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Henrik Johansen and Jørgen Røste Kristiansen

A bibliometric analysis deconstructing extant research on sharing economy business models

Abstract

Digitalization has become known as one of the biggest drivers of developments in society and has put pressure on companies to innovate their business models with emphasis on the opportunities provided by application of new digital technologies. Accordingly, there has been a major growth in business models focusing on resource exchange, referred to as sharing economy. Currently, there is also a growing interest among researchers into the phenomenon of sharing economy with an exponential growth in published research. However, to date the literature addressing the sharing economy appears complex and unstructured. The purpose of this study is to take stock of extant literature with a particular focus on distinguishing between elements of sharing economy business models across peer-to-peer (P2P), business-to-consumer (B2C) and business-to-business (B2B). This study was conducted using a bibliometric method to map prior research in the field of sharing economy. Utilizing a broad structured search in the Web of Science database we identify the most relevant articles and synthesis its insight to suggest a framework distinguishing between core properties of P2P, B2C and B2B sharing economy business models. In addition to provide a better overview of existing literature, the framework provides a foundation upon which further research can be built. The framework can also serve practitioners with a better understanding of the phenomenon of sharing economy and thereby a better basis for making strategic decisions in relation to their business model innovations.

Keywords: Bibliometric analysis, Business model innovation, Business-to-Business, Business-to-consumer, Sharing economy

Preface

As the final part of our two-year master's degree, we have written the dissertation "*A bibliometric analysis deconstructing extant research on sharing economy business models*" which marks the end of our study program Master of Science in Business Administration at Oslo Business School, Oslo Metropolitan University – OsloMet. This master's thesis is based on our shared interest in digitalization and its impact on traditional business models.

Early in the fall semester of 2019, we started the process around the master's thesis together with our supervisor, Professor Karl Joachim Breunig, where we discussed interesting themes and issues related to the "Sharing Economy" phenomenon. During this process, we made the decision to constitute an experiment with the aim of delivering this dissertation in the form of a research article, where one of the sub-goals was to get the article published to ensure good academic peer review. Subsequently, we submitted an outline for a research article, and were accepted to submit a full-length article to the IFKAD - Knowledge In Digital Age - conference in Rome. However, due to the COVID-19 virus the conference has been postponed. Our article has also been invited by the editors as a chapter in the book "Digital Entrepreneurship Perspectives on the Sharing Economy", forthcoming in the series "Routledge Studies in Entrepreneurship" at Routledge in 2021.

We include the final article submitted to the IFKAD conference as Appendix II in this dissertation. The text in front of you is the research report documenting the process leading up to the final article. The report is structured as a conventional master's thesis.

During the months of work with our final master's dissertation we have been able to apply much of the professional we have been through during our five years as business students in the research and writing of the final article. We have left behind an exciting and educational, but also demanding period, where we want to thank Professor Karl Joachim Breunig for excellent guidance and support.

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Oslo Business School, Oslo Metropolitan University – OsloMet. June 16, 2020

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1 Introduction

Digital transformation requires businesses to rethink and innovate their business models. Li, Brass, Hitt, Wang and Li (2018) claims that Internet and Big Data are currently making an impact in all industries, and therefore businesses need to reconsider their business models adapting to the environment. As new forms of businesses evolve, there is an emerging growth of practices of a sharing economy. A recent search on google scholar indicate an astonishing amount of published research articles for search phrases, such as; "digital business models"- 3 080, "digitalization" - 61 800, and "sharing economy"- 28 000 - only since 2016! Another illustration of the increasing interest in the sharing economy is the recent number of special issues addressing the phenomenon (Maurer, Mair & Oberg, 2020). In practice, within Europe's five most prominent sharing economy sectors, total value of transactions is expected to reach €335bn within 2025, from €28bn in 2015 (PwC UK, 2016, p. 3-4). This indicates increased attention to the phenomenon of a sharing economy, for research and practices alike.

Despite an overwhelmingly growing interest in the emerging phenomenon of sharing economy, it is referred to as an umbrella concept that is conceptualized with an inherent variety and unclear dynamics (Schor, 2014). To date, there exists no unified definition (Schor, 2014) and the phenomenon remains debated (Martin, 2016). However, the idea of sharing instead of owning is not new (Belk, 2010; Botsman & Rogers, 2010; Schor, 2014). Extant research refers to the same phenomenon with terms ranging from; access economy, circular economy, collaborative consumption, collaborative economy, gig economy, to peer economy (Bellotti et al., 2015; Strømmen-Bakhtiar & Vinogradov, 2020). Despite the vast number of interchangeable terms, extant research seems to agree on some core properties of the phenomenon, relating to (1) peer platforms that coordinate (2) peer providers and (3) peer consumers (e.g. Botsman & Rogers, 2010; Hamari, Sjöklint & Ukkonen, 2015; OECD, 2016; Schor, 2014). Schlagwein, Schoder and Spindeldreher (2019) suggest, after an analysis of 125 definitions, that commonly addressed core properties of 'sharing economy' relates to peer activities of coordinating sharing of goods or services through a digital technology platform without transfer of ownership. Consequently, existing research within the sharing economy is primary focusing on issues related to peer-to-peer (P2P) activities of obtaining, giving, or sharing access to goods and services, coordinated through community-based online services (Maurer et al., 2020), and have recently also attended to the P2P business models underpinning the sharing economy phenomenon (e.g. Apte & Davis, 2019; Assadi, 2020; Mosmann & Klutt, 2020).

However, established business model research (e.g. Baden-Fuller & Haefliger, 2013; Osterwalder & Pigneur, 2010; Teece, 2010; Zott, Amit & Massa, 2011) emphasize the distinction between business-to-consumer (B2C) and business-to-business (B2B) business models, but it remains uncharted to assess how these established business model distinctions relates to the P2P patterns described in the sharing economy literature. A business model "defines how the enterprise creates and delivers value to customers, and then converts payments received to profits" (Teece, 2010, p. 173). Mosmann and Klutt (2020) argue that the sharing can be of a commercial or non-commercial nature, and therefore that the understanding of the phenomenon of sharing economy could be extended beyond P2P, B2C and B2B business models in particular. Therefore, the aim of this study is to assess extant research addressing sharing economy business models to synthesize a foundation upon which subsequent empirical research can be built. There is especially called for more research to unresolved issues in the case of B2B relations (Grondys, 2019), emphasis on the commercial aspects (OECD, 2016), and Agarwal and Steinmetz (2019) calls for further research on B2B and their engagement in sharing economy (Kathan, Matzler & Veider, 2016). Moreover, the lack of theorization of the business model variations underpinning the sharing economy in general, and in relation to distinctions between P2P, B2C and B2B in particular, warrant taking stock of extant research to establish a unified foundation for subsequent research (Maurer et al., 2020). The ambition of this study is therefore to address the following research question: *How can sharing economy business model variations and similarities be conceptualized beyond P2P and thus encompass traditional business model perspective of B2C and B2B?*

In order to address this research ambition, we started out examining extant published academic research using Web of Science (WoS). In our structured literature search we experimented with different search phrases and combinations to figure out what would give us the most relevant dataset for our purpose. The search string *Topic=((Business-model) AND (Digit* OR Sharing-econom*))* gave us an initial sample of 1266 documents for the timeframe 1997-2020, and by excluding irrelevant categories we had a final of 184 articles for our bibliometric analysis. To conduct the bibliometric analysis, we applied VOSviewer and identified 19 highly relevant interrelated sharing economy articles upon which we conducted a content analysis. This study identifies core articles addressing the constituent elements of sharing economy business models and illuminate variations and similarities across P2P, B2C and B2B business models as these are reported in extant research. Discussing these findings against the underlying theory, we suggest a framework distinguishing between P2P, B2C and B2B sharing economy business

models. The proposed framework can serve as an important contributor and basis for discussion related to strategic decisions as it provides useful information for various structures and thereby value creation and value capturing activities, as well as guide future research.

2 Theory

The purpose of this chapter is to explain the concept of business models and how it relates to the sharing economy and thereby illustrate the gap in current theorization for our research question. Initially, extant theory on business models will be presented before introducing current theory on the transition of sharing economy as well as business model variations.

2.1 Digital business models

"Strategy defines the business areas where the company wants to be good, the competitive advantage through which the company will do better than its rivals, and the future objectives of the company" (Passi, 2017, p. 25). A company's business model can therefore be seen as a more detailed plan for achieving the strategy, covering all relevant aspects of the company. There has been stated a handful of definitions on business models differing in width and depth. Teece (2010, p. 172) refer to business model as "the manner by which the enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit". In other words, the business model reflects "the management's hypothesis about what customers want, how they want it, and how the business can organize to best meet the customers' needs, get paid for doing so, and make a profit" (Teece, 2010, p. 172). Osterwalder and Pigneur (2010, p. 14) defines business models as "the rationale of how an organization creates, delivers, and captures value". Consequently, the main constituent parts of a business model are related to (1) the value proposition describing what value the firm delivers to their customers, (2) value creation describing how the value proposition is delivered, and (3) value capture describing revenue streams and cost structures.

Recently, "digitalization has been identified as one of the major trends changing society and business in general" (Parviainen, Tihinen, Kääriäinen & Teppola, 2017, p. 63; Veit et al., 2014). Since digitalization has influenced various business activities including companies' business models, "digitalization has put pressure on companies to reflect on their current strategy and explore new business opportunities, by transforming their existing business models" (Rachinger, Rauter, Müller, Vorraber & Schirgi, 2019, p. 1143). This digital transformation is

causing change in companies' business model, that be changes related to their products or services, the organizational structure, or automation of processes (Hess, Matt, Benlian & Wiesböck, 2016). Further, fundamental changes in the way businesses operate and generate value is referred to as a shift towards digital business models and the missing link between business strategy, processes, and information technology (Veit et al., 2014).

Technology facilitates easy access to information and customer solutions at a lower cost, hence it is argued that businesses needs to be more customer-centric (Teece, 2010, p. 172). In terms of digital transformation, businesses need to re-evaluate their value propositions in terms of understanding business model design options as well as customer needs and technological trajectories (Teece, 2010, p. 173).

2.2 Sharing economy

The financial collapse in 2008 necessitated that people and firms found new and creative ways to create value and reduce costs (Habibi, Davidson & Laroche, 2017). Re-creating value by using existing resources, either for monetary or non-monetary benefits, contributed to more efficient use of resources (Botsman & Rogers, 2010). As a result, the term "sharing economy" were introduced and opened new ways to deal with capitalism and consumerism (Agarwal & Steinmetz, 2019). The increased attention regarding sharing economy is causing disruption in well-established and mature industries when consumers are provided with convenient and cost-efficient access to resources without the responsibility of ownership (Eckhardt & Bardhi, 2015; Schor, 2014, p. 4; Trabucchi, Muzellec & Ronteau, 2019). Hence, the literature indicates a shift towards a new set of business models that are emphasizing resource exchange rather than offering new ones (Laamanen, Pfeffer, Rong & Van de Ven, 2018, p. 213). Kathan et al. (2016) discusses four reasons why the sharing economy should be perceived as a serious new business trend. First, interaction through an online platform makes consumers gain instant access to products and services. Second, there is a rising shift in consumer values, away from ownership and towards access. Third, compared to traditional companies, sharing economy companies has the potential to increase sustainability to a greater extent. Fourth, there is a potential financial upside as sharing seems to be cheaper than individual ownership.

For the sharing economy as a whole, there has been identified different motives for participation where economic, environmental, and social factors is put forward, but not specified in terms of P2P, B2C and B2B (Schor, 2014, p. 5-6). Access to new technology and its potential benefits has been an interesting topic within sharing economy as it allows for interaction between

individuals, who not necessarily know each other, to get in touch for resource exchange (Schor, 2014, p. 12). Both products and services are described in the digital business strategy literature as they both can take advantage of the possibilities within digital resources (Bharadwaj, El Sawy, Pavlou & Venkatraman, 2013, p. 474). More user-friendly solutions as a result of digital improvements is facilitating more comfortable users, which in turn can open new business opportunities as a result of increased quality and quantity of generated data (Bharadwaj et al., 2013, p. 474; Laamanen et al., 2018; Schor, 2014). It is recognized that customer-generated data can open new business opportunities in terms of markets and niches that previously has been too risky or difficult to explore (Laamanen et al., 2018, p. 213). Bharadwaj et al. (2013) states that scale in the industrial age were associated with low costs and profitability whereas the authors recognizes a need to focus on scale in terms of both physical and digital terms as a result of increased digital infrastructure. Digital infrastructure that is well embedded in the business strategy is seen as a strategic dynamic capability as it enables the company to scale up or down their infrastructure in line with the market (Bharadwaj et al., 2013, p. 475).

As sharing economy is a growing trend in the global market the amount of literature has accelerated over the past years and is often referred to as an umbrella term (Trenz, Frey & Veit, 2018; Wilhelms, Merfeld & Henkel, 2017) encompassing heterogeneous initiatives that create different types of economic, environmental, or social value (Acquier, Carbone & Massé, 2019). According to Strømmen-Bakhtiar and Vinogradov (2020) there are several synonyms used for sharing economy, such as; access economy, collaborative consumption, collaborative economy, gig economy, and peer economy. This is supported by Bellotti et al. (2015, p. 1), arguing that alternative terms like; collaborative economy, collaborative consumption, and peer-to-peer economy, may refer to the same phenomenon as sharing economy.

Defining the sharing economy in a way that reflects common usage has proven to be difficult due to the wide range of perspectives (Schor, 2014, p. 3). However, Schor (2014, p. 3) categorizes sharing economy activities into four broad categories; (1) recirculation of goods, (2) increased utilization of durable assets, (3) exchange of services, and (4) sharing of productive assets. One recent attempt on providing a unified definition by Plewnia and Guenther (2018, p. 576) define sharing economy as "activities or platforms which facilitate the sharing of material, products, product services, space, money, workforce, knowledge, or information based on for-profit or non-profit transactions in a variety of different market structures". As this definition is rather broad, based on an analysis of 125 definitions, Schlagwein et al. (2019) revealed that most of the existing definitions were based on

transactions between peers. However, Mosmann and Klutt (2020, p. 40) find that sharing economy are identified across P2P, B2C and B2B relational patterns.

Sharing platforms, consisting of all involved parts, is referred to as communities where control and coordination is of high importance for being able to attract and retain participants (Mosmann & Klutt, 2020, p. 40-41). Their decisions regarding market orientation and market structure is fundamental when shaping the platforms' business model. In terms of market orientation, sharing economy platforms are either for-profit, striving to optimize generated revenue and asset maximization, or non-profit platform where the primary goal is to serve needs at a community rather than seeking growth or revenue maximization (Schor, 2014, p. 4-5). Companies' market structure reflects their market orientation, and the sharing economy literature distinguishes between P2P and B2C. Within P2P platforms, value capturing is generated through commissions where revenue-growth rise with the number of transactions, whereas for B2C platforms, value capturing occurs through maximizing revenue per transaction (Schor, 2014, p. 5). Sharing economy in terms of P2P has received a lot of attention within the field, and is referred to as multisided platforms, consisting of intermediaries who brings together distinct groups of users, where network effects is said to be a key differentiator when it comes to value creation (Bharadwaj et al., 2013, p. 475; Jabłoński, 2018). Communities as the source of value creation indicates a shift in value creation drivers (Stabell & Fjeldstad, 1998). Analysis conducted by Lang, Shang and Vragov (2015, p. 787) reveals that the co-creation mechanism within these communities can minimize the risk of revenue loss and will benefit the consumers as well as the producers.

Based on the underlying theory related to digital business models and sharing economy, we recognize a need for a better overview in the field of sharing economy. We note that much of the literature is based on the sharing economy as a whole, and does not differentiate between P2P, B2C and B2B. Agarwal and Steinmetz (2019, p. 12) suggests that P2P and B2B business models within the sharing economy can be variations of each other, but that B2B is rather excluded in existing literature. This missing link is also recognized by Grondys (2019) and Kathan et al. (2016) as they argue that existing literature to a large extent is focusing on private sharing and less focus on issues in B2B relations. As a result, we want to build this study on the analysis of existing literature.

3 Method

In order to enlighten the understanding of the ambiguous umbrella-term 'sharing economy' and identify P2P, B2C and B2B business model variations we conducted a broad and structured search in prior published research. We subsequently conducted a bibliometric analysis on the database of retrieved articles in order to distil our search further. There is a significant increase in quantification of science, especially within use of bibliographic analysis used for evaluation, thus monitoring of scientific outputs has become widespread (Verbeek, Debackere, Luwel & Zimmermann, 2002). Fahimnia, Sarkis and Davarzani (2015) promotes some of the strengths associated with bibliometrics:

> Network analysis through bibliometric tools can prove powerful for identifying established and emerging topical areas. It can also help identify the clusters of research and researchers showing how the various areas of thought may have emerged based on author and institutional characteristics. Identifying the more influential researchers within the clusters sets the stage for determining additional emergent study fields through capturing of more recent topics covered by these researchers. (p.102)

The aim of this study is to establish an understanding of business model variations as described in extant research on sharing economy, and thereby provide a foundation for future research and practice. Levy and Ellis (2006, p. 172-173) supports our choice of review as a literature review will help us (1) understand the existing body of knowledge, (2) provide us with a solid theoretical foundation, (3) substantiating the presence of the research problem, (4) justifying the proposed study as one that contributes something new, and (5) framing the valid research methodologies, approach, goals, and research question for the proposed study.

3.1 Search procedure and sample

We conducted an exhaustive search on the 05.02.2020 utilizing Web of Science (WoS) for various terms related to sharing economy business models and identified 1266 documents that were subsequently reduced to 184 relevant research articles suitable for our bibliometric analysis. To avoid missing some articles that could strengthen our study we conducted a "topic" search that will match the keywords used with all articles' title, abstract, author keywords and keywords plus.

The structured search, and subsequent refinement into a database of relevant research articles, progressed in several stages. Initially we experimented with several different search phrase combinations. By using the following search string *Topic=((Business-model) AND Topic=(Digit* OR Sharing-econom*))*, without any limitations, we identified 1266 documents in an exhaustive search for the period 1997-2020. As sharing economy to a high degree is a result of digitalization, we included digit* to ensure that we did not miss any documents. We then included only documents in English from the following categories; management, business, information science library science, communication, computer science information systems, environmental sciences, green sustainable science technology, environmental studies, telecommunications and economics. A common feature of these categories was that they had 50 or more contributions. Then, we limited our search to only include documents in the form of articles, proceedings papers, reviews, editorial material, book chapters and book reviews. This choice implied that we excluded early access and meeting abstract. Due to these limitations we had reduced our selection to 809 articles.

In the next stage, we selected all articles with ten or more citations within the timeframe 1997-2017, a total of 170 articles where we read all the abstracts. We then selected all articles within the timeframe 2018-2020. Research within this timeframe is the most recent and therefore we decided not to emphasize the amount of citations as the articles might not have reached a certain amount of citations yet. This was a total of 397 articles. Reading and analysing all relevant articles within the timeframe of 1997-2020 gave us an exhaustive search where the whole evolution of sharing economy is included.

With the new sample of 567 articles published between 1997 and 2020, we now conducted a first order categorization of these articles by colour coding, based on the relevance for our research question. Green indicated that the article was relevant, yellow indicated doubt, and red indicated that the article had nothing to add for the research question in our study. When all articles were categorized, we re-read all abstracts that were categorized yellow to further assess the relevance to our research ambition. This process done we had a total of 190 articles that we found relevant and interesting for our research. We subsequently omitted from our database the most recent articles of 2020 as this year had just started, and bibliometric analyses of that year would be skewed by the lack of a full year's publication. The 2020 articles were read and utilized in the positioning of our research question. Considering the final limitations and exclusions our final literature search sample was 184 articles which we downloaded from the WoS database.

3.2 Three phased analysis

The analysis of the 184 research articles included in our final search database also progressed in three distinct phases. First, we conducted a descriptive analysis of the overall characteristics of the sample. Subsequently, conducted a bibliometric analysis, and finally we utilized the bibliometric analysis to further distil our sample and identify 19 core research articles included in a content analysis.

3.2.1 Descriptive analysis

Downloading our final search from the WoS database to Excel we had the basis for the descriptive analysis. We cleaned all data in Excel so that the analytical tool Microsoft Power BI could read the data and create visualizations. Afterwards, all articles were represented with their title, author(s), journal, discipline category(s), and publication year. The descriptive analysis revealed the development within the field of sharing economy, journals that have emphasized the topic, and discipline categories. The purpose of the timeframe is to map out the development of published articles within the last 22 years whereas the categorization overview has the purpose of identifying to which categories the articles are allocated. We also constructed an overview of the top ten journals in terms of published articles.

3.2.2 Bibliometric analysis

Bibliometric analysis makes it possible to see similarities, patterns and provide insight into specific fields of academic research. Bibliometrics may be an appropriate tool for examining study areas, assessing outputs and outcomes of investigations, and providing objective evaluations of the rapidly growing research literature (Chalmers, Grant, Cottrell, Fawcett & Cluzeau, 2000; Narin, Olivastro & Stevens, 1994).

We applied the software VOSviewer on the database of 184 articles downloaded from WoS enabling us to conduct bibliometric analysis. To answer our research question we conducted co-occurrence, co-citation, and bibliographic coupling analysis in VOSviewer to get a visual overview in terms of keyword relevance and citations (Van Eck & Waltman, 2009). These analyses are some of the most common studied types of relations (Ding, Rousseau & Wolfram, 2016, p. 285). By applying VOSviewer we were able to make an overall visualization of the articles as they were categorized into four different clusters narrowing our dataset down to a core of highly relevant interrelated sharing economy articles. Between the items in the clusters there are links with different strength indicating the amount of cited references two publications

have in common, the number of publications two researchers have co-authored, or the number of publications in which two terms occur together (Van Eck & Waltman, 2020, p. 5). By calculating network centrality for individual articles related to each of these clusters we were able to identify central articles for each. Running a co-occurrence analysis creates a visualization of different clusters containing the most relevant keywords for the concept of sharing-econom* and thereby each keywords' development and popularity. When conducting the co-occurrence analysis we saw that both terms "business model" and "business models" was represented, so in order to obtain a more trustworthy analysis we created a VOSviewer thesaurus file in addition to the file including all 184 articles to combine those two terms represented as "business model". However, we did not combine terms like "digitization" and "digitalization" as these terms cover different aspects of the digital concept. According to Van Eck and Waltman (2020, p. 26) "a co-citation link is a link between two items that are both cited by the same document". The strength of co-citation is defined by the amount of identical citing items between the two cited articles (Small, 1973, p. 265).

To ensure that our content analysis is grounded on objective criteria we did a bibliographic coupling analysis as this method will exclude articles that do not share references with other articles. Van Eck and Waltman (2020, p. 26) explains a bibliographic coupling link as "a link between two items that both cite the same document". The purpose with this method was to check our subjective selected articles up with more objective criteria. Recognizing 17 of the core articles in the bibliographic coupling chart that VOSviewer generated, we were able to check the cluster they belonged, total link strength, and citations.

Visualizations created in VOSviewer are appropriate for analyzing a large variety of bibliometric networks and is often referred to as "science mapping" (Ding et al., 2016, p. 285). This method is appropriate for showing the relations between authors, or between articles (Small, 1973).

3.2.3 Content analysis

Finally, we utilized the findings from our bibliometric analysis to identify the most influential articles as we did a content analysis of the most relevant articles related to our research to spot conformity and differences within sharing economy business models. The categorization of the 567 articles and the exclusion of year 2020 resulted in a final of 184 articles representing the years 1997-2019. To get down to a core of highly relevant articles we did a two-fold process based on the 184 articles. This time we dug more into each article to ensure high thematic

relevance. After skim reading all articles with high focus on results, implications for practice, and conclusion, we were able to discard articles that did not contain information regarding business models or business model elements within the field of sharing economy. This process done we had identified 19 articles supported by the bibliographic coupling and the analysis of cluster belongingness, total link strength, and citations.

4 Findings

In order to get down to a core of relevant articles, a comprehensive analysis of the descriptive findings will be provided, as well as relevant maps generated from the bibliometric analysis. As the purpose of this assignment is to examine existing literature related to the sharing economy business models for P2P, B2C, and B2B, respectively, the three mapped business model elements will be outlined in the content analysis. Identified in the bibliometric analysis, existing literature is to a large extent associated with value creation, value capture, and value proposition which, in further analysis, have proven to be frequently used keywords over the past few years.

4.1 The descriptive analysis

The descriptive analysis will be carried out based on the 184 articles, examining the growth in terms of publications, what kind of journals these are published in, and which categories they belong. There has been a significant increase in the number of published articles in recent years, with the majority dealing within business and management, published in journals related to sustainability and technology.

To illustrate the exponential growth and interest in the phenomenon of sharing economy we mapped out all 184 publications in our database, from 1997 to 2019, enabling us to visualize the evolution of publications per year using Microsoft Power BI (Figure 1). The exponential increase results in 75 percent of the articles included in our database were published between 2017 and 2019. That the 25 percent of articles included in the database published prior to 2017 are distributed evenly over a fairly flat and stable period between the years 1997 and 2011 followed by a gentle increase in 2012 before the development really gained momentum in 2017. The steep development can be seen in light of the enormous development that companies like Uber and Airbnb have had over the last decade and the fact that an increasing proportion of people engage in sharing economy activities. It can be argued that the increase in publications

is due to researchers' higher interest when it comes to new business models and digitalization where the potential and consequences for new ways of doing business is massive.
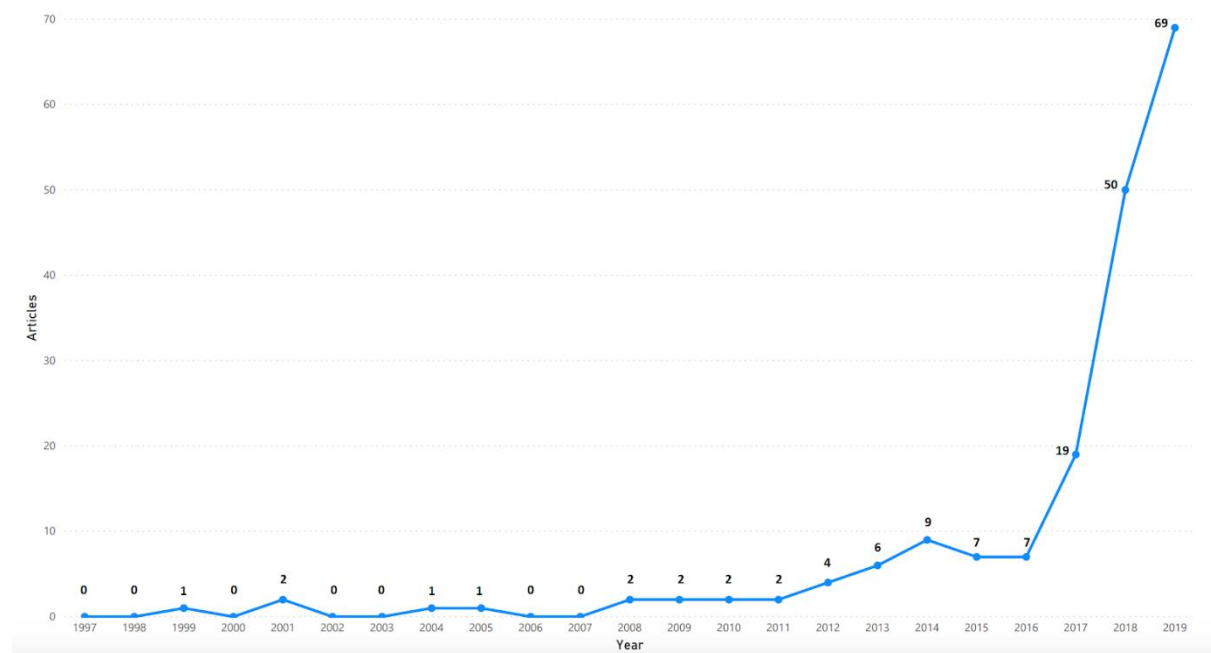
Figure 1: Development of publications per year for the period 1997-2019 (N=184).

In addition to increased interest for the phenomenon of sharing economy in terms of more published articles there is also a broad growth of interest in terms of involved journals. Based on our final literature search the 184 identified articles has been published in 101 different journals. Table 1 presents the top ten journals with the highest number of published articles within our final literature search. Journals related to environment, people, and ways of doing business are most prominent. Another observation worth notice is that the median for year published within each journal is in line with the development recognized in figure 1. The quartiles are retrieved from SCImago Journal & Country Rank and implies each journals' prestige and impact from Q1 (high) to Q4 (low). Academy of Management Discoveries is marked with Q0 as the journal were excluded from both SCImago Journal & Country Rank, and Scopus, the database used for crosschecking. Hence, Q0 indicate that this journal has low prestige and impact, and by looking more into these three articles their average citations is rather low. H-index shows the number of articles within the journal which have received at least h citations and can also be applied to show the productivity and impact of journals (SJR, 2020).

Table 1: Quantity, percentage, median, quartile, and H-index within each journal.

Journals	Quantity	% of 184	Median	Quartile	H-index
Sustainability	15	8,152 %	2018	Q2	53
Technological Forecasting and Social Change	14	7,609 %	2017	Q1	93
Business Horizons	7	3,804 %	2017	Q1	67
Industrial Marketing Management	7	3,804 %	2017	Q1	114
Journal of Cleaner Production	7	3,804 %	2019	Q1	150
Academy of Management Discoveries	3	1,630 %	2018	Q0	-
California Management Review	3	1,630 %	2019	Q1	118
International Journal of Information Management	3	1,630 %	2018	Q1	91
International Journal of Research in Marketing	3	1,630 %	2019	Q1	89
Internet Research	3	1,630 %	2018	Q1	71

Further, figure 2 is presenting the discipline categories of which the articles are allocated. For descriptive purposes we found it beneficial to include only those categories who stands for ten percent or more of the total quantity of the 184 articles. That said, as a majority of the 184 articles is allocated to more than one category, we found it reasonable to not re-categorize them to one discipline category only, as the original categorization will present a clear understanding of the current state within the different areas.
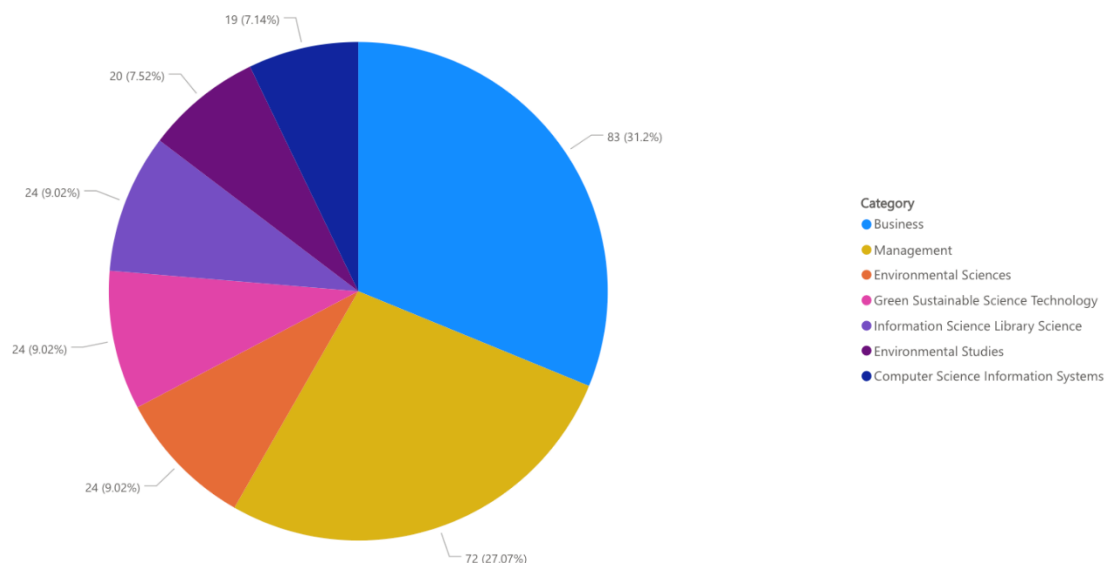
Figure 2: Number and percentage of publications within each discipline category.

The categories with the highest number of articles, "Business" and "Management", respectively, consists of 83 and 72 articles counting for 31,2% and 27,07% of the database. For both "Business" and "Management" 75% of the articles were published between 2017 and 2019 which reflects the development presented in figure 1. Considering the journals included in table 1, "Technological Forecasting and Social Change" was the most prominent journal in the "Business" category whereas the "Journal of Industrial Marketing Management" was the most prominent in the "Management" category. The high number of articles within these categories

might be a result of overlapping categories. As we dug deeper into our material of these two categories, we found that 31 articles were allocated to both "Business" and "Management". Sorting the articles after rising date within the "Business" category indicate that early contributions are focusing on the opportunities of e-commerce, e-marketplaces and file-sharing as a result of digitalization and its impact of doing business. During the last decade, both new and established firms within this category have emphasised business models. The sharing economy is well represented, hence it is reasonable to assume that this may be due to its impact of new ways of doing business. The high number of articles within the "Management" category can be explained by the changes affecting organizations when it comes to digitalization and therethrough structures and reorganization of resources.

The impact of digitalization and its trigger for new ways of doing business can explain the inclusion of 24 articles in "Information Science Library Science" and 19 articles in "Computer Science Information Systems" as these categories are primarily based on concepts of digitalization and tech. In terms of "Information Science Library Science" 50% of the articles were published between 2017 and 2019 whereas 37% of the articles within "Computer Science Information Systems" were published within the same timeframe. The most prominent journal within "Information Science Library Science" is "International Journal of Information Management", whereas "Internet Research" is the most prominent within "Computer Science Information Systems". Considering that nine articles within these two categories overlap each other it is reasonable to assume that many articles contribute to growth within both categories. The two categories regarding computer- and information science show that the development within IT and technology are significant and indicate that digitalization causes disruption to established practices. The articles within these categories are embracing technologies like Big Data, AI, and Internet of Things describing these factors as facilitators for sharing economy and other ways that disrupt existing ways of doing business. Within these two categories, digital transformation requires companies to rethink and innovate their business models by e.g. actively use social media, Big Data and IT (Bouwman, Nikou & de Reuver, 2019). Technological factors and digitalization featured within these two categories also seems to be the foundation for businesses practicing sharing economy. Digitalization and technologies such as blockchain and Internet of Things facilitates sharing of products and services, hence the emergence of new business models like sharing economy (Christidis & Devetsikiotis, 2016).

The green and sustainable aspect within sharing economy is also represented. The categories "Environmental Sciences" (24), "Green Sustainable Science Technology" (24), and

"Environmental Studies" (20) seems to comprise the aspect of sustainability and stands for 37% of our database. Within these categories the journal of "Sustainability" is clear at top, but "Journal of Cleaner Production" is also well represented. When it comes to overlapping categories, about 90% of these articles are categorized within all three categories. It is reasonable to assume that sustainability is affecting businesses, and ways of doing business, as society in general is paying increased attention to the environment and requires companies to take their share of corporate social responsibility. Hence, sustainability seems to be a trigger for changes within business and industries. Articles within these categories are allegedly highly focused on the benefits associated with environmental sustainability generated through business model innovation. Sustainability and environmental concerns seem to be a trigger for change in business models and hence the introduction of sharing economy business models. Sharing economy companies, e.g. Uber, are considered to operate a sustainable business model and seem to have obvious sustainable benefits as a result of more efficient use of resources (Ertz & Leblanc-Proulx, 2018).

4.2 Bibliometric analysis

In this chapter we carry out the three bibliometric analysis; co-occurrence, co-citation, and bibliographic coupling. The co-occurrence analysis substantiated the theory chapter and confirmed that P2P is a frequently used keyword related to sharing economy while B2C and B2B is less used. Two clusters for business models and sharing economy, respectively, were identified in the co-citation analysis, and after conducting the bibliographic coupling analysis we had a core of 19 articles.

4.2.1 Co-occurrence analysis

The co-occurrence analysis is generated in VOSviewer where several analyses were conducted to ensure high thematic relevance of keywords. Considering that our database is limited to 184 articles, we found it convenient to use three as the minimum number of occurrences of a keyword, to ensure that all relevant keywords are included for analytical purposes. Further, the analysis is based on the full counting method and author keywords. Using three as the number of threshold and requiring a minimum link strength of ten resulted in 23 keywords for the co-occurrence analysis presented in figure 3. The link strength requirement led to exclusion of keywords like "sme", "content analysis", "case study", and "internet".
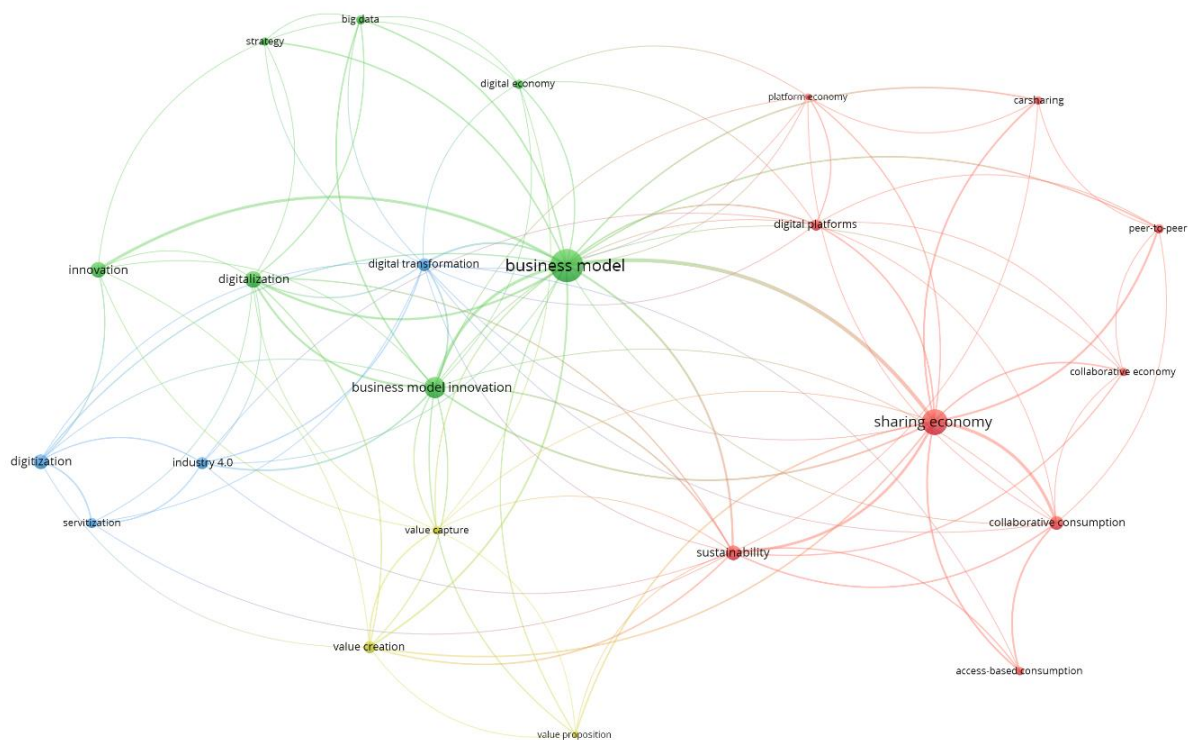
Figure 3: VOSviewer map illustrating the co-occurrence analysis as a network visualization.

Four clusters were identified in the co-occurrence analysis. For a systematic overview, keywords, number of occurrence (OC), and link strength (LS) are presented in table 2. Link strength of a keyword determines its node-size in figure 3. Cluster two (red) has "sharing economy" as the most influential keyword but other close related terms that were identified in the theory chapter like "collaborate consumption", "access-based consumption", and "collaborate economy" are represented as well. The keyword "peer-to-peer" indicates a large amount of sharing economy articles related to P2P, whereas keywords for B2C and B2B are not present. Cluster one (green) contains keywords related to business models and strategy, whereas cluster three (blue) consists of keywords related to digi*-concepts like "digital transformation" and "industry 4.0". Cluster four (yellow) contains three keywords representing the business model elements "value creation", "value capture", and "value proposition".

Table 2: Summary of the bibliometric findings within the co-occurrence analysis.

Cluster 1		
Keyword	**OC**	**LS**
Business model	64	108
Business model innovation	26	55
Digitalization	16	28
Innovation	14	26
Big data	5	14
Digital economy	5	11
Strategy	4	10

Cluster 2		
Keyword	**OC**	**LS**
Sharing economy	39	76
Sustainability	13	36
Collaborative consumption	12	27
Digital platforms	7	19
Peer-to-peer	5	13
Access-based consumption	4	11
Collaborative economy	4	11
Carsharing	4	10
Platform economy	3	10

Cluster 3		
Keyword	**OC**	**LS**
Digital transformation	10	26
Industry 4.0	9	19
Digitization	13	16
Servitization	6	11

Cluster 4		
Keyword	**OC**	**LS**
Value capture	4	13
Value creation	8	10
Value proposition	3	10

The co-occurrence analysis in VOSviewer is illustrated as a network visualization. Turning the graph into an overlay visualization, both clusters and keywords change their previous colours to colours representing the average year when each keyword has been included in published articles (figure 4). Colour bar in the bottom corner explains the presented colours in terms of average year published where blue represents the lowest average year, whereas yellow represents the highest average year published. The visualization shows that "peer-to-peer" has been the hottest included keyword the last years as the average publication year runs to 2018.60 with the year 2020 excluded from the dataset. "Sharing economy" is also frequently included with 2018.16 as the average publication year.

Moving to the other end of the scale, "business model" has an average publication year of 2016.90, which can be explained by the fact that other aspects of the sharing economy has received more attention than business models. Another interesting finding is "carsharing" with an average year of 2017.00. The reason for that might be due to the industry's early success and interest of researchers as the concept of sharing economy has grown rapidly the last years. It is therefore reasonable to assume that carsharing has been a preferable industry for researchers due to their early introduction and amount of data available and hence the large amount of P2P literature. From a business model perspective "value proposition" is more frequently used than "value creation" and "value capture" in recent time. Another interesting take away from the visualization is that the keywords "peer-to-peer", "collaborative economy" and "digital platforms" has a yellow link indicating not only that these keywords are frequently used in

recent times but that they also are frequently used together. As this study is focusing on the aspect of sharing economy, there will be close related literature that is excluded and hence a limitation for this study.
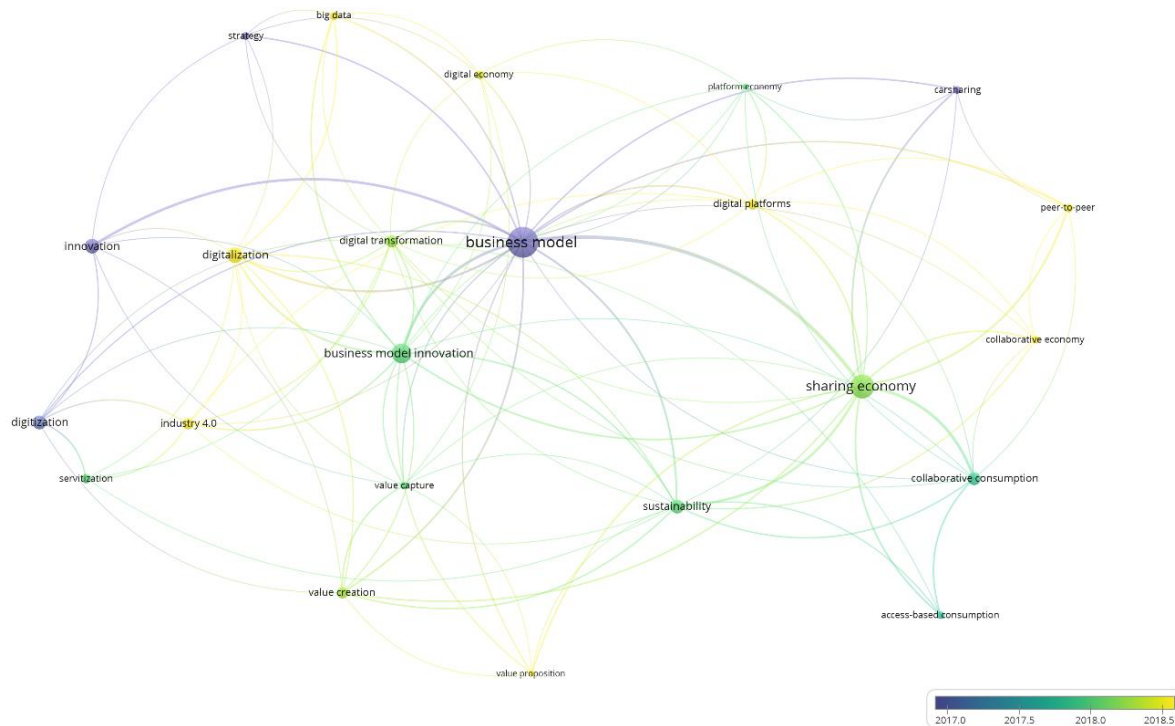

Figure 4: VOSviewer map illustrating the co-occurrence analysis as an overlay visualization.

4.2.2 Co-citation analysis

Figure 5 represents the co-citation analysis and illustrates the links between two items that are cited by the same article (Van Eck & Waltman, 2020, p. 26). This analysis is conducted using full counting method and 20 as the minimum number of citations of a cited reference, giving us 16 references which meet the threshold. Teece published the article "Business Models, Business Strategy and Innovation" in 2010 and is the most cited reference counting 50 citations. Based on our database, VOSviewer generated two clusters within co-citation that are further presented in table 3. Collecting all articles presented in figure 5 into a market list in WoS indicates a high number of articles published in journals for the field of strategic management like "Long Range Planning" and "Journal of Management". These findings are supported by the illustration in figure 5 as the red cluster is strongly related to topics as business, management and innovation. The green cluster on the other hand is more related to sharing economy and other close related terms like collaborate consumption. From the co-citation analysis, only Cohen and Kietzmann (2014) is included in our core articles as the other authors do not contribute to our research question. To illustrate this, Botsman and Rogers (2010) are studying the roots of collaborative

consumption, whereas Bardhi (2012) dig more into the nature of access-based consumption. An explanation that we have only managed to identify one of our core articles in this analysis may be due to the fact that business models have been studied for a long time, but that sharing economy is relatively new, hence fewer citations. Another explanation related to the green cluster may be that much has been done in the field of sharing economy but limited when it comes to business models.
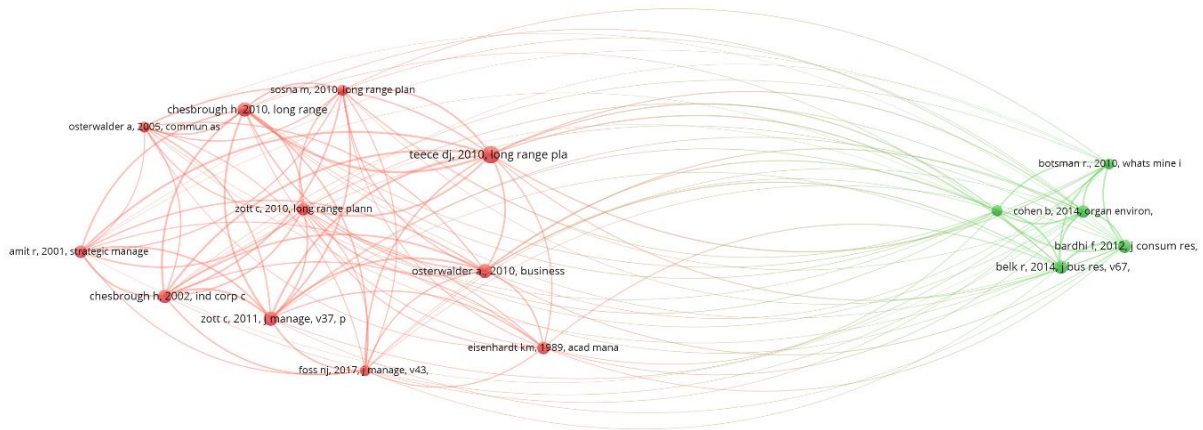
Figure 5: VOSviewer map illustrating the co-citation analysis.

Table 3: Summary of the bibliometric findings within the co-citation analysis.

Cluster 1			Cluster 2		
Author	OC	LS	Author	OC	LS
Teece dj, 2010	50	208	Belk r, 2014	33	97
Chesbrough h, 2010	37	168	Bardhi f, 2012	30	94
Osterwalder a, 2010	37	145	Cohen b, 2014	27	92
Zott c, 2011	34	174	Martin cj, 2016	22	89
Chesbrough h, 2002	33	159	Botsman r, 2010	22	80
Zott c, 2010	28	129			
Amit r, 2001	27	122			
Eisenhardt km, 1989	26	84			
Sosna m, 2010	21	125			
Foss nj, 2017	21	106			
Osterwalder a, 2005	20	92			

4.2.3 Bibliographic coupling analysis

Figure 6 is a map generated from bibliographic coupling in VOSviewer illustrating clusters of the most central articles. This method is used for recognizing core articles and separates clusters by colours based on each article's theme. Initially we had a database consisting of 17 articles where 12 of these were identified in the green cluster. Analysing the clusters in figure 6 indicates that the green cluster contains articles related to different sharing economy concepts, that be industry-specific cases, frameworks, and close related terms that are often overlapping

the sharing economy concept. As the green cluster consisted of 39 articles, we examined this cluster and other strong links to minimize the risk that we had excluded or missed relevant articles. This process done, we decided to include two articles from the green cluster, giving us a total of 19 core articles.

Figure 6 illustrate how the articles in the orange cluster contain analysis of cases covering transportation alternatives related to sharing economy. The turquoise cluster represents articles related to terms such as digital transformation, disruptive innovations and servitization. That be sharing economy initiatives described as disruptive innovations for established companies and how incumbents can transform their existing business models. Business model development and implementation is described in the yellow cluster focusing on sustainable features, whereas change management related to these initiatives is central in the red cluster.

Figure 6: VOSviewer map illustrating the bibliographic coupling analysis.

Preliminary research indicated a small amount of articles related to B2B business models within sharing economy, so to ensure that highly relevant articles discussing B2B business models within sharing economy were included, we did a new search in WoS with the following search strings; *"business-model" AND "sharing-econom*" OR "b2b"*, and *"business-model" AND "sharing-econom" OR "business-to-business"*.

4.3 Content analysis

Prior research has to a large extent studied the phenomenon of sharing economy without separating P2P, B2C, and B2B. The content analysis reveals that there are some quite unclear boundaries within the literature and that terms have been used interchangeably. Based on the approach that has been used for the content analysis, we have chosen to divide the chapter into the sub-groups P2P, B2C and B2B, where the identified business model elements "value creation", "value capture", and "value propositions" are presented within. Structural differences have been observed which in turn influence the way companies create value, capture value, and create added value for consumers. In addition, we chose to include other useful literature that has been identified which can help influence the research question of this study.

4.3.1 The P2P sharing economy business model

Value creation:

Identification of underutilized assets is the basis for value creation within the sharing economy and occurs through "P2P intermediation" with focus on decentralized P2P transactions (e.g. Airbnb) (Acquier et al., 2019, p. 9). P2P business models are described as a triadic relationship in the literature, consisting of providers, intermediaries, and consumers, where value creation control is decentralized (Ritter & Schanz, 2019). These triadic business models, applied by companies like Airbnb and Uber, are also referred to as multisided platforms (Piscicelli, Ludden & Cooper, 2018), and the consumer can be both businesses and individuals (Kumar, Lahiri & Dogan, 2018, p. 147). These business models, applied by e.g. Airbnb and Uber, are characterized as "matchmakers" as they are economic value creators focusing on decentralized for-profit transactions, whereas "mission-driven platforms" promoting a social cause are seen as extended value creators (Acquier et al., 2019, p. 13-15). The role of an intermediary between the two other parties can be performed in different ways, either as a physical person, or by using digital platforms or applications which has proven more efficient, faster, and cheaper transactions (Muñoz & Cohen, 2017; Šiuškaitė, Pilinkienė & Žvirdauskas, 2019, p. 375). Further, "well embedded proprietary technology in these platforms or applications (e.g. matchmaking and booking management) is the most important internal resource" (Guyader & Piscicelli, 2019, p. 1066). Value creation dimensions, thereby review system for which supplier and consumer can rate each other, are more present within service marketplaces (74%) than product marketplaces (40%) (Täuscher & Laudien, 2018, p. 323).

Value creation in terms of supply-side heterogeneity is generated "from the outside in" and is focusing on a high level of recruitment and autonomy where the primarily goal is to increase the usability by low control of both supply and interaction for the intermediaries (Kyprianou, 2018). On the other hand, value creation in terms of cross-side interactions is generated "from the inside out" and puts forward requirements for the recruitment process, to establish a certain set of standards, which in turn leads to a more balanced control system (Kyprianou, 2018). Due to marketplace-changes, "intermediaries are more likely to start with low control and then gradually move towards a balanced control system as more heterogeneous participants join the marketplace" (Kyprianou, 2018, p. 354).

Underutilized assets make the foundation for value creation (Acquier et al., 2019; Münoz & Cohen, 2017), but P2P services can be extended and "serve as an attractive and profitable option for households and private individuals" (Apte & Davis, 2019, p. 106). Value creation in P2P services has moved beyond Porter's value chain and now requires co-creation with several entities, simultaneously (Apte & Davis, 2019, p. 110). Initially, Apte and Davis (2019) have developed a business model, that is based on Osterwalder and Pigneur, where value creation reflects the company's ability to link customers, and easy use of platform. As service platforms like Airbnb and Uber do not offer any products or services of their own, they are generating value through "collecting, aggregating, and presenting information to potential customers and service providers" (Apte & Davis, 2019, p. 119; Cohen & Kietzmann, 2014).

Value capture:

Value capturing within P2P sharing economy is based on the two extremes; economic value creation and for-profit initiatives on one hand, and extended value creation and non- or limited-profit initiatives on the other hand (Acquier et al., 2019, p. 10).

"Mission-driven platforms" are focusing on extended value creation and are based on either non- or limited-profit, where voluntary contributions are crucial for staying operational (Acquier et al., 2019, p. 14; Šiuškaitė et al., 2019, p. 375). Value capturing may also occur through advertising or commissions that are compatible with their mission (Acquier et al., 2019, p. 12). On the other hand, "matchmakers" are focusing on economic value creation through for-profit platforms capturing value through commissions generated from market transactions between peers (Acquier et al., 2019, p. 12), "aiming to maximize their revenue stream" (Šiuškaitė et al., 2019, p. 375). Täuscher and Laudien's (2018, p. 321-323) analysis on key

revenue streams indicate that commissions are the most preferred option for marketplaces within P2P with 79%.

The case firm GoMore analysed by Guyader and Piscicelli (2019, p. 1066) has diversified their platform into multiple business models to reach different consumers, giving them a competitive advantage as they are able to exploit their resources to a maximum and at the same time meet more consumers from other segments. Value capture mechanism within the P2P platform is based on a commission fee (Guyader & Piscicelli, 2019, p. 1064).

Value proposition:

Value proposition is included as one of the nine business model building-blocks developed by Apte and Davis (2019, p. 117), and points out the importance of "being able to quickly link customers with suitable suppliers to cover customer needs". Other significant elements related to value propositions include response speed and variety of offerings regarding e.g. locations and standard related to properties or skill levels related to labour (Apte & Davis, 2019, p. 117).

In the case of the P2P mobility firm GoMore, the value propositions were based on "the intention to offer financial compensation for car ownership and travel costs to peer providers" (Guyader & Piscicelli, 2019, p. 1066). They were operating different business models simultaneously and could serve the P2P market with ridesharing and short-time car rental services alongside B2C long-term leasing, making them optimize their overall value proposition by offering "complementary shared mobility services to ensure that they meet a wide variety of consumer- and access needs" (Guyader & Piscicelli, 2019, p. 1066-1068). Sharing and redeploying their resources and capabilities across the different business models, made them more competitive in terms of quality, growth, and profits, but also gain more participants for their initial P2P business model (Guyader & Piscicelli, 2019). The increased focus on cost savings and efficiency in the case of GoMore is supported by Täuscher and Laudien (2018, p. 323) finding that 75% of their sample firms provide additional value by increasing cost savings or efficiency. However, as their sample contains 100 firms of which 60% P2P, 32% B2C, 8% B2B, it is reasonable to assume that a large extent of these 75% are P2P firms.

Other findings:

Studying the different user-profiles in terms of owners Wilhelms et al. (2017, p. 775) distinguishes between (1) cost-conscious, *"individuals who are driven by the desire to save money by renting out their vehicle"*, (2) spenders, *"driven by the generation of extra disposable income whereby participating in various activities enhances the overall quality of their life"* , and (3) sharers, *"participates for the joy of providing renters with mobility and play an integral part in the creation of mobility experiences"*. Social interaction with others is also put forward in the literature as a motivation for joining the P2P sharing economy (Wirtz, So, Mody, Liu & Chun, 2019, p. 471). User profiles in terms of renters has been distinguished between (1) budgeters, *"renters who participate in order to save money and limit their mobility budget"*, (2) convenience-lovers, *"driven by a desire to save time and reduce the hassle of renting a car"*, (3) status-conscious, *"individuals who want to signal their status"*, and (4) assurance-seekers, *"people who want to get the exact mobility experience they desire* (Wilhelms et al., 2017, p. 777-778).

These findings are in line with what Münzel, Piscicelli, Boon and Frenken (2019, p. 279) found in their study, as they point out cost-saving and increased convenience in addition to changes in personal circumstances (e.g. family and job) as the reasons to join the sharing economy in terms of carsharing. As trust is a crucial factor within the sharing economy, people who more often lend their car to other family-members or friends with positive experiences, are more likely to participate in P2P carsharing (Münzel et al., 2019, p. 290). Convenience, flexibility, low entry barriers, and reduced transaction costs, are also elements proven to have a positive impact on people's choice for entering a sharing platform (Wirtz et al., 2019, p. 471).

A comparison of one successful and one unsuccessful P2P platform indicates that a critical mass of users, high quality and quantity transactions, in addition to offer ancillary services has a positive impact on the platforms' financial situation (Piscicelli et al., 2018, p. 4589-4590). However, business model design and its execution is proven more directly related to success or failure than the platforms' type of users (Piscicelli et al., 2018, p. 4590). Social and environmental impact are also put forward as factors influencing growth (Piscicelli et al., 2018, p. 4589), but over the last years, "the motivation for joining the sharing economy has changed from an environmental perspective to more financial and convenience oriented" (Münzel et al., 2019, p. 279). In terms of motivation and desired benefits, consumers seeking social benefits were more likely to choose a sharing for free platform with in-person interaction, whereas consumers seeking economic benefits were more likely to choose renting without in-person

interaction (Stofberg & Bridoux, 2018, p. 1189). Based on these findings, Stofberg and Bridoux (2018, p. 1190) argue that "technological solutions cannot replace in-person interaction" and refers to the success of Airbnb.

4.3.2 The B2C sharing economy business model

Value creation:

The B2C sharing economy business model has to a large extent been concentrated to the field of carsharing (Acquier et al., 2019; Cohen & Kietzmann, 2014; Münzel et al., 2019; Vaskelainen & Münzel, 2018). In contrast to P2P and the triadic approach, value creation in terms of B2C is described as a relationship between provider and consumer and is referred to as a dyadic relationship (Ritter & Schanz, 2019). This dyadic business model has a form of governance structure that is characterized by centralization and where the primary focus is to possess unique and hard-to-imitate resources (Ritter & Schanz, 2019, p. 324). The centralized governance structure is reflected in the B2C value creation mechanism of Acquier et al. (2019, p. 9) where car rental companies (e.g. Zipcar) and databases for stored contributions (e.g. Wikipedia) is said to create value through "centralized resource pooling". Within carsharing, station-based and free-floating is identified as two alternative business models differing in asset availability to consumers (Vaskelainen & Münzel, 2018, p. 275). Station-based business models are using the same location for pick-up and delivery, whereas the free-floating model gives the consumer more flexibility in terms of pick-up and delivery and is primarily operating in large cities (Vaskelainen & Münzel, 2018, p. 275). These carsharing business models, operating with monetized access to a centralized resource pool, are further described in the literature as "shared infrastructure providers" and are characterized as economic value creators, whereas databases like Wikipedia is said to operate an "commoners" business model characterized as extended value creators where access primarily is free, thereby non-profit or limited profit (Acquier et al., 2019, p. 10-13).

Value capture:

The "commoners" business model is based on non-or limited-profit intentions, striving to capture value by combining different indirect approaches and keep costs at a low level by receiving voluntary work (Acquier et al., 2019, p. 11-13). These indirect approaches can take the form of support from third parties, such as public authorities and private donors, to receive financial or physical resources (Acquier et al., 2019, p. 13). Another approach consists of

running a "complementary for-profit activity to financially support the main mission" (Acquier et al., 2019, p. 13) such as introducing an online shop, or imposing a monthly fee. Another configuration, "shared infrastructure providers", are characterized as for-profit initiatives, where consumers can use the service for a fee, either as paying members or on a pay-per-use basis (Acquier et al., 2019, p. 10). "Shared infrastructure providers" embrace station-based and free-floating carsharing operators. Station-based carsharing is based on community logic where value capturing is based on time and distance (Vaskelainen & Münzel, 2018, p. 287), whereas carsharing within free-floating occurs through the same mechanisms but is based on market logic (Vaskelainen & Münzel, 2018, p. 286), indicating different price-level between these two models. The American carsharing company Zipcar offers a proprietary network of vehicles and capture value through both membership fees (e.g. monthly or annually), pay per use (usage based), and public subsidies (Acquier et al., 2019, p. 10).

In the case of GoMore, analysed by Guyader and Piscicelli (2019, p. 1061-1064), value capture in terms of B2C happens primarily through membership fees (monthly or yearly) or commissions. However, analysis conducted in the research of Täuscher and Laudien (2018, p. 323) states that commissions, or typical usage-based fees, are the primary revenue stream source within B2C marketplaces as 70% have this as the primary option.

Value proposition:

In terms of value propositions, the station-based business model is based on market and community logic whereas the free-floating model is based on corporation logic (Vaskelainen & Münzel, 2018, p. 287). The free-floating business model is a flexible solution for consumers as they can, to a larger extent, pick-up and deliver the car at different locations in contrast to the station-based business model.

Station-based and free-floating business models contribute both to reduction of emissions and congestion as people, especially generation Y, prefer renting a car when they need it rather than having their own car (Cohen & Kietzmann, 2014; Ferrell, Ferrell & Huggins, 2017). The value proposition of the case firm GoMore is based on offering car subscriptions to consumers for them to replace car ownership, and instead finance it through P2P car rental (Guyader & Piscicelli, 2019, p. 1064).

4.3.3 The B2B sharing economy business model

<u>Value creation:</u>

Sharing economy within the B2B sector operates with the aim of optimizing the use of resources and thereby create value for society (Grondys, 2019, p. 1). Implementing the sharing economy concept in the B2B sector facilitates (1) reduced production costs, (2) flexible response to customer needs and expectations, (3) faster rebranding through effective liquidation of assets, (4) more flexible and fulfilling more complex orders cheaper than before, and (5) inclusion of both suppliers and customers in the production process, sales and distribution (Grondys, 2019, p. 4). Facilitating for interaction between these actors will enable value co-creation among all stakeholders within the business' network (Laczko, Hullova, Needham, Rossiter & Battisti, 2019, p. 214). To be able to co-create value, Laczko et al. (2019, p. 216) points out the importance of providing a significant number of users and being attractive for new people to join in, which in turn leads to increased platform stickiness. On the other hand, it's important that the central actor is able to capture value from its stakeholders, as Laczko et al. (2019) describes as stakeholder profitability.

<u>Value capture:</u>

Capturing the value a company creates is crucial to survive, and the literature has been concentrated around the synergies between value creation and appropriation from the central actor's perspective (Laczko et al., 2019). Simultaneous occurrence of value creation and value capture has been put forward by Apte and Davis (2019) for the P2P sector and is taken further into the B2B sector by Laczko et al. (2019). Contributing to the literature of B2B sharing economy, the missing link between this simultaneous occurrence has been established by promoting eight value-driving mechanisms for the central actor to create value for its stakeholders, and simultaneously increase its own value capture opportunities (Laczko et al., 2019, p. 227). Collecting and analyzing data in terms of value capture is highlighted as one of these mechanisms as "this information can be used to create value by discovering stakeholder needs" (Laczko et al., 2019, p. 225). Further, in terms of value capture, analysis reveals that membership fees (66%) is a more frequently used revenue stream within B2B marketplaces than commissions (33%) (Täuscher & Laudien, 2018, p. 323).

<u>Value proposition:</u>

Resource sharing within the B2B sharing economy has created the coopetition market model, leading to reduced costs as a result of cooperation between competitors with the aim of operating for the benefit of consumers (Grondys, 2019, p. 3).

<u>Other findings:</u>

A central part in the research of Grondys (2019) is related to motivation for resource exchange by enterprises. The author states that a two-way resource exchange between firms is the most preferable method for sharing economy for those participating and that mutual exchange of resources is the foundation for sharing economy as it will make the company able to respond quickly on market changes through faster operations (Grondys, 2019, p. 8). "This means that enterprises use the sharing economy in their activities more willingly if the share of fixed assets in total assets is higher" (Grondys, 2019, p. 11). However, the study concludes that the type of resources does not constitute the main motivation when it comes to resource exchange, and that the absence of sharing economy within the B2B-sector is due to "the lack of appropriate technologies and information platforms" (Grondys, 2019, p. 13).

5 Discussion

A common statement is that the sharing economy is based on the efficacy and optimization of underutilized resources. Now that we have identified core articles with subsequent analysis, in this section we will discuss the findings of the previous three sections, where presented theory from chapter 2 and findings from the analyses in chapter 3 will serve as the foundation for discussion.

5.1 Value creation:

Findings in the content analysis indicate two different structures for P2P and B2C models, respectively, but where existing literature omits the discussion about B2B and its relation to these two structures. P2P is associated with a triadic structure, while B2C is characterized by a dyadic structure. The visual difference between these two structures is the inclusion of intermediaries within P2P, while in B2C there is direct interaction between supplier and consumer. To illustrate; P2P companies like Airbnb and Uber operate through an intermediary, linking suppliers and consumers through a common digital platform. These findings are in line

with what was identified in the theory chapter where the structure associated with P2P was referred to as multisided platforms. This term has also been used by some authors in the findings presented, but both multisided platforms and triadic business models refer to identical structure. Interaction in B2C companies, like Zipcar, occurs directly between the company and the consumer without an intermediary. This leads to decentralized control in P2P companies, while control for B2C companies is rather centralized. The literature regarding B2B does not decide whether it is a triadic or dyadic structure. It is reasonable to assume that the sharing economy within B2B may consist of companies offering their assets or services to other companies through an intermediary, while on the other hand, there is also the possibility that a rental company that itself owns assets or offer services rents out directly. It is therefore conceivable that B2B companies can have both a triadic and dyadic structure, depending on their ownership of the assets or services offered.

Further, based on triadic and dyadic structures, there has been identified four business model configurations differing in value creation focus whereas two was identified in the theory chapter as sharing economy was presented as a whole. The reason for the four business model configurations is that it has been separated between P2P and B2C. In terms of extended value creation, P2P platforms facilitate decentralized interaction between individuals to assist a social cause, whereas B2C platforms create value from contributors that is publicly accessible in a centralized resource pool. Economic value creation within P2P platforms occurs on a decentralized level between individuals through a created network, whereas B2C platforms provide temporary access for users to a centralized resource pool. However, the literature has identified two different carsharing business models in terms of B2C and centralized resources, station-based and free-floating models, indicating that B2C platforms are making their centralized pool more flexible to be able to compete with P2P platforms as free-floating can capture a market in between station-based B2C platforms and P2P platforms. Recognized in the bibliometric analysis, carsharing is a frequently used keyword within the 184 articles and is further close related to the keyword "peer-to-peer". The co-occurrence overlay visualization analysis reveals that carsharing has been included in the literature for years, possibly due to the early introduction of car rental companies. Its close relation to "peer-to-peer" can be explained by technological developments and companies like Uber.

Value co-creation on a general basis was put forward in the theory chapter. In the findings of this study there has been identified a need and high importance for value co-creation within both P2P and B2B business models, which requires coordination of stakeholders by the central

actor. Literature regarding co-creation within B2C has not been identified in the sample of this study, so it is unclear to us whether co-creation in terms of B2C is omitted from the literature or whether it does not exist. However, it can be argued that co-creation within B2C can contribute to value creation in terms of feedback from consumers and review systems.

5.2 Value capture:

In the theory chapter it was stated that value capture within P2P often takes place through commissions, while for B2C it was only mentioned that the focus was to get the most out of each transaction, not how this value creation happens. The four business model configurations described by Acquier et al. (2019) is differing in terms of value capturing. Business models related to extended value creation and non- or limited-profit activities is based on the foundation of voluntary work within P2P and B2C. Slight differences in terms of complementary profit activities that support the main mission has been identified. Business models related to economic value creation and for-profit activities are primarily based on commissions generated through market transactions within P2P platforms, as identified in the theory, whereas value capture within B2C platforms can constitute of both membership fees and commissions. In the case of GoMore presented by Guyader and Piscicelli (2019), their P2P platform capture value through commissions, whereas their B2C platform capture value from membership fees and commissions. These findings indicate consistency in the literature regarding value capture mechanisms within P2P, whereas value capturing in terms of B2C can vary slightly between commissions and membership fees.

However, B2C sharing platforms, both in terms of non-profit and for-profit business models, can receive support in form of public subsidies due to social and environmental considerations. This kind of support is not found in relation to P2P and B2B sharing platforms within our sample, which can indicate stronger acceptance for B2C platforms as regulatory and political disagreements are seen as obstacles for P2P platforms (Schor, 2014, p. 1).

Limited literature describes the value capture mechanism within B2B sharing platforms, but Täuscher and Laudien (2018) found in their analysis that membership fees is the most preferable revenue stream and that commissions are the second most preferable. The study also reveals that commissions are the most preferable revenue stream for P2P and B2C marketplaces (Täuscher & Laudien, 2018, p. 323).

5.3 Value propositions:

Value creation lays the foundation for creating value proposition and is divided into utilitarian value, emotional value, and social value (Täuscher & Laudien, 2018, p. 321). The analysis of GoMore, where value creation is based on operating different business models simultaneously, value propositions are created in form of cost savings, efficiency and green transportation, which in turn benefit the consumers (Guyader & Piscicelli, 2019, p. 1066). Within P2P carsharing companies, our findings indicate value propositions in terms of reception of compensation for the supplier, and lower costs for the consumer in the way they do not need to own the assets. In contrast, the literature regarding B2C value propositions is rather focusing on consumer flexibility related to the free-floating business model.

Sharing economy within the B2B sector is said to facilitate a network of suppliers possessing different assets or services, which will make firms able to respond quickly to market changes due to their access of necessary resources.

Technological developments make sharing economy activities more convenient for consumers as it facilitates easy interaction between the involved parties and can therefore been seen as a competitive advantage if utilized properly. Hence, value propositions can be generated as a result of better coordination of bookings and safety regarding fraud and theft, making more consumers start using sharing economy activities (Vaskelainen & Münzel, 2018, p. 283).

5.4 Other findings:

The theory chapter revealed that several synonyms were used to describe the same phenomenon which was backed by the bibliometric analysis, indicating that the term sharing economy is related to collaborative economy, collaborative consumption and access-based consumption, referred to as synonyms and close related- and alternative terms. These findings were further identified in our core-articles and can indicate that there are some inconsistencies associated with the use of the various terms.

Literature regarding P2P platforms seems more explored and well established than B2C and B2B sharing platforms and is seen as the foundation to the growth in the field of sharing economy (Kyprianou, 2018, p. 337). This statement is supported in our bibliometric analysis as "peer-to-peer" is present, whereas terms related to B2C and B2B is rather excluded. For B2B sharing platforms, this can be explained by the fact that there is a lack of appropriate technology and information platforms, hence limited literature (Grondys, 2019).

Another interesting finding is the present of the term "sustainability" in our co-occurrence analysis. Considering the number of articles identified in the descriptive analysis that were published in sustainability journals, sharing economy is contributing to society in the way it offers more environmentally friendly solutions. Another perspective that was introduced in the theory chapter and later identified in our findings, the green/environmental perspective, has been put forward as a motivational factor within P2P platforms. However, a study related to motivational factors for joining the P2P sharing economy, reveals that the main motivation has changed from an environmental perspective to more finance oriented. In terms of education and income level within P2P and B2C, cost-sensitive users seem to choose the form of P2P carsharing, whereas higher education and income corresponds to B2C carsharing (Münzel et al., 2019, p. 289).

6 Conceptualization

Based on analyses of findings and the ensuing discussion, there are some clear patterns. For the purpose of a better overview we have separated P2P, B2C and B2B, respectively, and each of the business model elements. There are several obvious similarities between these, but there are also some distinguishing characteristics that make them different in several ways. We have compiled these findings into a framework presented in table 4.

Table 4: Compilation of findings according to business model dimensions of P2P, B2C and B2B.

	P2P	B2C	B2B
Value creation	• Triadic structure *(Ritter & Schanz, 2019)* • Decentralized transactions *(Acquier et al., 2019)* • Co-creation *(Apte & Davis, 2019)* • Review-system *(Täuscher & Laudien, 2018)*	• Dyadic structure *(Ritter & Schanz, 2019)* • Centralized resource pool *(Ritter & Schanz, 2019; Acquier et al., 2019; Vaskelainen & Münzel, 2018)*	• Co-creation (Laczko et al., 2019; Grondys, 2019)
Value capture	• Commissions (Acquier et al., 2019; Täuscher & Laudien, 2018; Guyader & Piscicelli, 2019)	• Commissions, membership fees, and public subsidies (Acquier et al., 2019; Täuscher & Laudien, 2018; Guyader & Piscicelli; Vaskelainen & Münzel, 2018)	• Membership fees, Commissions (Täuscher & Laudien, 2018)
Value propositions	• Flexibility (Apte & Davis, 2019), Safety	• Flexibility (Vaskelainen & Münzel, 2018), Safety	• Flexibility, "Coopetition" (Grondys, 2019)
Examples	*Airbnb, Uber*	*Zipcar, Wikipedia*	*WeWork, HeadBox*
Distinguishing characteristics	Consist of a triadic structure where value creation takes place through decentralized transactions and co-creation where review systems are applied. Value capturing occurs through commissions, and emphasis is placed on flexibility and safety for the consumer.	Consist of a dyadic structure where value creation takes place in a centralized resource pool. Value capturing occurs through commissions, membership fees and public subsidies, and emphasis is placed on flexibility and safety for the consumer.	Consist of a polyadic structure where co-creation is the basis for value creation. Value capturing occurs through membership fees and commissions, and emphasis is placed on flexibility through coopetition.

Within the **value creation** dimension, two distinct structures have been identified for P2P and B2C, respectively. Triadic structure where interaction between two (or more) distinct types of users is facilitated by intermediaries is strongly associated with P2P platforms, while dyadic structure where interaction between owner and user occurs without the use of intermediaries is associated with B2C platforms. Within triadic structures, value creation takes place at a decentralized level, while within dyadic structures it occurs through a centralized resource pool. Ownership of resources is a part of the basis to separate the approaches; in P2P platforms, companies typically do not own any resources, while in B2C platforms, companies themselves own these resources. The literature does not relate B2B platforms to any specific type of structure, but as we argue that B2B platforms can take the form of triadic and dyadic structures, depending on the platform's purpose and thus ownership of resources, we characterize this as a polyadic approach in this ecosystem. However, value co-creation within P2P and B2B platforms has been put forward as crucial activities and take the form of review systems in P2P.

There are several similarities within the **value capture** mechanism. Commissions is put forward as a source of value capture within both P2P, B2C and B2B. Within P2P platforms commissions is the only mentioned source for value capturing and is the primary revenue stream within B2C platforms. However, it is also recognized that membership fees and public subsidies are other sources for value capturing within B2C. In terms of B2B platforms, membership fees is the most preferred revenue stream but commissions are also frequently used.

In terms of **value propositions**, flexibility in relation to their consumers is put forward within P2P and B2C which can be achieved through operating different business models that leads to cost savings and efficiency. Within B2B platforms flexibility for both consumers and the company itself is achieved through the network of suppliers, referred to as the coopetition-model. Technological developments that facilitate better coordination and safety in terms of fraud and theft will contribute to more comfortable users and hence serve as an important value extender.

7 Conclusion

This study has provided a bibliometric analysis based on an exhaustive, structured literature search, where the aim is to provide a review of the current state in the sharing economy related to P2P, B2C and B2B business models. The topic search identified 1266 documents which was reduced to 184 articles based on subjective and objective criteria. Conducting both descriptive- and bibliometric analyses we identified 19 core research articles. Our goal was to map out the business model developments related to P2P, B2C and B2B in order to obtain a better understanding of the current state of the sharing economy business model contingencies.

To answer the research question of this study we mapped similarities and differences in P2P, B2C and B2B sharing economy business models within the established business model dimensions "value creation", "value capture" and "value propositions". The study contributes by distinguishing important characteristics between P2P, B2C and B2B at each of the business model dimensions. Our study reveal that business model structures provide variations when it comes to value capturing and that technological developments and value networks are at the bases of value propositions. During the study we discovered other issues related to the sharing economy and its various business models, presented as other findings, but we chose to focus less on these and rather let them serve as a basis for further research. Moreover, the study confirms that most studies relates to P2P sharing economy business models. Consequently, further research is called for to better inform sharing economy business model variations, in particular for B2B. In addition, there is a lack of empirical studies, especially addressing B2B sharing economy business models and contingencies of these experienced within different industries and business sectors. However, we recognize that there are some limitations for this study in terms of time and place for the conducted search.

7.1 Main contribution

To promote our main contributions in this study, we have developed a framework that visually presents the results of this study. We have managed to sort the literature and clearly distinguish between business models and the three underlying value dimensions "value creation", value capture" and "value propositions" related to P2P, B2C and B2B, respectively.

Within the sharing economy, P2P business models consist of a triadic structure where value creation takes place through decentralized transactions and co-creation where review systems are applied. Value capturing occurs through commissions, and emphasis is placed on flexibility and safety for the consumer. B2C business models consist of a dyadic structure where value

creation takes place in a centralized resource pool. Value capturing occurs through commissions, membership fees and public subsidies, and emphasis is placed on flexibility and safety for the consumer. B2B business models consist of a polyadic structure where co-creation is the basis for value creation. Value capturing occurs through membership fees and commissions, and emphasis is placed on flexibility through coopetition.

7.2 Practical implications

As a result of digitalization and its influence, a shift has been identified in moving towards a new set of business models where emphasis has been placed on resource exchange. This shift puts pressure on business leaders to transform their existing business models so that the company can behave competitively. This study has covered a large body of literature where 19 of the most relevant articles have been used for the preparation of the presented framework. The purpose of this study was to sort the literature from which the proposed framework clearly distinguishes between business models for P2P, B2C and B2B in the sharing economy and can serve as an important contributor and basis for discussion related to various strategic decisions. We therefore suggest that management teams making decisions with an impact of the company's business model use the proposed framework as it provides useful information related to various structures and thereby value creation and value capturing activities.

7.3 Limitations

The foundation of this article is limited to a topic search that is based on a specific search string within a specific database. There is recognized that the identified articles in this study may differ from those that are based on other search strings and databases. Further, applied sampling strategy is based on a combination of objective and subjective criteria, but could contain a higher degree of manual reviews for all identified articles regarding business models within the sharing economy. However, this process would lead to a sample that primarily were based on subjective criteria and exposed for personal opinions. The systematic process applied in this study, containing both objective and subjective criteria provides, in our opinion, a clear understanding of business models within the concept of sharing economy.

7.4 Further research

The field of sharing economy has proven to be unstructured in the form of literature that spreads in different directions. Hence, it would be appropriate to conduct a similar study with an expanded scope in terms of extended and broader set of databases. Further research should try

to confirm what we have deducted in this study more conceptually and map all business models within the field of sharing economy. Through this, it might be possible to say more about what kind of structures are linked to B2B platform, as this has proven to be deficient in the literature. In general, there were few authors who considered business models related to B2B and it may therefore be appropriate to get more perspectives in this area. As we identified several close related terms for the sharing economy, one alternative research would be to conduct a study which attempts to clarify any similarities and differences as this will make the literature clearer. Motivational factors within P2P were well established, but further research should investigate these factors in terms of B2C and B2B as asset-owners and renters are fundamental for the platform's existence.

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Appendix I

	Author(s)	Year	Title
1.	Acquier, A., Carbone, V. & Massé, D.	2019	How to Create Value(s) in the Sharing Economy: Business Models, Scalability, and Sustainability.
2.	Apte, U. & Davis, M.	2019	Sharing Economy Services: Business Model Generation.
3.	Cohen, B., & Kietzmann, J.	2014	Ride On! Mobility Business Models for the Sharing Economy.
4.	Ferrell, O., Ferrell, L. & Huggins, K.	2017	Seismic Shifts in the Sharing Economy: Shaking Up Marketing Channels and Supply Chains.
5.	Grondys, K.	2019	Implementation of the Sharing Economy in the B2B Sector.
6.	Guyader, H. & Piscicelli, L.	2019	Business model diversification in the sharing economy: The case of GoMore.
7.	Kumar, V., Lahiri, A. & Dogan, O.	2018	A strategic framework for a profitable business model in the sharing economy.
8.	Kyprianou, C.	2018	Creating Value from the Outside In or the Inside Out: How Nascent Intermediaries Build Peer-to-Peer Marketplaces.
9.	Laczko, P., Hullova, D., Needham, A., Rossiter, A. & Battisti, M.	2019	The role of a central actor in increasing platform stickiness and stakeholder profitability: Bridging the gap between value creation and value capture in the sharing economy.
10.	Muñoz, P. & Cohen, B.	2017	Mapping out the sharing economy: A configurational approach to sharing business modeling.
11.	Münzel, K., Piscicelli, L., Boon, W. & Frenken, K.	2019	Different business models – different users? Uncovering the motives and characteristics of business-to-consumer and peer-to-peer carsharing adopters in The Netherlands.
12.	Piscicelli, L., Ludden, G. & Cooper, T.	2018	What makes a sustainable business model successful? An empirical comparison of two peer-to-peer goods-sharing platforms.
13.	Ritter, M. & Schanz, H.	2019	The sharing economy: A comprehensive business model framework.
14.	Šiuškaitė, D., Pilinkienė, V. & Žvirdauskas, D.	2019	The Conceptualization of the Sharing Economy as a Business Model.
15.	Stofberg, N. & Bridoux, F.	2019	Consumers' choice among peer-to-peer sharing platforms: The other side of the coin.
16.	Täuscher, K. & Laudien, S.	2018	Understanding platform business models: A mixed methods study of marketplaces.
17.	Vaskelainen, T. & Münzel, K.	2018	The Effect of Institutional Logics on Business Model Development in the Sharing Economy: The Case of German Carsharing Services.
18.	Wilhelms, M., Merfeld, K. & Henkel, S.	2017	Yours, mine, and ours: A user-centric analysis of opportunities and challenges in peer-to-peer asset sharing.
19.	Wirtz, J., So, K., Mody, M., Liu, S. & Chun, H.	2019	Platforms in the peer-to-peer sharing economy.

Appendix II

A bibliometric analysis deconstructing extant research on sharing economy business models

Special Track: Knowledge and Digital Application

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Abstract

Digitalization has become known as one of the biggest drivers of developments in society and has put pressure on companies to innovate their business models with emphasis on the opportunities provided by application of new digital technologies. Accordingly, there has been a major growth in business models focusing on resource exchange, referred to as sharing economy. Currently, there is also a growing interest among researcher into the phenomenon of sharing economy with an exponential growth in published research. However, to date the literature addressing the sharing economy appears complex and unstructured. The purpose of this study is to take stock of extant literature with a particular focus on distinguishing between constituent elements of sharing economy business models across peer-to-peer (P2P), business-to-consumer (B2C) and business-to-business (B2B). This study was conducted using a bibliometric method to map prior research in the field of sharing economy. Utilizing a broad structured search in the Web of Science database we identify the most relevant articles and synthesis its insight to suggest a framework distinguishing between core properties of P2P, B2C and B2B sharing economy business models. In addition to provide a better overview of existing literature, the framework provides a foundation upon which further research can be built. The framework can also serve practitioners with a better understanding of the phenomenon of sharing economy and thereby a better basis for making strategic decisions in relation to their business model innovations.

1 Introduction

Digital transformation requires businesses to rethink and innovate their business models. Li, Brass, Hitt, Wang and Li (2018) claims that Internet and Big Data are currently making an impact in all industries, and therefore businesses need to reconsider their business models adapting to the environment. As new forms of businesses evolve, there is an emerging growth of practices of a sharing economy. A recent search on google scholar indicate an astonishing amount of published research articles for search phrases, such as: "digital business models"- 3 080, "digitalization" - 61 800, and "sharing economy"- 28 000 - only since 2016! Another illustration of the increasing interest in the sharing economy is the recent number of special issues addressing the phenomenon (Maurer, Mair & Oberg, 2020). In practice, within Europe's five most prominent sharing economy sectors, total value of transactions is expected to reach €335bn within 2025, from €28bn in 2015 (PwC UK, 2016, p. 3-4). This indicates increased attention to the phenomenon of a sharing economy, for research and practice alike.

Despite an overwhelmingly growing interest in the emerging phenomenon of sharing economy, it is referred to as an umbrella concept that is conceptualized with an inherent variety and unclear dynamics (e.g. Trenz, Frey & Veit, 2018; Wilhelms, Merfeld & Henkel, 2017). To date, there exists no unified definition (Schor, 2014) and the phenomenon remains debated (Martin, 2016). However, the idea of sharing instead of owning is not new (Belk, 2010; Botsman & Rogers, 2010; Schor, 2014). Extant research refers to the same phenomenon with terms ranging from; access economy, circular economy, collaborative consumption, collaborative economy, gig economy, to peer economy (Bellotti et al., 2015; Strømmen-Bakhtiar and Vinogradov, 2020). Despite the vast number of interchangeable terms, extant research seems to agree on some core properties of the phenomenon; relating to (1) peer platforms that coordinate (2) peer providers and (3) peer consumers. (e.g. Botsman & Rogers, 2010; Hamari, Sjöklint & Ukkonen, 2015; OECD, 2016; Schor, 2014). Schlagwein, Schoder and Spindeldreher (2019) suggest, after an analysis of 125 definitions, that commonly addressed core properties of 'sharing economy' relates to peer activities of coordinating sharing of goods or services through a digital technology platform without transfer of ownership. Consequently, existing research within the sharing economy is primary focusing on issues related to peer-to-peer (P2P) activities of obtaining, giving, or sharing access to goods and services, coordinated through community-based online services (Maurer et al., 2020), and have recently also attended to the P2P business models underpinning the sharing economy phenomenon (e.g. Apte & Davis, 2019; Assadi, 2020; Mosmann & Klutt, 2020).

However, established business model research (e.g. Baden-Fuller & Haefliger, 2013; Osterwalder & Pigneur, 2010; Teece, 2010; Zott, Amit & Massa, 2011) emphasize the distinction between business-to-consumer (B2C) and business-to-business (B2B) business models, but it remains uncharted to assess how these established business model distinctions relates to the P2P patterns described in the sharing economy literature. A business model "defines how the enterprise creates and delivers value to customers, and then converts payments received to profits" (Teece, 2010, p. 173). Mosmann and Klutt (2020) argue that the sharing can be of a commercial or non-commercial nature, and therefore that the understanding of the phenomenon of sharing economy could be extended beyond P2P, B2C and B2B business models in particular. Therefore, the aim of this study is to assess extant

research addressing sharing economy business models to synthesize a foundation upon which subsequent empirical research can be built. There is especially called for more research to unresolved issues in the case of B2B relations (Grondys, 2019), emphasis on the commercial aspects (OECD, 2016), and Agarwal and Steinmetz (2019) calls for further research on B2B and their engagement in sharing economy (Kathan, Matzler & Veider, 2016). Moreover, the lack of theorization of the business model variations underpinning the sharing economy in general, and in relation to distinctions between P2P, B2C and B2B in particular, warrant taking stock of extant research to establish a unified foundation for subsequent research (Maurer et al., 2020). The ambition of this study is therefore to address the following research question: *How can sharing economy business model variations and similarities be conceptualized beyond P2P and thus encompass traditional business model perspective of B2C and B2B?*

In order to address this research ambition, we started out examining extant published academic research by conducting a structured literature search, resulting in an initial sample of 1266 documents for the timeframe 1997-2020. By excluding irrelevant categories we had a final of 184 articles for our bibliometric analysis. To conduct the bibliometric analysis, we applied VOSviewer and identified 19 highly relevant interrelated sharing economy articles upon which we conducted a content analysis. This study identifies core articles addressing the constituent elements of sharing economy business model and illuminate variations and similarities across P2P, B2C and B2B business models as these are reported in extant research. Discussing these findings against the underlying theory, we suggest a framework distinguishing between P2P, B2C and B2B sharing economy business models. The proposed framework can serve as an important contributor and basis for discussion related to strategic decisions as it provides useful information for various structures and thereby value creation and value capturing activities, as well as guide future research.

2 Theory

The purpose of this chapter is to explain the concept of business models and how it relates to the sharing economy and thereby illustrate the gap in current theorization. Extant theory on business models will be presented before introducing current theory on the transition of sharing economy as well as business models variations.

2.1 Digital business models

Recently, "digitalization has been identified as one of the major trends changing society and business in general" (Parviainen, Tihinen, Kääriäinen & Teppola, 2017, p. 63; Veit et al., 2014). Since digitalization has influenced various business activities including companies' business models, "digitalization has put pressure on companies to reflect on their current strategy and explore new business opportunities, by transforming their existing business models" (Rachinger, Rauter, Müller, Vorraber & Schirgi, 2019, p. 1143). This digital transformation is causing change in companies' business model, that be changes related to their products or services, the organizational structure, or automation of processes (Hess, Matt, Benlian & Wiesböck, 2016). Further, fundamental changes in the way businesses operate and generates value is referred to as a shift towards digital business models and the missing link between business strategy, processes, and information technology (Veit et al., 2014). Technology facilitates easy access to information and customer solutions at a lower cost, hence it is argued that businesses needs to be more customer-centric (Teece, 2010, p. 172). In terms of digital transformation, businesses need to re-evaluate their value propositions in terms of understanding business model design options as well as customer needs and technological trajectories (Teece, 2010, p. 173).

2.2 Sharing economy

The financial collapse in 2008 necessitated that people and firms found new and creative ways to create value and reduce costs (Habibi, Davidson & Laroche, 2017). Re-creating value by using existing resources, either for monetary or non-monetary benefits, contributed to more efficient use of resources (Botsman & Rogers, 2010). As a result, the term "sharing economy" were introduced and opened new ways to deal with capitalism and consumerism (Agarwal & Steinmetz, 2019). The increased attention regarding sharing economy is causing disruption in well-established and mature industries when consumers are provided with convenient and cost-efficient access to resources without the responsibility of ownership (Eckhardt & Bardhi, 2015; Schor, 2014, p. 4; Trabucchi, Muzellec & Ronteau, 2019).

Defining the sharing economy in a way that reflects common usage has proven to be difficult due to the wide range of perspectives (Schor, 2014, p. 3). One recent attempt on providing a unified definition by Plewnia and Guenther (2018, p. 576) define sharing economy as "activities or platforms which facilitate the sharing of material, products, product services, space, money, workforce, knowledge, or information based on for-profit or non-profit transactions in a variety of different market structures". However, Mosmann and Klutt (2020, p. 40) find that sharing economy are identified across P2P, B2C and B2B relational patterns. Hence, the literature indicates a shift towards a new set of business models that are emphasizing resource exchange rather than offering new ones (Laamanen, Pfeffer, Rong & Van de Ven, 2018, p. 213).

Access to new technology and its potential benefits has been an interesting topic within sharing economy as it allows for interaction between individuals, who not necessarily know each other, to get in touch for resource exchange (Schor, 2014, p. 12). Both products and services are described in the digital business strategy literature as they both can take advantage of the possibilities within digital resources (Bharadwaj, El Sawy, Pavlou & Venkatraman, 2013, p. 474). More user-friendly solutions as a result of digital improvements is facilitating more comfortable users, which in turn can open new business opportunities as a result of increased quality and quantity of generated data (Bharadwaj et al., 2013, p. 474; Laamanen et al., 2018, p. 213; Schor, 2014). Digital infrastructure that is well embedded in the business strategy is seen as a strategic dynamic capability as it enables the company to scale up or down their infrastructure in line with the market (Bharadwaj et al., 2013, p. 475).

Sharing platforms, consisting of all involved parts, is referred to as communities where control and coordination is of high importance for being able to attract and retain participants (Mosmann & Klutt, 2020, p. 40-41). Their decisions regarding market orientation and market structure is fundamental when shaping the platforms' business model. In terms of market orientation, sharing economy platforms are either for-profit, striving to optimize generated revenue and asset maximization, or non-profit platform where the primary goal is to serve needs at a community rather than seeking growth or revenue maximization (Schor, 2014, p. 4-5). Companies' market structure reflects their market orientation, and the sharing economy literature distinguishes between P2P and B2C. Within P2P platforms, value capturing is generated through commissions where revenue-growth rise with the number of transactions, whereas for B2C platforms, value capturing occurs through maximizing revenue per transactions (Schor, 2014, p. 5). Sharing economy in terms of P2P has received a lot of attention. P2P is referred to as multisided platforms, consisting of intermediaries who brings together distinct groups of users where network effects is said to be a key differentiator when it comes to value creation (Bharadwaj et al., 2013, p. 475; Jabłoński, 2018). Communities as the source of value creation indicates a shift in value creation drivers (Stabell & Fjeldstad, 1998). Analysis conducted by Lang, Shang and Vragov (2015, p. 787) reveals that the co-creation mechanism

within these communities can minimize the risk of revenue loss and will benefit the consumers as well as the producers.

Based on the underlying theory related to digital business models and sharing economy, we recognize a need for a better overview in the field of sharing economy. We note that much of the literature is based on the sharing economy as a whole, and does not differentiate between P2P, B2C and B2B. Agarwal and Steinmetz (2019, p. 12) suggests that P2P and B2C business models within the sharing economy can be variations of each other, but that B2B is rather excluded in existing literature. This missing link is also recognized by Grondys (2019) and Kathan et al. (2016) as they argue that existing literature to a large extent is focusing on private sharing and less focus on issues in B2B relations.

3 Methodology

In order to enlighten the understanding of the ambiguous umbrella-term 'sharing economy' and identify P2P, B2C and B2B business model variations we conducted a broad and structured search in prior published research. We subsequently conducted a bibliometric analysis on the database of retrieved articles in order to distil our search further. There is a significant increase in quantification of science, especially within use of bibliographic analysis used for evaluation and monitoring of scientific outputs has become widespread (Verbeek, Debackere, Luwel & Zimmermann, 2002). Fahimnia, Sarkis and Davarzani (2015) promotes some of the strengths associated with bibliometrics:

> Network analysis through bibliometric tools can prove powerful for identifying established and emerging topical areas. It can also help identify the clusters of research and researchers showing how the various areas of thought may have emerged based on author and institutional characteristics. Identifying the more influential researchers within the clusters sets the stage for determining additional emergent study fields through capturing of more recent topics covered by these researchers. (p. 102)

The aim of this study is to establish an understanding of business model variations as described in extant research on sharing economy, and thereby provide a foundation for future research and practice. Levy and Ellis (2006, p. 172-173) supports our choice of a literature review to (1) understand the existing body of knowledge, (2) provide us with a solid theoretical foundation, (3) substantiating the presence of the research problem, (4) justifying the proposed study as one that contributes something new, and (5) framing the valid research methodologies, approach, goals, and research question for the proposed study.

3.1 Search procedure and sample

The structured search, and subsequent refinement into a database of relevant research articles, progressed in several stages. Initially we experimented with several different search phrase combinations. By using following search string *Topic=((Business-model) AND Topic=(Digit* OR Sharing-econom*))*, without any limitations, we identified 1266 documents in an exhaustive search for the period 1997-2020, enabling us to understand the development of research focusing on the sharing economy. Then, we limited our search to only include English documents from articles, proceedings papers, reviews, editorial material, book chapters and book reviews. Excluding irrelevant categories and keep those with 50 or more contributions, we had reduced our database to 809 articles.

In the next stage, we selected all articles with ten or more citations within the timeframe 1997-2017, a total of 170 articles where we read all the abstracts. For all 397 articles within the timeframe 2018-2020 we did not emphasize the amount of citations as the articles might not have reached a certain amount of citations yet.

With the new sample of 567 articles published between 1997 and 2020, we now conducted a first order categorization of these articles by colour coding, based on the relevance for our research question, reducing the sample to 190 relevant articles. We subsequently omitted from our database the most recent articles of 2020 as this year had just started, and bibliometric analyses of that year would be skewed by the lack of a full year's publication. The 2020 articles were read and utilized in the positioning of our research question. Considering the final limitations and exclusions our final literature search sample was 184 articles which we downloaded from the WoS database.

3.2 Three phased analysis

The analysis of the 184 research articles included in our final search database also progressed in three distinct phases. First, we conducted a descriptive analysis of the overall characteristics of the sample. Subsequently, conducted a bibliometric analysis, and finally we utilized the bibliometric analysis to further distil our sample and identify 19 core research articles included in a content analysis.

3.2.1 Descriptive analysis

Downloading our final search from the WoS database to Excel we had the basis for the descriptive analysis. We cleaned up all data in Excel so that the analytical tool Microsoft Power BI could read the data and create visualizations. Afterwards, all articles were represented with their title, author(s), journal, discipline category(s), and publication year. The descriptive analysis revealed the development within the field of sharing economy, journals that have emphasized the topic and discipline categories. The purpose of the timeframe is to map out the development of published articles within the last 22 years whereas the categorization overview has the purpose of identifying which categories the articles are allocated. We also constructed an overview of the top ten journals in terms of published articles.

3.2.2 Bibliometric analysis

We applied the software VOSviewer on the database of 184 articles downloaded from WoS enabling us to conduct bibliometric analysis. To answer our research question we conducted co-occurrence, co-citation, and bibliographic coupling analysis in VOSviewer to get a visual overview in terms of keyword relevance and citations (Van Eck & Waltman, 2009). This analysis is some of the most commonly studied types of relations (Ding, Rousseau & Wolfram, 2016, p. 285). By applying VOSviewer we were able to make an overall visualization of the articles as they were categorized into four different clusters narrowing our dataset down to a core of highly relevant interrelated sharing economy articles. By calculating network centrality for individual articles related to each of these clusters we were able to identify central articles for each cluster. When conducting the co-occurrence analysis we saw that both terms "business model" and "business models" was represented. In order to obtain a more trustworthy analysis we created a VOSviewer thesaurus file in addition to the file including all 184 articles to combine those two terms represented as "business model". However, we did not combine terms like "digitization" and "digitalization" as these terms cover different aspects of the digital concept.

3.2.3 Content analysis

Finally, we utilized the findings from our bibliometric analysis to identify the most influential articles as we did a content analysis of the most relevant articles related to our research to spot conformity and differences within sharing economy business models. The categorization of the 567 articles and the exclusion of year 2020 resulted in a final of 184 articles representing the years 1997-2019. To get down to a core of highly relevant articles we did a two-fold process based on the 184 articles. This time we dug more into each article to ensure high thematic relevance. After skim reading all articles with high focus on results, implications for practice, and conclusion, we were able to discard articles that did not contain information regarding business models or business model elements within the field of sharing economy. This process done we had identified 19 articles supported by the bibliographic coupling and the analysis of cluster belongingness, total link strength, and citations.

4 Findings

There has been a significant increase in the number of published articles in recent years, with the majority dealing within business and management, published in journals related to sustainability and technology.

4.1 Descriptive and bibliometric analysis

The exponential increase results in 75 percent of the articles included in our database were published between 2017 and 2019. That the 25 percent of articles included in the database published prior to 2017 are distributed evenly over a fairly flat and stable period between the years 1997 and 2011 followed by a gentle increase in 2012 before the development really gained momentum in 2017 (Figure 1).
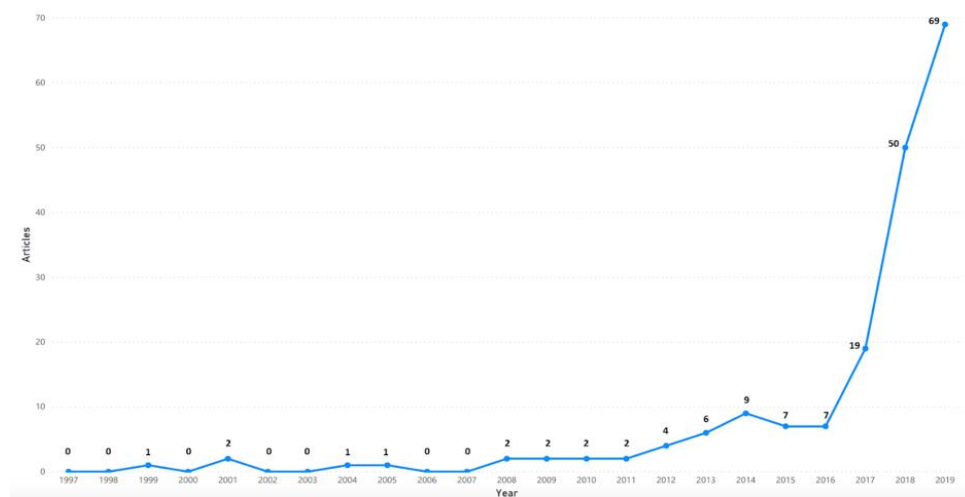

Figure 1: Development of publications per year for the period 1997-2019 (N=184)

The co-occurrence analysis (Figure 2) is generated in VOSviewer where several analyses were conducted to ensure high thematic relevance of keywords. Cluster two (red) has "sharing economy" as the most influential keyword but other close related terms that were identified in the theory chapter like "collaborate consumption", "access-based consumption", and "collaborate economy" is represented as well. The keyword "peer-to-peer" indicates a large amount of sharing economy articles related to P2P, whereas keywords for B2C and B2B is not present. Cluster one (green) contains keywords related to business models and strategy whereas cluster three

(blue) consists of keywords related to digi* concepts like "digital transformation" and "industry 4.0". Cluster four (yellow) contains three keywords representing the business model elements "value creation", "value capture", and "value proposition".
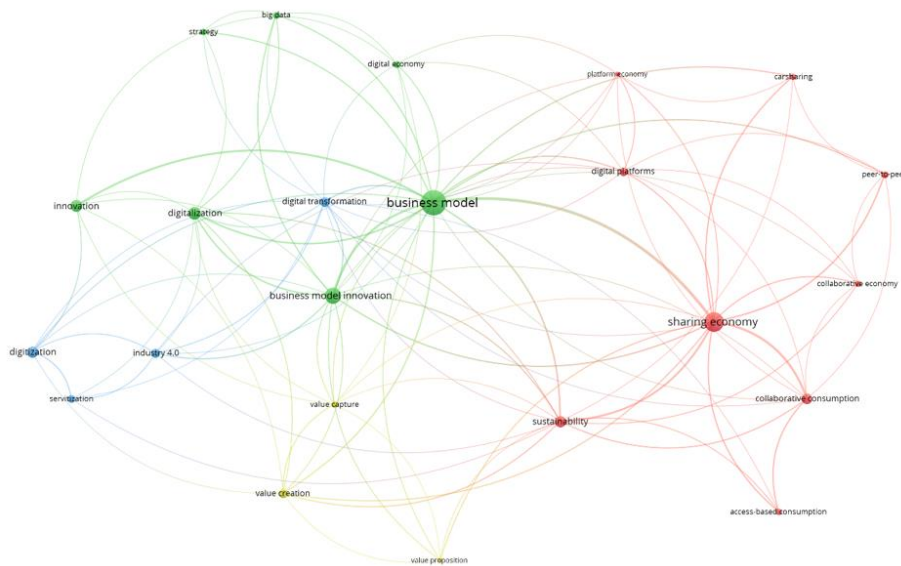

Figure 2: VOSviewer map with co-occurrence analysis

From the co-citation analysis (Figure 3), only Cohen and Kietzmann (2014) is included in our core articles as the other authors do not contribute to our research question. An explanation that we have only managed to identify one of our core articles in this analysis may be due to the fact that business models have been studied for a long time, but that sharing economy is relatively new, hence fewer citations. Another explanation related to the green cluster may be that much has been done in the field of sharing economy but limited when it comes to business models.
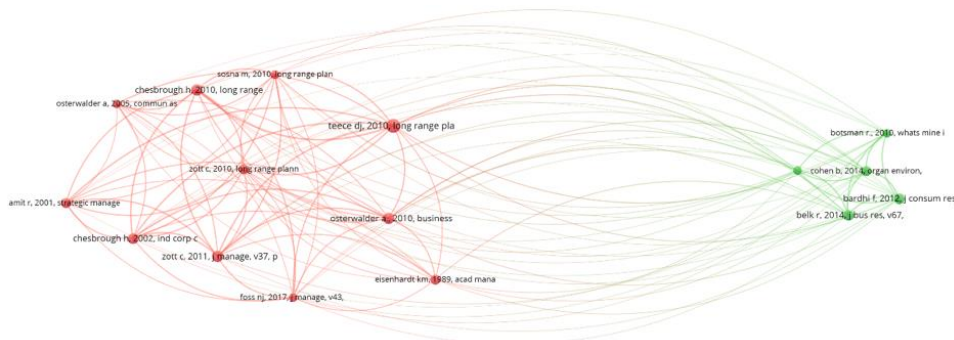

Figure 3: VOSviewer map with co-citation analysis

4.2 Content analysis

Within the sharing economy, P2P business models consists of a triadic structure where value creation takes place through decentralized transactions and co-creation where review systems are applied. Value capturing occurs through commissions, and where emphasis is placed on flexibility and safety for the consumer. B2C business models consists of a dyadic structure where value creation takes place in a centralized resource pool.

Value capturing occurs through commissions, membership fees and public subsidies, and where emphasis is placed on flexibility and safety for the consumer. B2B business models consists of a polyadic structure where co-creation is the basis for value creation. Value capturing occurs through membership fees and commissions, and where emphasis is placed on flexibility through coopetition.

5 Discussion

Based on analyses of findings and the ensuing discussion, there are some clear patterns. For the purpose of a better overview we have separated P2P, B2C and B2B, respectively, and each of the business model elements. There are several obvious similarities between these, but there are also some distinguishing characteristics that make them different in several ways. We have compiled these findings into a framework presented in table 1.

Table 1: Compilation of findings according to business model dimensions of P2P, B2C and B2B

	P2P	B2C	B2B
Value creation	• Triadic structure *(Ritter & Schanz, 2019)* • Decentralized transactions *(Acquier et al., 2019)* • Co-creation *(Apte & Davis, 2019)* • Review-system *(Täuscher & Laudien, 2018)*	• Dyadic structure *(Ritter & Schanz, 2019)* • Centralized resource pool *(Ritter & Schanz, 2019; Acquier et al., 2019; Vaskelainen & Münzel, 2018)*	• Co-creation (Laczko et al., 2019; Grondys, 2019)
Value capture	• Commissions (Acquier et al., 2019; Täuscher & Laudien, 2018; Guyader & Piscicelli, 2019)	• Commissions, membership fees, and public subsidies (Acquier et al., 2019; Täuscher & Laudien, 2018; Guyader & Piscicelli; Vaskelainen & Münzel, 2018)	• Membership fees, Commissions (Täuscher & Laudien, 2018)
Value propositions	• Flexibility (Apte & Davis, 2019), Safety	• Flexibility (Vaskelainen & Münzel, 2018), Safety	• Flexibility, "Coopetition" (Grondys, 2019)
Examples	*Airbnb, Uber*	*Zipcar, Wikipedia*	*WeWork, HeadBox*
Distinguishing characteristics	Consists of a triadic structure where value creation takes place through decentralized transactions and co-creation where review systems are applied. Value capturing occurs through commissions, and where emphasis is placed on flexibility and safety for the consumer.	Consists of a dyadic structure where value creation takes place in a centralized resource pool. Value capturing occurs through commissions, membership fees and public subsidies, and where emphasis is placed on flexibility and safety for the consumer.	Consists of a polyadic structure where co-creation is the basis for value creation. Value capturing occurs through membership fees and commissions, and where emphasis is placed on flexibility through coopetition.

Within the **value creation** dimension, two distinct structures have been identified for P2P and B2C, respectively. Triadic structure where interaction between two (or more) distinct type of users is facilitated by intermediaries is strongly associated with P2P platforms, while dyadic structure where interaction between owner and user occurs without the use of intermediaries is associated with B2C platforms. Within triadic structures, value creation takes place at a decentralized level, while within dyadic structures it occurs through a centralized resource pool. Ownership of resources is a part of the basis to separate the approaches; in P2P platforms, companies typically does not own any resources, while in B2C platforms, companies them self owns these resources. The literature does not relate B2B platforms to any specific type of structure, but as we argue that B2B platforms can take the form of triadic and dyadic structures, depending on the platform's purpose and thus ownership of the resources, we characterized this as a polyadic approach in this ecosystem. However, value co-creation within P2P and B2B platforms has been put forward as crucial activities and take the form of review systems in P2P.

There are several similarities within the **value capture** mechanism. Commissions is put forward as a source of value capture within both P2P, B2C and B2B. Within P2P platforms commissions is the only mentioned source for value capturing and is the primary revenue stream within B2C platforms. However, it is also recognized that membership fees and public subsidies are other sources for value capturing within B2C. In terms of B2B platforms, membership fees are the most preferred revenue stream but commissions are also frequently used.

In terms of **value propositions**, flexibility in relation to their consumers is put forward within P2P and B2C which can be achieved through operating different business models that leads to cost savings and efficiency. Within B2B platforms flexibility for both consumers and the company itself is achieved through the network of suppliers, referred to as the coopetition-model. Technological developments that facilitate better coordination and safety in terms of fraud and theft will in turn make more comfortable users and hence serve as an important value extender.

6 Conclusion

This study addressed sharing economy business model variations based on an exhaustive structured literature search and subsequent bibliometric analysis to identify 19 core articles to synthesize the current state in the sharing economy related to P2P, B2C and B2B business models. To answer the research question of this study we mapped similarities and differences in P2P, B2C and B2B sharing economy business models within the established business model dimensions; "value creation", "value capture" and "value propositions". The study contributes by distinguishing important characteristics between P2P, B2C and B2B at each of the business model dimensions. Our study reveal that business model structures provide variations when it comes to value capturing and that technological developments and value networks are at the bases of value propositions. Moreover, the study confirms that most studies relates to P2P sharing economy business models. Consequently, further research is called for to better inform sharing economy business model variation, in particular for B2B. In addition, there is a lack of empirical studies, especially addressing B2B sharing economy business models and contingencies of these experienced within different industries and business sectors.

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