a

place for social interaction, the concept of coworking-spaces eventually increases work satisfaction (Bouncken et al., 2020).

In the context of coworking-spaces, innovative activities play a crucial role for the users of coworking-spaces (Bouncken & Reuschl, 2018). Coworkers pursue not only their daily business, but they also want to develop new business ideas or work on innovative ideas (Barwinski, Qiu, Aslam, & Clauss, 2020; Bouncken, Qiu, & Clauss, 2020; Görmar, Barwinski, Bouncken, & Laudien, 2021), especially since start-ups and entrepreneurs use coworking-spaces as breeding-places for their new ideas (Fuzi, 2015; Gandini, 2015). Coworkers with their start-ups want to disrupt the current market situation. They think differently, apply new methods, and approach problems in innovative ways. For this to happen, entrepreneurial orientation is an important factor or outcome of individuals working in coworking-spaces and the coworking-space environment as a whole.

## 8.4 METHODOLOGY

### 8.4.1 Research Design

Currently, there is not much information about the organization in coworking-spaces, especially in corporate venues and the intersection with the entrepreneurial orientation of firms. For our research target that relates to little pre-existing knowledge, we chose the qualitative case study design suggested by Eisenhardt (1989). A case study is the most suited research method of choice when facing a rather new topic and focusing on a holistic view (Feagin, Orum, & Sjoberg, 1991). A multiple case study approach not only allows for the gathering of rich, in-depth data (Anteby, Lifshitz, & Tushman, 2014; Bluhm, Harman, Lee, & Mitchell, 2011; Yin, 2009) but also enables the analysis of causal relations (Gartner & Birley, 2002). Additionally, a case study approach allows us to consider context information and, in turn, explain and transport a theory (Welch, Piekkari, Plakoyiannaki, & Paavilainen-Mäntymäki, 2011). This approach allows augmenting an established theory rather than establishing a new one. Since we do not focus on the development of a theory but want to advance and enhance an existing theory, we systematically combine theoretical framework development, empirical fieldwork, and case study analysis (Dubois & Gadde, 2002). Systematic combining focuses on theory development as opposed to grounded theory (Glaser, 1992; Glaser & Strauss, 1967) which emphasizes the data collection process and discovering theory without considering existing research while doing so (Eisenhardt & Graebner, 2007; Langley, 1999). The method is widely accepted and has been applied in various articles on systematic combing (e.g. Erkama & Vaara, 2010; Edvardsson, Holmlund, & Strandvik, 2008). By combining theoretical

framework development, empirical fieldwork, and case study analysis, we pursue a reiterative process. This allows for a unique way of integrating new empirical insights and established research.

### 8.4.2 Sample

In our multiple case study, we analyze 18 different company offices, which have organized their office in a coworking-space style and are located in major cities in Germany. These companies are a very good example of companies trying to change from a traditional to a coworking-space setting for several reasons: 1) The companies started their change process between 12 and 24 months before our interview, making them knowledgeable in both a normal company structure as well as the coworking structure. 2) The companies are working in the initial coworking branches, the IT industry, and the creative industry. 3) All companies were still in the start-up phase, with none being older than two years and all of them being younger than five years. Our multiple case study is based on a careful document analysis for each of the 18 companies and interviews with providers of the coworking-space, represented by managers, and with coworking-space users, represented by employees from each company. In total, we analyzed 21h 39 minutes of interviews from providers and 26h 56 minutes of interviews from users (Table 8.1). By integrating both perspectives, we were able to improve data quality in our study and gain valuable new insights.

As we had already identified literature related to our research topic, we did not follow a grounded theory approach. Instead, we used the Gioia methodology (Gioia, Corley, & Hamilton, 2013), which is a prior-informed approach suggesting a step-wise coding process from broad concepts found in the interviews over abstract themes to aggregated dimensions (Strauss & Corbin, 1998). By first looking for mutual themes and topics that the interviewees mentioned and talked about, we developed first-order concepts. In the next step, these concepts are aggregated to second-order constructs and finally to an aggregate dimension.

### 8.4.3 Data Collection

Data was collected from March 2019 to May 2019. It mainly consisted of archival data such as company websites, annual reports, social media, and press coverage. Based on the archival data, the literature, and the prior data analysis, we developed semi-structured interview guidelines (Yin, 2009). The interviews were carried out between May 2019 and September 2019. The interviews took place at the company offices and were conducted face to face by two researchers, recorded and carefully transcribed on the same day. The transcripts were sent to the interview partner to be checked and approved.

**Table 8.1: Description of dataset**

| Coworking-Space | City | Provider Interview | User Interview |
|---|---|---|---|
| CWS-1 | Munich | 58 Minutes | 1h 27 minutes |
| CWS-2 | Berlin | 1h 13 minutes | 1h 20 minutes |
| CWS-3 | Berlin | 1h 1 minute | 1h 30 minutes |
| CWS-4 | Berlin | 59 minutes | 1h 31 minutes |
| CWS-5 | Munich | 1h 27 minutes | 1h 29 minutes |
| CWS-6 | Munich | 1h 25 minutes | 1h 33 minutes |
| CWS-7 | Munich | 1h 28 minutes | 1h 36 minutes |
| CWS-8 | Hamburg | 1h 19 minutes | 1h 22 minutes |
| CWS-9 | Hamburg | 1h 12 minutes | 1h 29 minutes |
| CWS-10 | Frankfurt | 1h 15 minutes | 1h 25 minutes |
| CWS-11 | Frankfurt | 1h 2 minutes | 1h 34 minutes |
| CWS-12 | Munich | 58 minutes | 1h 31 minutes |
| CWS-13 | Berlin | 1h 12 minutes | 1h 26 minutes |
| CWS-14 | Frankfurt | 1h 18 minutes | 1h 32 minutes |
| CWS-15 | Hamburg | 1h 22 minutes | 1h 38 minutes |
| CWS-16 | Frankfurt | 1h 16 minutes | 1h 19 minutes |
| CWS-17 | Munich | 1h 13 minutes | 1h 30 minutes |
| CWS-18 | Berlin | 1h | 1h 34 minutes |
| **TOTAL** | | 21h 39 minutes | 26h 56 minutes |
| **Average** | | 1h 12 minutes | 1h 29 minutes |

### 8.4.4 Data Analysis

The approach of systematic combining requires abductive logic to combine both deductive and inductive arguments (Durand & Vaara, 2009). First, we viewed, aggregated, and merged interview material, literature, and additional secondary data. Inconsistencies were clarified by additional research and queries with the interviewees. We then coded all information following the Gioia methodology (Gioia, Corley, & Hamilton, 2013). Two researchers applied the methodology independently and coded the first-order concepts. While discussing the results, the researchers found no differences in the understanding of the collected material.

### 8.4.5 Findings

Our findings are aggregated in Table 8.2. In the following, we would like to explain in more detail how we arrived at these findings, with a focus on the three steps: 1) first-order concepts, 2) second-order themes, and 3) aggregate dimension.

On the one hand, we found in the interviews that the interviewees organize their work mostly on their own. Working on your own tasks, whenever and wherever you want was not only mentioned very often in different ways, but was also valued by the people surveyed (CWS-3: "*We really do have a lot of freedom regards to our tasks, and for many people that is an important aspect of our work here.*"). Additionally, this freedom also materializes in the interaction of employees with employers. For this, the companies have established ways for the em-

ployees to participate in the development and design of the company (CWS-17: "*When we have ideas for improving processes or whatever at the company, we are highly welcome to communicate those ideas. And if it makes sense, often the initiator is in charge of implementing the improvement without having long and big meetings beforehand.*"). Furthermore, own projects for the company are encouraged. In combination with a familial environment and employee development, this helps the employees feel like they are part of the company and feel valued (CWS-8: We feel at home here, the employer values everyone. We get additional training and when we have good ideas, we can pursue them for the company."). We combined those elements to the aggregate dimension *Proactiveness* (Table 8.2) because they describe the encouragement of the employees towards self-organized, self-motivated, and actively participating members.

**Table 8.2: Analytical Coding Process to Describe the New Entrepreneurial Orientation**

| 1st order concepts | 2nd order themes | Aggregate dimensions |
|---|---|---|
| Within borders: free choice of task<br>Flexible access to the office and flexible working hours<br>Within borders: high autonomy in place of work | Self-organized work | Proactiveness |
| Employees are encouraged to suggest improvements<br>Low hierarchical structures<br>Short decision processes | Structures for enabling participation of employees | |
| Training off/on/near the job<br>Own (risky) project ideas are encouraged<br>Considering themselves as friends/family, not a company<br>New collaborations based on employees' networks | Making the employees a part of the whole | |
| Open office concepts free the mind<br>Exchange of knowledge with other people<br>Seat different teams/functions together<br>Diverse knowledge/educational/functional background | Recombination of knowledge | Innovativeness |
| Employee participation in development<br>Involve the customers of tomorrow<br>Involve employees in decision making<br>Broader events for networking | Exploiting existing knowledge | |

On the other hand, respondents mentioned the open atmosphere. The respondents can talk to each other and learn tremendously. Talking to other employees, they would usually not see improvements in their knowledge. The open office concept is a necessity for that and supports the behavior (CWS-18: "*Everything here is aimed at knowledge exchange. The office struc-*

*ture really helps us talk to everyone about everything which really seems to help access all available knowledge*"). Additionally, the company takes all means to access relevant knowledge. Not only do they include employees in development and decision-making processes, but they also include the customers in the creating processes by accessing their knowledge (CWS-5: "*We at [company_name] really try everything to access knowledge. Be it employees, users, whomever we can find to learn from, we do it. And we try to use the knowledge […].*"). We combined these aspects to the aggregate dimension *Innovativeness* (Table 8.2) because combining existing knowledge and exploiting existing knowledge are elements that describe and improve the innovation dimension.

Concluding, our findings show that with innovativeness and proactiveness, the descriptions of the corporate coworking-spaces largely reflect the elements of entrepreneurial orientation (see Table 8.2). The innovativeness is mostly prevalent through the recombination of knowledge and exploiting existing knowledge. The element of proactiveness is diverse and subliminal, existing in manifold ways. Surprisingly, in our sample, no interviewee mentioned indicators for risk-taking.

## 8.5 DISCUSSION

This study set out to analyze the spatial dimension of corporate entrepreneurship by analyzing how EO occurs in coworking-spaces. We find that entrepreneurial orientation in corporate coworking-spaces materializes through proactiveness and innovativeness, but not through increased risk-taking. In the latter, we contrast the established literature (Lumpkin & Dess, 1996b; Rauch et al., 2009). We then highlight that proactiveness in coworking-spaces is characterized by self-organization, structures for participation, and structures for integration rather than by activeness to introduce new products or services. These findings support existing research. Additionally, we show that innovativeness materializes through the recombination of knowledge and through exploiting existing knowledge, rather than through the temper of engaging in creation and developing processes.

Based on traditional entrepreneurial orientation literature, we describe proactiveness as the activeness of a company to introduce new products or services as an action rather than reaction by anticipating future developments (Lumpkin & Dess, 1996b; Rauch et al., 2009). However, our results draw a different picture, putting the (1) individual organization, the (2) individual participation, and the (3) individual integration in the center. (1) Employees have more freedom in their work disposition (i.e., choice of task, flexible office hours, and flexible

workplace) but are supposed to make good use of it. Employees are provided with greater autonomy to make better use of their resources and capabilities. These advantages enfold under the premise that everyone is actively taking upon this freedom and working with it. (2) Additionally, employees have more possibilities to actively participate by suggesting improvements in their own processes and structures in the low hierarchical environment and by participating in the short and direct decision process. This element describes the individual proactiveness. Employees are supposed to use the organizational structure for influencing the company in the way they want. (3) Lastly, proactiveness demands actively integrating with the social environment. Employees shall be friends with their coworkers and consider the workplace rather as a place for fun, fulfillment, and personal development than a place for strict and serious work. Competition can be a danger in coworking-spaces but should not come with relational conflict (Bouncken et al., 2018b; Waters-Lynch & Duff, 2021). This attaches the employees to the company and its well-being, encouraging them to always do their best.

Next, we conceptualize innovativeness as a basic driver of engaging in creating and developing processes, e.g., through introducing new products and services to gain technological leadership (Lumpkin & Dess, 1996b; Rauch et al., 2009). We portray a partly different perception of innovativeness than in the prior literature (Covin et al., 2020). In our sample, (1) the recombination of knowledge and (2) the exploitation of existing knowledge are core aspects, rather than creativity and developing itself. (1) Recombining knowledge is possible by better access to everyone's knowledge. The non-existence of build-in boundaries but instead of open office concepts and the regular exchange with different people in coworking-spaces improves the knowledge flow and enables knowledge recombination. (2) The exploitation of the existing knowledge by integrating future customers and by exploiting knowledge from outsiders allows for drawing on more diverse aspects, which eventually enables innovativeness.

Surprisingly, we did not find indications of increased risk-taking behavior in coworking-spaces. A reason for this might be that most employees still perceive the risk to be for the company's owner or the construct "company". The employees seem to evaluate aspects that are considered risky rather than chances for their own participation or self-fulfillment and thus labeling them as individual participation. Furthermore, aspects like *risky projects from individuals* were mentioned as enabling proactiveness and not seen as corporate risk-taking.

Our findings point towards the notion that entrepreneurial orientation is much more than orientation or mental mindset, influenced by leadership or empowerment. Firms can create phys-

ical places that support an entrepreneurial mindset. Within this physical space, it is not only the infrastructure that fosters entrepreneurial orientation but the social interaction. The interplay between social aspects and material infrastructure, the socio-materiality, greatly improves the entrepreneurial situation for coworkers (Bouncken, Aslam, & Qiu, 2021), making the social space an important multiplier of entrepreneurial activities. In this context, entrepreneurial orientation can develop dynamically.

Our findings show that coworking-spaces influence the work regarding social effects such as overcoming social isolation (Moriset, 2013) and offering a like-minded community (Bouncken & Reuschl, 2018). Coworking-spaces have developed into places where entrepreneurial orientation potential is nurtured and fostered. Coworking-spaces are places for social interaction and offer a workplace with higher work satisfaction, but furthermore, they are a place for enabling the necessary mindset for innovation. Additionally, Bergman and McMullen (2020) found that providers of coworking-spaces and especially makerspaces need to consider six questions for designing their space. The six questions address social and member-related aspects as well as physical space designing aspects, showing that socio-materiality is important for everyone's success. When coworking-spaces are not well planned or managed, they allow the self-interest of their users and facilitate 'dark traits' (Bouncken, Aslam, & Reuschl, 2018).

Although it is widely accepted that coworkers (mostly) pursue innovative and entrepreneurial activities regarding our today's understanding, our data shows that based on traditional concepts like entrepreneurial orientation, coworkers indeed have an entrepreneurial mindset and a set of values. Furthermore, it enhances the view of the latest findings on entrepreneurship in coworking-spaces (Bouncken, Kraus, & Martínez-Pérez, 2020).

In sum, our results show that entrepreneurial orientation in corporate coworking-spaces brings a new facet to corporate entrepreneurship (Glinyanova et al., 2021). The dimensions of entrepreneurial orientation mostly still apply in the new spatial organizational context, but the materialization differs tremendously. In this study, we focused on independent coworking-spaces and the transfer of elements of the entrepreneurial orientation towards corporate coworking-spaces. However, there are four different types of coworking-spaces (Bouncken, Reuschl, & Görmar, 2017): besides (1) independent coworking-spaces, and (2) corporate coworking-spaces, there are also (3) open corporate coworking-spaces, and (4) consultancy coworking-spaces. While corporate coworking-spaces offer an innovative office structure for employees, open corporate coworking-spaces also allow external people to rent desks in the space. Ac-

cordingly, the spaces might supply and integrate short-term external knowledge and additional new possibilities for entrepreneurial orientation to develop within the corporate context. The consultancy coworking-space is often configured as a 'sandbox'. The combination of permanent staff with internal and external experts allows consultancies to offer their coworking concept to foster innovation by also considering coopetition (Bouncken, Fredrich, Ritala, & Kraus, 2018a; Bouncken & Fredrich, 2016). Following an earlier suggestion of Bouncken (2018), there is a fifth category, the university coworking-spaces. Universities develop parts of already existing libraries for university coworking-spaces. In combination with entrepreneurship classes, students get the best opportunities for founding their own businesses.

Our findings allow several implications on both the research and practical level. For researchers, our findings imply that entrepreneurial orientation is different than it used to be. The new elements of entrepreneurial orientation and new ways of materialization in the context of The Future of Work forms require more research for a deeper understanding of the new entrepreneurial orientation. The findings allow the assumption that the concept of entrepreneurial orientation has shifted from an established, well-known concept towards a new one. The detailed configurations of this new concept need to be further investigated. On a practical level, our findings call for a change in the design of work environments and working habits. Since entrepreneurial orientation is now described by other factors that materialize in new and different ways than those recognized by established research, companies need to adapt to these new factors and elements. This is important in order to enable entrepreneurial orientation in companies. Eventually, this leads to a new set of measures or actions that companies need to activate in order to maintain the entrepreneurial orientation and, in turn, their long-term competitiveness.

## 8.6 CONCLUSION

Based on the literature regarding entrepreneurial orientation and coworking-spaces, we investigated the driving factors of entrepreneurial orientation in corporate coworking-spaces. We analyzed how corporate coworking-spaces foster entrepreneurial orientation and what features of coworking-spaces trigger the entrepreneurial orientation of corporate employees in this corporate coworking-space. We show that the entrepreneurial orientation - elements' innovativeness and proactiveness are important in corporate coworking-spaces but do need an adjustment regarding their form of materialization. This adjustment is important because relying on existing research for implementing entrepreneurial orientation in corporate coworking-spaces does not yield the pursued aims. Furthermore, we show that risk-taking is not a preva-

lent factor in our sample, making it somewhat less relevant for triggering entrepreneurial orientation in corporate coworking-spaces. These findings put entrepreneurial orientation in a new context, requiring researchers to investigate the materialization of entrepreneurial orientation in different environments. This is necessary for the literature to gain a more holistic view of the topic as well as the practitioners to trigger entrepreneurial orientation in employees in corporate coworking-spaces.

With this study, we contribute to the literature on entrepreneurial orientation. We show that re-thinking the elements and further developing the whole construct is necessary to describe the situation in the real world as of today. Additionally, we contribute to the literature of coworking-spaces by showing that coworking-spaces as the new era of organizational configurations change the way people perceive the work setting.

We know that literature on coworking-spaces is still scarce and that entrepreneurial orientation is a manifold research topic. Our paper represents a first insight into the new combinations of established constructs, scratching the surface of a promising research topic. For example, comparing the entrepreneurial orientation, its elements, as well as the materialization between corporate coworking-spaces and the more traditional coworking-spaces would be interesting. Enhancing knowledge on this topic in the future will improve the work-life situation, especially for self-employed people and start-ups.

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# 9 CONCLUSION

## 9.1 SUMMARY AND CONTRIBUTION

This thesis started in the lights of third places as places for work (Oldenburg, 1999) and coworking-spaces becoming such places (Bouncken & Reuschl, 2018). In times when remote work and the demand for flexible work was increasing (Monaghan, Tippmann, & Coviello, 2020), coworking offered the solution for long-sought independence, geographically and time-wise (Mudambi, Li, Ma, Makino, Qian, & Boschma, 2018; Schinoff, Ashforth, & Corley, 2020). The need for flexibility from both employees and employers creates the necessity for flexible workplaces and corresponding structures, the coworking-spaces. The papers aggregated in this thesis deal with different elements of these coworking-spaces, elements that are especially important for making coworking-spaces the place to work in the era of new work.

Overall, this thesis is based on a practical phenomenon (first article) and supported by theoretical evidence (second article). These two articles build the foundation. The thesis then elaborates on the four factors *Creativity*, *Diversity, Sociomateriality,* and *Coopetition* and how they form the four pillars for The Future of Work. I showed that each aspect and its perception changed during the development of coworking-spaces. We need to rethink and challenge established interpretations in order to be able to understand how we will work in the future and how we can trigger and foster changes in behavior. Furthermore, I showed what we need in order to set up these places and to run them properly. Finally, the seventh article shows the transfer from coworking-spaces and the startup scene towards established companies and what they can learn from innovation centers and flexible office structures.

I also revealed that all four factors together are part of a global idea of diversity. This idea of diversity on a global level is important for innovativeness, work-life satisfaction, and success of coworkers. While this thesis focuses on diversity, especially regarding social networks, for co-creation processes, and regarding value creation and appropriation tensions, diversity also includes situational and context-based configurations around coworking as well as the design of coworking-spaces, their purpose, and their claims. All in all, there is no ‘one size fits all’ solution. While full individualization is not possible, a certain degree of individualization and thus diversity on the market and within the work environment is necessary. Coworking-spaces can offer this degree of individualization, making coworking-spaces an important workplace

of the future. Eventually, employees will base their career choice not only on the employing company but also on the job location and place of work.

For coming to these conclusions, I built a foundation of practice and theory and then analyzed coworking-spaces regarding four specific elements and evaluated these findings in a transfer-oriented seventh research article.

My first research article explains the core elements of coworking and their origin in the practically oriented phenomenon of coworking. It puts them in relation to practiced means and procedures in the practical world. It shows that the practical implications are the basis for a theory-driven analysis and sets the path for the upcoming research articles. By doing so, all involved stakeholders can actively shape the coworking, both regarding the design of the space and the design of the community.

The second article then explained the variety and width of the phenomenon from a scientific perspective. With the practical demand for research in this field, as explained in the first article, the second article exhibits the promising research avenues and unfolds the collaboration potential with other fields of research. The sound cluster analysis additionally provides a comprehensive literature overview.

In my third research article, I analyzed the social networks as a core aspect of coworking-spaces. The article clearly showed the difference between perceived, expected causes between social networks and joint businesses (Schürmann, 2013) and the factual relationship, i.e., social networks are important as a central position for things like friendship, reciprocity in support, and knowledge exchange. Furthermore, the article clearly proved the individual's coworking-space value orientation (Baer, 2010; Phelps, Heidl, & Wadhwa, 2012) to be an important precursor of social involvement. However, the article does not support the idea that social networks foster any joint business foundations. With these findings, the article adds to research on social networks as well as the value and relevance of social networks for coworkers and coworking-spaces.

In the fourth research article, I analyzed coworking-spaces as service ecosystems (Vargo & Lusch, 2016) and their role as focal points for value co-creation (Vargo, Wieland, & Akaka, 2015; Akaka, Vargo, & Wieland, 2017). The paper shows that an optimal degree of diversity among the users, especially regarding knowledge foundation and social background, is crucial for successful value co-creation. Therefore, the member-variety in a coworking-space requires detailed planning and potential adjustments in order to achieve the self-imposed goals.

The fifth article contributes to the topic by analyzing the interplay between social and material aspects (Leonardi, 2013; Orlikowski, 2007; Scott & Orlikowski, 2014). It does not only show the success of a planned and coordinated sociomaterial strategy but also subliminal indicates that established companies can make use of this knowledge for their benefit. Especially the form of spatial architectures, shared facilities, and infrastructures, as well as integrated digital technologies, influence the flow of communication, internal and external linkages, as well as functional uniformity and distinctiveness.

The sixth research article explained that depending on the kind of coworking-space (Bouncken, Reuschl, & Görmar, 2017), there are different conflicts regarding value creation and value appropriation (Ritala & Tidström, 2014). Depending on the form and manifestation, these tensions can support the work within the coworking-space. While tensions in corporate coworking-spaces are rather low, tensions increase when looking at rather open forms of coworking. However, coworking-spaces can initialize mechanisms and institutions in order to manage the tensions and reduce the negativity of the impact.

My seventh article deals with entrepreneurial orientation (Covin & Slevin, 1991; Covin & Slevin, 1989; Miller, 1983) as a concept that is both extremely important for the future of work as well as crucial for the work in coworking-spaces (Bouncken, Ratzmann, & Kraus, 2021; Bouncken & Reuschl, 2018; Tracey, Phillips, & Jarvis, 2011). With this, the article explains the transfer of the coworking concepts to the corporate world, allowing established companies to benefit from this new world. I showed that the concept of entrepreneurial orientation needs adaption in order to still be valid in today's time. The relevance of the items in the concept of entrepreneurial orientation shifted towards "innovativeness" and "proactiveness", with the materialization of these items changing to "self-organized work", "Structures for enabling participation of employees", "Making the employees a part of the whole", "Recombination of knowledge, and "Exploiting existing knowledge". With these findings, the article adds to research on entrepreneurial orientation in the context of new work forms, the (corporate) coworking-space. It demonstrates that within corporate companies it is necessary to change the work environment and the working habits according to the newly identified entrepreneurial orientation-items and their materialization.

## 9.2 Avenues for further Research

This thesis explained the theoretical approaches that play a crucial role around coworking and their practical manifestations. It concentrates on different levels and explains how they work

and why they work. Yet, the articles are still prone to limitations that provide approaches for future research.

My research around coworking-spaces focused on knowledge-intensive work (Bouncken & Kraus, 2013; Castellani, Rossato, Giaretta, & Davide, 2021), pointing out the need for desks, wi-fi, printer, meeting rooms, etc. (Bouncken & Reuschl, 2017; Bouncken & Reuschl, 2018; Capdevila, 2014). I did not consider artisanal activities and craftsmanship. Yet, people gather and perform physical work together in so-called makerspaces (Bergman & McMullen, 2020; Akhavan, 2021), and the do-it-yourself market is rapidly growing (Comm, 2017). This shortcoming creates research avenue *1) Transferring findings from knowledge-intensive work in coworking-spaces to makerspaces*. But what knowledge can we transfer from one topic to the other? Thus, the combination of and relation between coworking-spaces and makerspaces needs to be analyzed in more detail. What mechanisms or approaches work in both contexts, and where do they differ? How can coworking-spaces and makerspaces interact, benefit from each other and support each other? Answering these research questions can help understanding the do-it-yourself market as well as reducing the ongoing shortage in craftsmanship-service by analyzing how craftsman-enterprises can grow successfully in an innovative surrounding.

In recent years, we found that the sharing economy did not only provide us with coworking (Kelly, Moen, Oakes, Fan, Okechukwu, Davis et al., 2014; Richter, Kraus, Brem, Durst, & Giselbrecht, 2017) but also added plenty of more ideas what people can or should do together. Thus, I identify research avenue *2) Enhancing the "Co" of Coworking: Co-X*. With this approach, researchers can find what it is that people can do together that makes them stronger. We need to look beyond just working together. For example, Bouncken, Barwinski, and Covin (2020) argue that firms support each other in their legitimation process by applying three strategies: 1) passive adaptive, 2) the developmental-nurture, and 3) the disruptive inflammation approach. Moreover, people started a trend towards "co-living", basically creating communities within a city or a big skyscraper (Davies, 2015; Corfe, 2019; von Zumbusch & Lalicic, 2020). This will vault the sense of community and the benefits of a neighborhood to a new level.

Eventually, while theorizing, hypothesizing, and modeling in an academic ivory tower is necessary and important, it lacks the transfer to the practical world. Thus, I identify research avenue *3) Practical Oriented Research*. Together with practitioners, researchers need to develop cases for the everyday use of coworking-spaces from corporate companies. Working from

coworking-spaces in the region you live in, while being employed at companies all over the country or even around the world can help keeping people in the respective region, it makes people that are not willing or able to move better employable, and it helps companies with finding highly qualified employees that might not be willing to move to different cities only for the job. Also, companies can apply this idea for fostering their innovative activities, making the coworking-space style in the corporate office a desirable situation.

## 9.3 Concluding Remarks

I started my thesis on coworking and coworking-spaces in February 2017 with severely limited existing research (Reuschl & Bouncken, 2017; Bouncken & Reuschl, 2017; Spinuzzi, 2012; Capdevila, 2013; Gandini, 2015; Gandini, 2016). Since then, not only I and my colleagues but researchers all over the world added research to this phenomenon and the underlying theoretical ideas (Garrett, Spreitzer, & Bacevice, 2017; Aslam & Görmar, 2018; Bouncken, 2018; Bouncken, Aslam, & Reuschl, 2018; Blagoev, Costas, & Kärreman, 2019; Rese, Kopplin, & Nielebock, 2020; Waters-Lynch & Duff, 2021; Bouncken & Tiberius, 2021; Gantert, Fredrich, Bouncken, & Kraus, 2022; Bouncken & Aslam, 2021). The ongoing debate on New Work (Akhavan, 2021) and the work-life after the pandemic (Foertsch, 2020a; Foertsch, 2020b; Baruch, 2000; Boland, De Smet, Palter, & Sanghvi, 2020) show that going back to the traditional office structure cannot be the appropriate action. Employees and people all over the world enjoyed the flexibility of the home office while also recognizing its limits, seeing especially the *social isolation*, the *lack of communication*, and the *unstructured working day* as problems. That is exactly where coworking-spaces can and should find their role, as third place between office and home office. The need for decentralized, yet connected work in a socially active, friendly environment became obvious and holds benefits for all parties involved. Living the dream, where people can work remote from a place they call home, yet in a work-focused, supportive environment that pushes innovative work without the need for daily or weekly commute: The Coworking-Space.

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