Mind Your Own Business

– Understanding and characterizing value created by consumers in a digital economy

Martin D. Mileros

Linköping Studies in Science and Technology
Licentiate Thesis No. 1873

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ISBN: 978-91-7929-888-3

ISSN: 0280-7971

Printed by: LiU-Tryck Linköping

Distributed by: Linköping University

Department of Management and Engineering

SE-581 83 Linköping, Sweden

P: +46 13 28 10 00

Abstract

In the context of what is commonly referred to as consumer-centric digital economy, personal data has become the new currency which is utilized by consumers to be granted access to seemingly “free apps” within so-called digital zero-price markets. Simultaneously, there are consumers, known as “content creators”, who can generate million-dollar revenues annually. The current understanding of how consumers create and capture value within this new digital economy is scarce and more research is needed to systematically build a basis for creating an understanding of value creation and capture in the consumer-centric digital economy, based on a consumer perspective. The purpose of this dissertation is consequently to explore how consumers create and capture value within a consumer-centric digital economy. The explorative study also serves to obtain an initial overview of the phenomenon and the widely dispersed literature which spans different research fields. The collected data constitute more than 500 articles in combination with empirical data collected from websites.

Based on the current literature, central concepts related to consumer-centric digital economy are explained. These include for instance Web 2.0, user-generated content and the consumer-to-business relationship. The different concepts are discussed in relation to each other and a trend analysis shows that these concepts are on the rise and have become increasingly popular.

The results show that consumers within the digital economy may take different roles, and some create value as business-oriented consumers (i.e., consumers who have a commercial interest). For instance, they make a business out of their participation in the digital economy. Examples are YouTubers, bloggers or creators in virtual worlds such as Second Life. Another, probably larger category is characterized as traditional consumers, for instance they participate in the digital economy through their use of seemingly “free” apps but do not reap any direct monetary benefits. By sharing their personal data, they take part in value creation in a more passive way. The findings also indicate that the level of control, e.g. determined by whether or not value is created within the digital platform, may characterize the prerequisites for value capture. Based on this, a taxonomy for value creation and value capture by consumers in the digital economy is developed. The study also identifies different business model types for business-oriented consumers.

Keywords: e-commerce, digital economy, Web 2.0, consumer-centric, personal data, content creators, user-generated content, business models, value creation, value capture, digital platforms, digital zero-price markets, blockchain technology, human-centered data economy

Sammanfattning

I samband med vad som benämns konsumentcentrisk digital ekonomi har persondata blivit den nya valutan som används av konsumenter för att få tillgång till tillsynes gratis applikationer inom så kallade digitala nollprismarknader. Samtidigt finns det konsumenter, så kallade innehållsskapare (content creators), som kan generera intäkter som uppgår till flera miljoner euro per år. Den nuvarande förståelsen för hur konsumenter skapar och fångar värde inom denna nya digitala ekonomi är begränsad, varför det behövs mer forskning för att systematiskt bygga upp en grund för att skapa förståelse för värdeskapande och värdeåterföring inom den konsumentcentriska digitala ekonomin utifrån ett konsumentperspektiv. Syftet med denna avhandling är följaktligen att undersöka hur konsumenter skapar och fångar värde inom en konsumentcentrisk, digital ekonomi. Den explorativa studien bidrar också till att ge en initial översikt över fenomenet och den spridda litteraturen som sträcker sig över olika forskningsområden. Datainsamlingen utgörs av mer än 500 artiklar i kombination med empiriska data som har insamlas från webbplatser.

Baserat på aktuell litteratur förklaras centrala koncept som relaterar till konsumentcentrisk, digital ekonomi. Dessa koncept inkluderar bland annat Web 2.0, "User-generated content" och "consumer-to-business"-relationen. De olika koncepten har ställts mot varandra och en trendanalys av dem visar att de blivit allt populärare.

Resultaten påvisar att konsumenter inom den digitala ekonomin kan ta på sig olika roller, som exempelvis affärsinriktade konsumenter (d.v.s. konsumenter som har ett kommersiellt intresse). Till exempel skapar de affärer utifrån sin delaktighet i den digitala ekonomin. Det kan handla om YouTubers, bloggare eller skapare inom virtuella världar såsom Second Life. En annan och troligtvis större kategori kan karaktäriseras som passiva konsumenter, utifrån sin delaktighet i den digitala ekonomin genom användandet av till synes "fria" appar, där de inte skördar några direkta monetära fördelar. Genom att ge tillgång till persondata så bidrar de på ett passivt sätt till värdeskapande. Resultaten påvisar också att möjligheterna att fånga värdet bestäms av om värdeskapandet har skett inom, eller utanför, ramarna för den digitala plattformen. Baserat på detta, har en taxonomi för konsumenters möjlighet att skapa och fånga värden inom den digitala ekonomin utarbetats. Studien identifierar även olika affärsmodeller för affärsinriktade konsumenter.

Acknowledgements

First of all, I would like to thank my supervisor Nicolette Lakemond who has guided and supported me throughout my whole research process and provided me with valuable hints and feedback. I really appreciate your support. The process was a challenge but it was also lots of fun. Second, I would like to thank my co-supervisors, Robert Forchheimer for his valuable support and fruitful discussions, and Charlotte Norrman for her valuable input and feedback on my research process, as well as my roommate Stefan Bernat for his kindness in sharing his experience. I would also like to thank my family for their support and for understanding that I occasionally had to work weekends and late evenings. Finally, I would also like to send a special thanks to Martin Rantzer, Robert Forchheimer and Niclas Fock at RISE, and Magnus Klofsten at Linköping University for arranging my position as a PhD student and also all others who have supported me during my work; you know who you are.

Martin D. Mileros
Linköping, January 2020

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PART I: SYNTHESIS

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1 Introduction

This chapter explains the background of the research, its purpose and the research questions. The description is put in the context of the development of the Internet as it is central for understanding the scope of the consumer-centric digital economy. More specifically it explains why consumers (users) are in focus. Next, value creation and value capture in the context of data and the consumer-centric data economy are problematized leading to the purpose of the work and the research questions.

About 50 years ago, or more specifically on the 29th of October 1969, the Internet was launched (Kleinrock, 2010). Even if it was not realized at that time, it eventually led to a revolution as information could be shared and transferred instantly and almost at zero-cost. Some enhancements of the technology emerged in 1990 when Tim Berners-Lee introduced the HTTP protocol which gave rise to the World Wide Web (Web 1.0) (Singh et al., 2008). The launch of the Web resulted in an increased online activity by users as they started to create homepages. As a consequence of the nascent electronic commerce (e-commerce), the entrance of e-shops, and e-auctions eventually fostered the Web into becoming utilized by businesses (Timmers, 1998).

However, the Internet continued to be enhanced and static websites of businesses successively started to transform into dynamic digital platforms (platforms) such as Facebook and YouTube, which once again started to engage the users (Evans & Noel, 2008; Holland & Gutiérrez-Leefmans, 2018; Levina et al., 2014). This time users did not provide their own homepages, but rather contributed by submitting opinions, texts, pictures and videos to the platforms (Kaplan & Haenlein, 2010). The enhancement continued and was complemented by the introduction of apps and smartphones which gave rise to a new type of market, namely digital zero-price markets (Ariely et al., 2018; Ma et al., 2018; Newman, 2015; Nicolau, 2012; Sampanier et al., 2007). This type of market is non-monetary and based on an exchange of values between a consumer and a business, such as utilizing an app seemingly for “free” by granting the business access to some level of personal data. The abovementioned enhancement of the World Wide Web is referred to as Web 2.0, a term which became generally accepted around 2005 (Singh et al., 2008). Due to the dynamics and flexibility of Web 2.0, users also started to engage in empowering platforms by providing increasingly more personal data. For example, consumers started to reveal their location by their GPS, use cloud services such as online calendars, but also provide information about their opinions via “like” buttons.

The value of the provided data was estimated by Boston Consulting Group in 2012, which predicted that sectors leveraging personal data would produce one trillion dollars (\$1,000,000,000,000) in corporate profits in Europe by 2020. Several scholars who started to pay attention to this new phenomenon initially depicted personal data as the new oil of the Internet (Spiekermann et al., 2015) and the currency of the digital world (Newman, 2015; Pringle, 2016; Spiekermann et al., 2015; Wottrich et al., 2018).

In recent studies it has been concluded that the personal data market has been growing exponentially in recent years (Shen et al., 2019), and a question which has received attention is, how much is personal data worth? There are some studies estimating the value of personal data, for instance that, to a business, it can be worth about 1-10 dollars per user per month (Malgieri & Custers, 2018). Another indication of the value of an average user for a business is given by the following example. When Microsoft acquired LinkedIn in 2016, they paid 26.2 billion dollars for the company and its 100 million users (Enders, 2018). From the users' perspective, some users are willing to pay \$2,400 annually in order to protect their family's online privacy (Jerome, 2013), but it has also been reported that some Americans value their digital assets at almost \$55,000 (Slaughter, 2015).

Scholars commonly agree that personal data has become important in our digital environment (Obar & Oeldorf-Hirsch, 2018; Pringle, 2016; Wottrich et al., 2018; Zyskind et al., 2015), but there is a lack of definitions of what the concept of *personal data* really includes. Another (second) type of data provided by users is *user-generated content* which is content provided by for instance "YouTubers" or "bloggers" which, in turn commonly are referred to as *content creators* (creators) (Barnes, 2002; Clarke, 2004; Kaplan & Haenlein, 2010). User-generated content (previously termed user-created content), consists of publicly accessible creative works (text, images, audio, video, and combinations of these) made by non-professionals where a large part of the content is seemingly freely available on the Internet (Banks & Humphreys, 2008; Figallo & Rhine, 2001; Van Dijck, 2009). As described above, the Internet and the digital platforms are enriched by values based on personal data and user-generated content which thus creates a *consumer-centric digital economy* (Singh et al., 2008; Tapscott, 1999; Teece, 2018; Terranova, 2000) based on consumer contributions. Through this development there is an increasing focus and reliance on personal data and user-generated content (Almuhimedi et al., 2015; Holland & Gutiérrez-Leefmans, 2018; Spiekermann et al., 2015).

When it comes to the relationship between businesses and consumers, the consumer-to-business (C2B) (Raciti et al., 2013; Vanmeter et al., 2015; Wang et al., 2016) and consumer-to-consumer (C2C) (Leonard & Jones, 2010; Yrjölä et al., 2017) relationships have become more central within the consumer-centric digital economy (Singh et al., 2008), see Figure 1. The development thus reflects a change from a business perspective towards a consumer perspective on value creation and value capture, yet this changed perspective seems not to have been explored in detail.

Figure 1. Consumers as the new creators of value within a consumer-centric digital economy

1.1 The new value creation and value capture

In contrast to positive-price markets, where value and cost information is more transparent to gather, value and cost information within digital markets are complex, costly and sometimes impossible to gather. The problem becomes even more difficult when there is no price for a service, as in a digital zero-price market (Newman, 2015). A well-known example of a digital zero-price market is Facebook, which leverages personal data to sell personalized ads to other external businesses (Malgieri & Custers, 2018; Polykalas & Prezerakos, 2019). However, not much is said about how these markets really work and how values are exchanged between consumers and businesses.

Previous studies have shown that selling or trading user-generated content can generate earnings corresponding to hundreds of thousands of dollars (Scarle et al., 2012). An extreme example is given by a seven-year-old YouTuber who, with support from his family, earned more than 22 million dollars in one year¹. Statistics show that more than 100 hours were uploaded to YouTube every minute around 2013 (Slaughter, 2015), and currently indications show that it now has increased to more than 500 hours². However, claiming rights, ownership and reimbursements on the Internet have not been easy as the link between the content and its creator is often lost (McConaghy et al., 2017). The academic knowledge regarding how content creators create and capture value and what options and challenges they may face is scarce.

Several scholars though, have pointed out the blockchain technology as an enabler of micropayments and for securing the rights and values for the creators (McConaghy et al., 2017; Newman, 2018; O'Dair & Beaven, 2017). However, it remains unclear if and how blockchains contribute to value capture and value creation. Hence, this issue is important to shed light upon.

Another more general complexity which refers both to personal data and user-generated content is that the consumer-centric digital economy field has emerged rapidly and includes many new phenomena that have been described using different concepts. For instance, MyData.org³ refers to a human-centered data economy, which they describe as a multidisciplinary field undertaking business, legal, technological and social challenges.

This complexity and lack of a conceptual framework of concepts, definitions and their relations, have already led to confusion and thus pointed out gaps for further research (Kaosiri et al., 2019; Kotarba, 2018; Park et al., 2017). It has also led to a fragmented literature which reveals inconsistencies (Zhang & Benyoucef, 2016). Therefore, it is important to provide an integrated and holistic view of the consumer-centric digital economy and thus provide more insight and support for consumers and their different types of business. Hence the title “Mind Your Own Business”.

¹ <https://www.forbes.com/sites/maddieberg/2018/12/03/how-this-seven-year-old-made-22-million-playing-with-toys-2/>

² <https://www.statista.com/statistics/259477/hours-of-video-uploaded-to-youtube-every-minute/>

³ <https://mydata2019.org/>

In the above background an exposé of the fragments of the current knowledge of the consumer-centric digital economy is presented. To remedy this the mission of this dissertation is to explore and align the concepts connected to the characterization of the value created by consumers in a digital economy in order to systematically reveal gaps and point out paths for further research.

1.2 Purpose and research questions

In line with the observation that the importance of value creation by consumers continues to grow (Shen et al., 2019), more insight is necessary to understand how consumers create and capture value based on their provided personal data (Baden-Fuller et al., 2017; Morgan & Finnegan, 2014; Yrjölä et al., 2017; Zyskind et al., 2015). The thesis builds on the perspective of consumers, as until now this has been largely ignored. Given the complex new value creation and value capture context described above, a need is identified to understand value creation and value capture based on personal data. This can be done by bringing together a large number of new concepts related to Web 2.0 such as digital platforms, digital zero-price markets and the blockchain technology. Consequently, the purpose of this dissertation is:

To explore how consumers create and capture value within a consumer-centric digital economy.

As presented in the introduction, consumers can provide value to businesses by uploading user-generated content to digital platforms or by granting them access to their personal data within digital zero-price markets.

When it comes to consumers providing content to digital platforms such as content creators, previous studies have focused on the C2B (Raciti et al., 2013; Vanmeter et al., 2015; Wang et al., 2016) and C2C (Leonard & Jones, 2010; Yrjölä et al., 2017) relation within e-commerce. The C2B studies mainly concerned group buying of consumers and the C2C studies mainly concerned how businesses create trust and branding by utilizing social interactions. Previous studies therefore lack insight into how value creation and value capture by content creators from a business perspective are carried out. Also, possible value asymmetries between consumers and businesses have been studied within digital zero-price markets (Malgieri & Custers, 2018; Polykalas & Prezerakos, 2019) and other studies have investigated the monetary value (Acquisti et al., 2015). However, value created by consumers in digital zero-price markets still remains largely unclear, since it is a new phenomenon with different logic of value creation and value capture. Moreover, it has also been pointed out that there is a need to characterize different concepts in order to understand changes of the concepts over time and between different research fields (Naab, 2017; Saarijärvi et al., 2018). This implied the first research question to be formulated as:

(1) How can value creation and value capture by consumers be understood and characterized within a consumer-centric digital economy?

Also, as pointed out by several scholars, the blockchain technology is seen as an enabler for content creators in order to handle payments and for securing their rights and values (Malgieri & Custers, 2018; McConaghy et al., 2017; Newman, 2018; O'Dair & Beaven, 2017; Tapscott & Tapscott, 2017). It has been observed that new intermediaries have started to emerge, i.e., service providers offering blockchain solutions (Fabian, 2017). However, as it still remains unclear if these new blockchain service providers may have implications for the content creators in their value creation and value capture process (Pousttchi & Gleiss, 2019) the second and final research question was formulated as:

(2) How can blockchain service providers address value in their offerings for content creators?

1.3 Delimitations and clarifications

As mentioned in the introduction this dissertation focuses on the consumer-to-business and consumer-to-consumer business relationships, which implies that it will be focused and delimited to value creation and value capture by consumers. The business perspective is also relevant as the consumers, especially in the C2B relationship, exchange values with businesses (Foss & Saebi, 2016; Raciti et al., 2013). The business perspective, however, will not be in focus. For instance, this implies that the general data protection regulation (GDPR), big data companies or data brokers will not be treated. Furthermore, this dissertation does not consider personal data managed or monetized by the businesses and their counterparts.

Interviews were seen as a good way to get in-depth insights but were delimited due to the fact that the broad perspective which has been taken could jeopardize their quality at this stage. For instance, the decision was based on the difficulties of determining where they could be carried out and what they could concern since a clear foundation is missing. Also, there is no framework of concepts and alignments to relate to, which most likely would have resulted in poor quality. Interviews and more in-depth studies are however seen as a natural second step when a more comprehensive understanding and foundation is in place.

Ethical implications were considered and it was found that no integrity or other ethical questions needed to be handled since no records or personal data or other personal information were collected.

Finally, it can be emphasized that this dissertation mainly concerns pure e-commerce which refers to the fact that the content creator, recipient, content and delivery channel all coincide within the digital domain and thus is carried out online. Value capture,

however, can occur outside of the digital domain, as some content creators for example can be reimbursed by obtaining physical products⁴. It can also be clarified that no distinction between the term consumer and user was made and the terms have mainly been used interchangeably.

1.4 Outline

This dissertation is divided in two main parts, Part 1 – synthesis and Part 2 – papers. The format is commonly referred to as a compilation thesis or thesis by publication where the synthesis constitutes the combined results from Part 1 and Part 2 in order to provide an answer to the research question of this dissertation.

Part 1

Part 1 starts with an introduction which gives a background to the subject and addresses the research problem, purpose and research questions. The second chapter contains a literature review. The third chapter explains the methodology. It first presents an overview of the starting point for the research and research design and further describes the literature search, data collection and data analysis. It finally deals with quality, authorship and reflections. The fourth chapter briefly presents the results of each publication, and the fifth chapter analyses and discusses the results and provides answers to the research questions. Finally, chapter six concludes the main findings, summarizing the contributions to theory and practice and also outlines an agenda for further research.

Part 2

Part 2 consists of the three publications where the first concerns content creators and digital platforms, the second concerns consumers within digital zero-price markets, and the third concerns content creators and blockchains. As this dissertation will deal with many concepts, a more detailed explanation of them can be found in Appendix A. Also, a more detailed explanation of the blockchain technology, what it is, and how it can be applied, is provided in Appendix B.

⁴ <https://www.elegantthemes.com/blog/marketing/how-to-get-free-stuff-as-a-content-creator>

2 Literature review

This chapter provides a literature review related to the three papers. First, explanations of the related concepts, consumer-centric digital economy, personal data, content creators and business models are provided. Second, a background of value, digital platforms, digital zero-price markets and the blockchain technology will be presented and explained. The chapter ends with a short summary.

2.1 Descriptions of related concepts

2.1.1 Consumer-centric digital economy

In the beginning of this century, the Internet continued to enhance and Web tools such as Asynchronous JavaScript and XML (referred to as AJAX) started to shift e-commerce from static websites of businesses towards more dynamic services provided by digital platforms. Due to the dynamics and flexibility of the new tools, consumers started to engage and empower the platforms by their provided data.

This technological shift is referred to as consumer-centric Web 2.0, a term which was popularized by Tim O'Reilly and Dale Dougherty and which became generally accepted around 2005. As the business-centric Web 1.0 was about providing information, the consumer-centric Web 2.0 was instead focused towards participation (M. Hajli, 2013; Harrison & Barthel, 2009; Singh et al., 2008). As the scope of this dissertation concerns the consumer-centric Web 2.0 (Singh et al., 2008) and the context is the digital economy (Tapscott, 1999; Teece, 2018; Terranova, 2000), the terms in this dissertation have been combined, thus providing the scope of a consumer-centric digital economy.

2.1.2 Personal data

Even though definitions of personal data are scarce, personal data may be seen as any information directly or indirectly relating to an identifiable individual (Bustard, 2015; European Commission, 2016). Personal data is also referred to as personal information and closely related to privacy which for instance already was described in 2001, by Figallo and Rhine (2001). Personal data of individuals is mainly considered as the counter performance of the seemingly “free” digital services, but it could also be seen as payments for discounts. In the digital economy, access to services can thus be paid with money, personal data or both (Malgieri & Custers, 2018).

2.1.3 Content creators

Content creators can be characterized as users who are exploited for the benefit of others (Brake, 2014; Sherman & Craig, 1995; Terranova, 2000). They create content such as user-generated content, which can consist of text, images, sounds, videos, and combinations of these. If they include a certain level of creativity (creative works), they can be subject to copyright law (Barnes, 2002; Kaplan & Haenlein, 2010; Van Dijck, 2009). Content creators are seen as being consumers as well (Dye, 2006). The earliest content creators were helping AOL in 1999 by monitoring their website for user content.

A small number of these content creators, so-called “remote staffers,” got reimbursed for their contributions, which resulted in a major discord among unpaid creators and ended with a lawsuit against AOL (Van Dijck, 2009).

More recently, YouTubers have become popular as for example video game commentators (Postigo, 2016). Setbacks with this new phenomenon have also been reported, for instance when YouTubers are abandoned or accused of misuse by their followers (Jerslev, 2016). Drawing a line between professional traditional creators and content creators is becoming increasingly more difficult, since some content creators may have a legal entity or business, consist of several persons, or be considered “professional amateurs.” It can also be emphasized that some of the content creators need to have a business in order to manage payments and taxes. This implies that content creators can have business models as all businesses have business models whether they articulate it or not (Chesbrough, 2007).

2.1.4 Business models

The business model is a relatively new phenomenon even though the first articles were written in the 1960s. The business model concept started to gain prominence during the 1990s due to the emergence of electronic commerce (Chesbrough & Rosenbloom, 2002; Frankenberger, Weiblen, Csik, & Gassmann, 2013). As it turned out that business models could lead to a competitive advantage, the concept was eventually seen as more important than the technology itself (Baden-Fuller & Morgan, 2010; Chesbrough, 2007; Model, 2012). Even if the concept lacks an unambiguous definition, the business model is often considered a blueprint of how firms intend to create and capture value (Bowman & Ambrosini, 2000; Teece, 2010).

Other descriptions, such as revenue model, economic model and strategy are seen as terms which lead to misunderstanding and misuse (Dasilva & Trkman, 2014). Moreover, as the terms also are used in different ways by different scholars, even more uncertainty is unfortunately put into the concept (Cucculelli & Bettinelli, 2015; Foss & Saebi, 2016; Jensen, 2014; Kotarba, 2018; Weill, Malone, & Apel, 2011; Zott et al., 2011). An explanation of the diversity and inconsistency of the concept is that the field of research emerged rapidly (Zott et al., 2011). However, when it comes to digital platforms it have been stated that many of them do not actually sell content, but rather focus on getting the attention of the users (Belleflamme & Jacqmin, 2016). As all described concepts relate to value, a background of value will now further be explained.

2.2 Value

Although value has received a lot of attention in the management literature during the last few decades (Bowman & Ambrosini, 2000; Grönroos, 2011; Leroi-Werelds, 2019; Zeithaml, 1988), the concept of value is multifaceted and represents different aspects. In its most often used and general sense, value can be considered as “value for money” (Tsai & Sumantra, 1998), as a way to stress the trade-off between value and price. Even if value

for consumers can be expressed in terms of quality and price, Sweeney and Soutar (2001) emphasized that the value for money may be independently perceived by different consumers. More specifically, perceived value can be seen as an overall assessment by consumers regarding what is received and what is given (Zeithaml, 1988).

The quality (perception) and price are also referred to as use value and exchange value (Bowman & Ambrosini, 2000). They defined use value as subjectively assessed value by consumers and exchange value as the bargaining relationships between buyers and sellers. They concluded that if a consumer is interested in optimizing “value for money,” then they should optimize the ratio of use value acquired for exchanged value (paid price) (Bowman & Ambrosini, 2010). Moreover, they also found that value could be seen as the combined result of the overall contributions which could end up larger than the sum of each contribution alone.

When it comes to other views of value, Korkman (2006) suggested that value could be seen as emerging out of the service as it often is experienced in an unconscious way. Gallarza et al. (2011) found that value perceived by consumers could have an impact on their decision-making. Also, Grönroos (2011) emphasized that both consumers and businesses are involved in the value creation process and Still et al. (2017) added that it mainly is new technology, processes and consumers that are the driving sources of value creation on the Internet. The concept of value creation has traditionally been considered as the ability of a business to identify a value proposition for a relevant customer segment (Morgan & Finnegan, 2014). However, a problem with value creation is that it often is confused with the process of value capture (Lepak et al., 2007). The concept of value capture, which can be related to exchanged value as mentioned above, is seen as the bargaining process between consumers and suppliers (Bowman & Swart, 2007).

Regarding values, Guadamuz and Marsden (2015) contributed the view that currencies were invented as means to transfer value, which is supported by laws and governments and the economy of its applied territory. Consequently, currencies often play an important role in the transactions between different actors. Recently, this method of payment has been complemented with new emergent ways of value transactions. For instance, at the present time services are sometimes seemingly offered for free to consumers (Newman, 2015).

These transactions may involve that consumers watch advertisements, making the advertisers actually pay for the service but the consumers also pay a price indirectly by their time and attention (Fleischer, 2017; Newman, 2018). It has also become accepted that consumers indirectly pay by offering details on their demographics, behavior, preferences, i.e., their personal data as a way of payment (DeNardis & Hackl, 2015; Jerome, 2013; Malgieri & Custers, 2018). Despite the fact that consumers offer businesses more or less access to their personal data, it has also been shown that the collection of personal data can give an increased value and improved experience of the

service to the consumer (Gabisch & Milne, 2014). Despite the fact that consumer value is probably one of the most fundamental concepts of business (Leroi-Werelds, 2019), commonly accepted definitions, frameworks and conceptualizations are still lacking (Morgan & Finnegan, 2014; Smith & Colgate, 2007). Morgan and Finnegan (2014) also clarified that value in many cases needs to be defined in both monetary and non-monetary terms.

When it comes to more implicit non-monetary terms, it is not always the case that the received value is in line with the perceived use value (Smith & Colgate, 2007). For example, Bowman and Ambrosini (2000) showed that perception of value is based on beliefs, needs, wishes and expectations. In other words, consumers assess the overall value of a product or service by the perceptions of what is given and what is received. The perceived value therefore does not need to comply with the exchange value (price), which does not necessarily need to be directly monetary (Bowman & Ambrosini, 2000). For instance, consumers can pay with their attention and time by watching advertisements (Fleischer, 2017). Lewandowski (2017) stated that consumers have problems in distinguishing between advertisements and information and concluded that up to 50% of the advertisements may not be perceived by the consumers which thereby could imply a reduction of the perceived payment.

Another problem of value in the digital world is that users are not taught to negotiate as they have learned in the physical world where value often is quantified by physical and social signals. According to Turgut and Boloni (2017), this affects the users' ability to estimate the cost for their actions. It is argued that digital platforms now are the foundations of value creation where large amounts of value are created and exchanged (Gatautis, 2017).

Regarding the value of data within platforms and businesses, assets can be stored locally or in a cloud service, and decreasing cost for storage implies that data in clouds can be stored for years (Slaughter, 2015). Malgieri and Custers (2018) contributed the view that different personal assets have different value and that some specific or sensitive data such as religion, health, ethnicity, political valuations and criminal records could have a bigger value. Moreover, they also found that the price paid by data brokers for personal data had decreased.

A person's zip code in the US in 2013 had decreased in monetary value by 100 times compared to 2006 when it was worth 50 cents. The authors explained that storage had been cheaper and the amount of personal data had increased which led to a monetary value decrease of personal data amongst personal data brokers. As a conclusion they stated that a person's profile could be worth between 1-10 dollars each month but also that the same data could be sold multiple times to multiple buyers. Another aspect which they brought up was that data was sold in coherent sets and not item by item. DeNardis and Hackl (2015) pointed out that the businesses make sure that they have the right to

aggregate data across their different platforms, as exemplified by Instagram, Messenger and WhatsApp all three of which are owned by Facebook. When the personal data further is monetized by the businesses, Malgieri and Custers (2018) found that Facebook charge advertisers about 0.05-0.1 cent for each viewed personalized advertisement which makes it about 10 times more profitable than for non-personalized advertisements. They explained that this increase in value from personalization was possible as the targeted persons more likely will become buyers, and that advertisements are not wasted on people who are unlikely to respond to them.

Acquisti, et al. (2015) and DeNardis and Hackl (2015) explained that persons unwittingly or unknowingly can reveal great amounts of personal information to businesses or governments. For instance, they found that information mainly is revealed through e-mails, texts, and social media, dating sites, online courses, questions in search engines, reading news or books or navigating streets.

In addition Polykalas and Prezerakos (2019) found that 84% of the free apps require access to the phone's entire file system under the mask of access to photos, media and files. More explicitly this is done without informing the users of the extent of the required access for how and why the data is being accessed. The authors concluded that the users were also to blame as they did not read the terms of service before accepting and downloading the apps. However, according to McDonald and Cranor (2008) reading terms of services for all apps would require 200 hours annually, and since that statement currently is 12 years old and the use of platforms and apps has increased rapidly it could be assumed that the number of hours probably is larger nowadays.

Despite the fact that users tend to agree on the terms, Balebako et al. (2013) found that 46% of the users felt that providers who collect location data should not store it at all, 28% claimed that it should be deleted within one year and 57% of users had deleted an app because of discomfort about their privacy. An explanation for why users share large amounts of personal data and privacy and are unwilling to stop advertisements by payment was given by Leon et al. (2013) who explained that most people have the opinion that digital services should be free. Acquisti et al. (2013) clarified that privacy is difficult to define because it can mean different things to different people and it may not only be dependent of what you ask but also how you ask. They also found that a few so-called gate-keeper firms, such as Facebook and Google are in position to control, track and link user behavior for billions of users in compliance for accessing free services of the businesses (Acquisti et al., 2016). As digital platforms are subject for a large part of the value creation in the digital economy, how they function will now further be explained.

2.3 Digital platforms

The Web 2.0 technologies gave rise to digital platforms which Rochet and Tirole (2003) first described as two-sided markets. A main issue which was discussed was the challenge of getting the suppliers and viewers onboard, referred to as the chicken-and-egg problem. Platforms however can deal with more than two sides, which for instance Hagiu and Wright (2014) refer to as multisided platforms. They defined multisided platforms as organizations that could get two or more sides “onboard” (i.e., attract different types of users to the platform) and which could enable direct interactions between them.

Garcia-Swartz and Garcia-Vicente (2015) clarified that a platform can manage many different types of consumers, for instance users, application developers, manufacturers, network operators and advertisers. Digital platforms can also consist of virtual worlds, which Kaplan and Haenlein (2010) characterize as virtual social worlds, where users appear as avatars and interact as in real life, or as virtual gaming worlds, where users behave according to stricter rules.

Digital platforms can also be viewed from different perspectives, for example from an economic perspective or from an engineering perspective (Gawer, 2014). According to Korhonen et al. (2017), the economic perspective implies that platforms are seen as multisided where value is created for all members, and in which the purpose of the platform is to facilitate the exchange of products or services, such as goods, greater accessibility, speed, efficiency, user experience, and convenience. However, the authors also emphasize that the definition of platforms has been inconsistent. Saarijärvi et al. (2018) agree and adds that the role of the platform has remained largely unexplored, and points out that the literature still lacks insights on the distinct characterizations of different C2C e-commerce platforms.

One type of platform which is of particular interest within the scope of this dissertation is the platform which does not include any monetary payment from the users. The specific market within this type of commerce is referred to as digital zero-price markets, which now will be further described.

2.4 Digital zero-price markets

Doing business within a digital zero-price market on the Internet has turned out to be successful (Lin & Sun, 2011; Newman, 2015; Yeoman, 2015). As digital apps and their services require some degree of access to personal data the associated business models are focused toward an active exploitation and disclosure of personal data (Newman, 2018; Polykalas & Prezerakos, 2019). In relation to this, scholars have been raising concerns about such business models as individuals often unreflectively agree to grant permission to private information in order to get access to the *digital service* (Malgieri & Custers, 2018; Montes et al., 2019; Newman, 2015). According to Gabisch and Milne (2014), digital services can for instance provide a network for social interaction, be used for information seeking or provide entertainment. For example, Wottrich et al. (2018) refer

to the fact that, depending on how much value a digital service offers, consumers are more or less inclined to grant an app permissions. They also clarify that consumers are not very interested in reading the terms and conditions.

In a study carried out by Obar and Oeldorf-Hirsch (2018), more than 500 participants had to agree to the terms of service in order to get access to an app. What the participants did not know was that the app was fake and that the terms of service required that they pay for the service by giving away their first-born child. The study revealed that more than 98% of the participants actually agreed to that, simply because they accepted the terms and conditions unreflectively. The business model monetizing digital zero-price markets seems to have become an increasingly popular business model adopted by businesses (Newman, 2015; Pringle, 2016).

However, a general problem with values in digital zero-price markets or managing values by content creators is the lack of transparency of the value streams (Adams, Parry, Godsiff, & Ward, 2017; Savelyev, 2018). The blockchain technology has therefore been suggested as a more transparent alternative or as a complement to platforms (Fabian, 2017; Manski, 2017; Savelyev, 2017). To be more specific, the blockchain technology deals with trust and transparency but can also enable value to be transferred directly between consumers without any intermediates (Swan, 2015; Tapscott & Tapscott, 2017). As blockchains will be investigated in this study the following and final section aims at providing a background and insight of the blockchain technology.

2.5 Blockchain technology

The blockchain technology and its first application, the virtual currency Bitcoin, was introduced in 2008 by Satoshi Nakamoto (Nakamoto, 2008), a person or group, whose identity still remains unrevealed. The blockchain can be seen as a distributed digital transaction ledger that keeps track of ownership and transactions (Kewell et al., 2017; Shermin, 2017; Swan, 2017). It can also be seen as a trust-less and fully decentralized data storage that is spread over all participants, often referred to as nodes (Guadamuz & Marsden, 2015; Knirsch et al., 2019).

Swan (2017) sees blockchains as a network software protocol which enables secure transfer of money, assets or information via the Internet without the need for a third-party intermediary such as a bank. She also points out that the technology hosts four main kinds of applications, namely real-time money transfer, property registries, contractual agreements and identity confirmation. Tapscott and Tapscott (2017) however emphasize that the value is not saved in a file somewhere, but rather could be seen as transactions recorded in a global ledger. More specifically, the global ledger maintains identical copies of the ledger on multiple computers which are controlled by different entities, and which therefore can provide secure transactions, transparency and auditability (Scott et al., 2017). So, which problems within the digital domain can be solved by utilizing the blockchain technology?

McConaghy et al. (2017) for example explain that ownership within the physical world is linked to provenance, and emphasize that gaps in ownership within the digital world can lead to value and rights easily being lost. For example, digital creative works can almost instantly be copied into many indistinguishable copies, which can then be transferred globally at almost zero cost and effort. However, Mart (2017) points out that the blockchain technology has the ability to create a traceable and transparent global platform for the music industry based on creative works and O'Dair and Beaven (2017) add that it could lead to "a revolution in how to keep track of rights." To be more specific, Adams et al. (2017) have decomposed the possibilities of the blockchain technology into the following three areas: accuracy and accessibility of rights and copyright data, speed of royalty payments and transparency of the value chain. Even though transparency and visibility now have started to receive attention, more attention is needed (Manski, 2017; Scott et al., 2017).

The blockchain technology also facilitates so-called smart contracts. Smart contracts can be defined as a set of rules coded by programmers with the aim to accurately reflect the negotiated terms between two (or more) parties Manski (2017). As the code of the smart contract cannot be modified after it has been put in use (in order to be valid by the community), it is very important to make sure that the contract is error-free. Currently, there is no universally agreed definition of smart contracts but according to its simplest definition it could be seen as an agreement whose performance is automated (Savelyev, 2017).

Smart contracts could allow music royalties to be administered instantaneously, with distributions provided to both composers and performers in real time. Rather than passing through intermediaries, revenue from a stream or download could be distributed automatically between rights holders, according to agreed "splits," almost at the moment a track is downloaded or streamed. This is in contrast to the current scenario in which royalties can take years to arrive in artists' and songwriters' bank accounts (O'Dair and Beaven, 2017). However, it is argued that most contracts are social rather than legal and entered into because the parties trust each other to perform the agreed exchange in nature (Ryan, 2017).

As the blockchain technology can provide new solutions, it will most likely also give rise to new challenges (Gatteschi et al., 2018; Savelyev, 2018; Michelman, 2017). For example, Adams et al. (2017) conclude that, even if the technology may have the ability to provide solutions, challenges and disrupt markets, not much is said about what happens to the legacy of a dead (abandoned) blockchain.

2.6 Summary

The literature review reveals that there are uncertainties in the definitions and descriptions of the concepts. Not much is known about content creators and whether these new field of business can be characterized into business models. It is however known that content creators upload their material to digital platforms, for which reason a short review of the platform literature has been presented (Kaplan & Haenlein, 2010; Korhonen et al., 2017; Postigo, 2016). The review also points out that the digital zero-price market is a relatively new concept which needs more attention and exploration (Newman, 2015). Finally, as the blockchain literature reveals features that can be adopted by content creators, a background of the blockchain technology literature has been provided (Adams et al., 2017; Fabian, 2017). Also, as many additional concepts will be handled throughout this dissertation and appended papers, the literature review can thus serve as a basis for the further understanding of this dissertation.

3 Research methodology

This chapter on research methodology starts with a description of my starting point for the research process and further describes the research design providing an overview of how the research was initiated and carried out. After accomplishing a broader view of the research process and design, the third section then describes how the literature search was carried out. The fourth, fifth and sixth sections further deal with the data collection, method of data analysis and the quality of the conducted research. The seventh section handles publications and authorship and the eighth and final section deals with reflections.

3.1 Starting point for the research

As a practitioner, employed at Research Institutes of Sweden (RISE), I had the opportunity to work with digitalization and to collaborate with researchers at Linköping University. I began my employment in 2012 and as time went by I started to pay attention to the complexity of rights and values on the Internet. In particular, I started to consider if copyright somehow could be properly managed online. In 2013 I was introduced to blockchain technology which I found fascinating and I began to think that perhaps it could provide solutions to the complexity issue of the right and values. As I got increasingly interested in these topics I investigated the possibilities of becoming a PhD student in order to be fully dedicated to these topics. I wrote several funding applications, but unfortunately, they were all rejected. After almost one year of writing funding applications I was lucky to get support from colleagues, which helped me to find initial funding for part-time PhD studies through RISE. In September 2017 I could finally start my PhD journey.

3.2 Research design

After becoming a PhD student, I realized that the combination of copyright and blockchains was not a common research topic. I knew that I needed to take responsibility for finding my focus and obtain understanding mainly by myself. I therefore decided not to rush into writing articles, but instead focus on reading articles and taking PhD courses. Some of the courses and seminars which I attended concerned developing a research proposal and during my first year I alternated between adjusting my research proposal and gaining more knowledge by reading articles.

In the spring of 2018 I was encouraged to publish a paper about blockchains, which resulted in my first published conference paper (third appended paper in this dissertation). Since I was more interested in the economic values rather than in the technology itself, the paper was titled “Blockchain based business models for handling digital media.” Business models were chosen as a suitable lens to fit the theme of the conference. However, by reading more literature in parallel and after attending the CINet PhD Workshop⁵ it appeared to me that I mainly was interested in the consumer-to-consumer and consumer-to-business relationships. Copyright and blockchains were thus not seen as

⁵ <https://www.continuous-innovation.net/events/phdworkshops/2018.html>

the center of my scope, but rather the consumers since both copyright and blockchains were closely related to them. By reading more papers, I also became aware of user-generated content and different types of e-commerce, such as social commerce, which seemed to be more related to my scope than business models.

The number of concepts found were just constantly increasing and I still did not feel that I had found exactly the scope I was looking for. There was no taxonomy which could point out or explain to me how the concepts within the digital economy were defined and related. I found that research rather had been conducted in silos according to a specific research field or interest. I continued my search and felt that my scope probably was there somewhere, but that it was dispersed amongst the articles. For example, the literature which I found about the consumer-to-consumer relationship was not in line with my ambitions as it focused on how businesses can use this relationship to build trust and communicate their brands. I realized that the consumer perspective on the consumer-to-consumer relationship and how consumers generate value in the digital economy seemed absent. As I mainly was interested in consumers and the value that they produced I realized that not much research had been carried out with this focus. In June 2019 I published my second conference paper concerning a taxonomy of different concepts, such as content creators, digital platforms and e-commerce which I hitherto had collected and aligned. The taxonomy helped me to reveal several types of business models for content creators, which were included in the published paper. As the outline of the paper had been submitted in early 2019 it still concerned business models.

In total, I gathered more than one hundred terms and concepts and also dealt with a large number of articles. I therefore realized that I had to develop an initial framework which could help me manage and structure the concepts in a systematic manner. I wanted the framework to help me keep my deadlines and also keep track of my collected information and sources. The framework was therefore divided into three parts. The first part consisted of a long-term and a short-term project plan where the short term was agile and was carried out by, so called, sprints⁶. The second part was a framework for conducting research which will be described in more detail in section 3.3. The third and final framework was a supportive framework (created in Excel), which dealt with the gathered information and sources and consisted collections of relevant journals, words and definitions, feedback, ideas and other sources of information. This initial framework was a good support for my gradual understanding of the values, concepts and relations and I also continuously updated, analyzed and restructured the framework during the entire process. Now that I finally had identified the consumer perspective I searched for more literature and found the challenges of personal data and the relations to privacy and terms of services. I started to realize that personal data was perhaps the root and focus that I was looking for.

⁶ https://en.wikipedia.org/wiki/Scrum_Sprint

I decided to gather more literature about terms of service and privacy. By chance I also found the concept of digital zero-price markets which I found to be complex but important in the view of use and exchange value. This effort finally culminated in my third conference paper based on personal data, value creation and digital zero-price markets. Value creation replaced my previous focus on business models since the feedback I had been given suggested that a perspective on value could be more suitable to my study. I took the advice and thus started to focus on value creation and value capture. As value creation and value capture are closely related to business models, I did not have any difficulties in adopting this new approach. As the first blockchain paper had focused on business models it had to be changed into a focus towards value creation and value capture. The change was quite easy to accomplish as the paper was further developed. As the other two research papers already included value creation and value capture no further adjustments were needed.

It can also be mentioned that from the start I have collected all concepts and aligned them into a taxonomy. As my understanding grew I rearranged the taxonomy quite often. I also saved all major breakthroughs in the taxonomy in order to make it easy for me to go back and reflect on my previous understandings. Up to now this approach has resulted in more than 25 major updates of the taxonomy and it is still being developed further. Since the framework where I could position my research was not initially available, it took me two years to find my scope. I hope that the taxonomy (including the concepts in Appendix A) can save time and support other scholars and practitioners to rapidly get an overview of the field of digital economics. Due to my iterations of reading literature, and writing research proposals and papers, my incremental understanding and knowledge resulted in many modifications of my research proposal, research gaps, purposes and research questions. Besides working with the literature and writing, it can also be mentioned that the courses and feedback from my supervisors made me re-evaluate my perspectives and preconceptions. The research process described above and the conclusions of the three published research papers were finally synthesized in this dissertation. An overview of the described research process and design can be seen in Figure 2. The process according to the research questions and appended papers will now be described in more detail.

Figure 2. Overview of the research process and design

As the work was addressing a hitherto rather unexplored and complex phenomenon of how consumers create and capture value, it implied explorative research. Qualitative

research methods according to Mohajan (2018) were considered to be appropriate due to the nature of the research question and the complexity in concepts and relations, especially as the approach needed to deal with a certain level of contextualization, interpretation and structuring in order to get in-depth insights of the Web 2.0 concepts. Also, as the research in this dissertation was phenomenon driven it was not viewed through a specific theoretical lens. Also, as research about the consumer perspective had been largely ignored, it implied an investigation of how value was created and captured by consumers within the digital economy. As the literature revealed that consumers could create value by their personal data or by providing user-generated content to digital platforms, the first research question was divided into two studies which resulted in Paper 1 and Paper 2 and the third study corresponded to Paper 3 and the second research question. The background of the three papers will now be described.

Paper 1

In the first study value creation and value capture were explored in relation to content creators and user-generated content. As content creators often had a business approach and provided content to digital platforms, it was decided to characterize value creation and value capture in accordance with business model and digital platform literature. Since some content creators contributed for free it was considered necessary to understand more of the concepts of Web 2.0, such as social commerce and user-generated content. In order to align the concepts, a taxonomy or typology was considered suitable as they both represented classification structures. However, since typology was related to conceptual issues and taxonomy to empirical data, it was decided to create a taxonomy.⁷ Other distinctions between the two are also that a taxonomy has a bottom-up approach and typology a top-down approach. The taxonomy may also be characterized by descent from ancestors which was well suited to the emergence of the concepts. Since empirical data was used and e-commerce was seen as a common denominator, the concepts were aligned according to e-commerce, the Web 1.0 and Web 2.0.

Paper 2

As the literature review pointed out gaps in the values based on personal data between the consumers and businesses, the study was focused on investigating the value asymmetries. In order to explore this phenomenon in more detail, digital zero-price markets were found suitable as current literature described them as personal data exchanged for seemingly “free” services. As the value extracted by the businesses mainly was carried out by requesting access to different sources of personal data, the study was carried out by combining digital zero-price market literature and requests to personal information made by smartphone apps. After analyzing both App Store (by Apple) and Google Play (by Google) for accessing the app request data, it was found that data for the study was only sufficiently provided in Google Play. The empirical data collection was therefore limited to Google Play and therefore did not consider App Store.

⁷ https://www.researchgate.net/post/What_is_the_difference_between_a_typology_and_a_taxonomy

Paper 3

The second research question was relevant as several scholars referred to the blockchain technology as a carrier or enabler of value for content creators. Also, after getting more insight from the literature review, it was found that this value was more specifically related to rights, payments and transparency. After analyzing the Web for potential study objects, it was found that it was hard to find established businesses which were supplying the blockchain technology. Instead it was found that the market consists of many crowdfunded start-ups, which, in the blockchain world, are referred to as Initial Coin Offerings (ICOs)⁸.

The crowdfunding process can be described as individuals and other stakeholders raising capital to the start-up by purchasing cryptocurrency which has been provided by the start-up. The study was further carried out by combining insights from the literature review, together with empirical data extracted from websites of the current blockchain service providers (ICOs). A summary and overview of the research papers, research questions, value sources, and context can be seen in Table 1.

Table 1. Outline of the papers, research questions, sources and context

<i>Paper</i>	<i>Research question</i>	<i>Source</i>	<i>Context</i>
1	1	Creative works	Digital platforms
2	1	Personal data	Digital zero-price markets
3	2	Creative works	Blockchain service providers

3.3 Literature search

The literature search was carried out in a systematic manner. It was first collected during spring 2017 and was complemented during December 2019. The search was carried out by identifying concepts, and critically evaluating, classifying and integrating information. In order to grasp large amounts of articles, a systematic approach was developed building on the internally developed framework. The downloaded articles were categorized into business models, business relationships, commerce, user-generated content, terms of service and privacy, copyright, platforms, blockchains, value creation and value capture, content creators, digital zero-price markets and personal data. After reading some initial articles within the scope of this dissertation it soon became obvious that the research area included many concepts and definitions. In total more than 500 articles were finally examined in some degree of detail. As the number of concepts was high, and to examine them on several databases could make the search more complex, it was therefore decided to start with only one trusted source for the literature. Scopus⁹ and “Web of Science”¹⁰ were both considered, and the choice fell on Scopus, as it was recommended by colleagues. As it also contained a large part of the most prominent scientific journals it

⁸ https://en.wikipedia.org/wiki/Initial_coin_offering

⁹ <https://www.scopus.com/search/form.uri?display=basic>

¹⁰ <http://webofknowledge.com/>

was considered a trusted source. It could also be mentioned that Google Scholar on several occasions served as a first source when checking new definitions or terms, although the detailed search was further followed up on Scopus. The approach for searching and selecting articles on Scopus will now be explained in more detail.

The search was limited to *article titles*, *abstracts* and *keywords* and the research areas were limited to *social sciences*, *business management and accounting* and *economics, econometrics and finance*. The limitation to titles, abstracts and keywords were found suitable as criteria for finding relevant articles. The limitation to articles was considered in order to increase the quality and validity. However, exceptions were made, according to the snowball method (Boell & Cecez-Kecmanovic, 2014), as some of the articles generated new references and new terms (additional concepts) which were found relevant.

The selection and articles were further examined according to the sorting feature of Scopus. This selection was based on viewing the first top 100 articles according to the following three steps. First, the top 100 *most cited articles* were examined as they were considered the most relevant. Second, the *oldest articles* were examined with the intention to find origins and definitions, and for achieving a history of the emerged terms and definitions. Finally, as a third step, the *newest articles* were examined in order to include state-of-art and current understanding. Previous unstructured searches resulted in finding several initial keywords, see Table 2. As can be noted, terms such as consumer-centric, digital economy and value capture are not present on the list because they emerged much later in the research process.

Table 2. Most relevant search terms used on Scopus

"Blockchains"	"Long-tail" OR "Long tail"
"Business model innovation"	"Multisided Platforms"
"Business models"	"Personal data"
"Consumer-to-Business" OR "C2B"	"Pure e-commerce" OR "Full e-commerce"
"Consumer-to-Consumer" OR "C2C"	"Social commerce"
"Content creator"	"Technological platforms"
"Content platforms"	"User-created content" OR "User created content"
"Definition of personal data"	"User-generated content" OR "User generated content"
"Digital platforms"	"Value creation"
"e-business"	"Value of personal data"
"E-commerce" OR "Electronic Commerce"	"Zero-price"

The information given from the collected literature of the initial keywords was further used in order to carry out the more structured literature review. As the study covered many research articles, it was important to justify if the chosen concepts given by literature were still relevant. In order to provide an insight into the relevance of the found concepts, a normalized histogram of the number of published articles for each year was collected, analyzed and visualized, as can be seen in Table 3.

The results indicate the total volume of articles related to each search term that were considered. The visualization provided an insight into whether a concept was emerging or decreasing in interest and importance. Also, the number of results were included in order to provide an insight into how well researched each concept was. As an example, it can be seen that the concept of *user-created content* shifted towards being currently referred to as *user-generated content*. It can also be seen that research about blockchains is scarce compared with other fields, such as business models.

Table 3. Normalized results of the number of publications each year for each concept

Concepts	1990 - 1999	2000 - 2009	2010 - 2019	Results
Blockchains			_____■	209
Blog		_____■	■■■■■■■■■■■	4,286
Business Model Innovation		_____	_____■■■■■■■	900
Business Models	_____	_____■	■■■■■■■■■■■	13,375
Consumer-to-business		■ ■ ■	_____■	18
Consumer-to-consumer	_____	_____■	■■■■■■■■■■■	208
Content creator		_____■	_____■	259
Electronic commerce/E-commerce	_____	_____■	■■■■■■■■■■■	25,663
Long tail	_____	_____■	■■■■■■■■■■■	507
Multisided platforms		_____	_____■	36
Personal data	_____	_____■	■■■■■■■■■■■	2,326
Privacy policy	_____	_____■	■■■■■■■■■■■	510
Social commerce	_____	_____■	_____■	392
Social media	_____	_____■	■■■■■■■■■■■	29,221
Technological platforms	_____	_____■	■■■■■■■■■■■	359
Terms of service	_____	_____■	■■■■■■■■■■■	467
User-created content		■■■	■■■■■■■■■■■	60
User-generated content		_____■	■■■■■■■■■■■	1,957
Web 1.0		_____■	■■■■■■■■■■■	152
Web 2.0		_____■	■■■■■■■■■■■	6,609
Virtual worlds	_____	_____■	■■■■■■■■■■■	3,675
Word of mouth	_____	_____■	■■■■■■■■■■■	4,627
YouTuber		_____	_____■	54

As the field of study contained many concepts, an analysis of the most eminent and cited scholars related to the concepts was provided. It turned out that several journal articles appeared on several occasions and related to several search terms which indicated that these articles could be central.

The most relevant articles were studied in more detail and served as an initial source to understand the relationships between the concepts. Examples of these articles are “Users of the world, unite! The challenges and opportunities of Social Media” by Kaplan and Haenlein (2010), “Value creation in e-business” by Amit and Zott (2001).

Also, some of the articles that were most cited for the different concepts were studied in more detail. An overview of these articles may be seen in Table 4.

Table 4. Most cited articles and conference papers for relevant concepts

<i>Concepts</i>	<i>Author(s)</i>	<i>Year</i>	<i>Title</i>	<i>Citations</i>
Blockchains	Yermack	2017	Corporate gove...	83
Blog	Hsu and Lin	2008	Acceptance of ...	885
Business model innovation	Chesbrough	2010	Business model...	1,083
Business models	Amit and Zott	2001	Value creation...	2,156
Consumer-generated content	Awad and Ragowsky	2008	Establishing t...	314
Consumer-generated media	Mangold and Faulds	2009	Social media: ...	1,308
Consumer-to-business	Chang et al.	2003	E-commerce and...	103
Consumer-to-consumer	Mangold et al.	2009	Social media: ...	1,308
Content creator	Van Dijck	2009	Users like you...	492
Digital media	Bennett and Segerberg	2012	The logic of c...	853
Distributed ledger technology	Ølnes et al.	2017	Blockchain in ...	69
E-commerce	DeLone and McLean	2003	The DeLone and...	4,874
Freeconomics	Newman	2013	Copyright free...	8
Long tail	Zhu and Zhang	2010	Impact of onli...	941
Multisided platforms	Boudreau	2012	Let a thousand...	206
Personal data	Phelps et al.	2000	Privacy concer...	484
Personally identifiable information	Hann et al.	2007	Overcoming onl...	202
Privacy paradox	Barnes	2006	A privacy para...	468
Privacy policy	Nissenbaum	2004	Privacy as con...	633
Social commerce	Huang and Benyoucef	2013	From e-commerce...	445
Social media	Kaplan and Haenlein	2010	Users of the w...	5,313
Social networking site	Kaplan and Haenlein	2010	Users of the w...	5,313
Technological platforms	Porter, M.E.	2001	Strategy and t...	2,025
Terms of service	Dabholkar	1996	Consumer evalu...	789
User-created content	Lai and Turban	2008	Groups formati...	144
User-generated content	Kaplan and Haenlein	2010	Users of the w...	5,313
Web 1.0	Boulos and Wheeler	2007	The emerging W...	617
Web 2.0	Kaplan and Haenlein	2010	Users of the w...	5,313
Virtual worlds	Kaplan and Haenlein	2010	Users of the w...	5,313
Vlog	van Zoonen et al.	2010	Performing cit...	81
Word of mouth	Chevalier and Mayzlin	2006	The effect of ...	2,371
YouTube	Jerslev	2016	In the time of...	28

As there were many concepts and several definitions, a broad set of articles was examined and served as a basis for the provided work of this dissertation. As a large set of articles needed to be handled, a framework of internal acronyms was developed in order to deal with explanation building and pattern matching. NVivo¹¹ was examined and considered a decent tool to manage the data. However, as I wanted to have greater flexibility I decided to develop my own framework in Excel which also would give me more control.

A customized framework was thus built in Excel which allowed important sentences, statements and definitions to be coded according to the internally developed acronyms. A screenshot of the structured and coded text gathered in Excel can be seen in Figure 3 and a short description of the coding process into the internal framework will now follow.

¹¹ <https://www.qsrinternational.com/nvivo/home>

First, relevant text in the articles was highlighted. The highlighted text was further copied into Excel (column E) together with some *internal metadata* about the article, including, own rating of the article, publication year, number of citations, journal name and public rating of the journal (column A), the name of the authors (column B) and the name of the article (column C). Several paragraphs of highlighted text (and pictures) were further appended into the Excel sheet for each article respectively (column E). Each text was put in its own cell. In the adjacent column the text was tagged with the internally developed keywords, such as “ROOT,” which denotes the first time a concept was mentioned, or “DEF SC” which exemplifies a definition of social commerce (column D). Author data and drawings were also provided into the framework if space was available (column A- C).

[illegible]

Figure 3. Screenshot of a small section of the internal framework

When all articles had been highlighted and copied into Excel, all concepts which had shown up were mapped on the whiteboard and categorized. The major categories which showed up were user-generated content, business relationships, commerce, platforms, business models, word-of-mouth, capital, value, terms of service, blockchains, social medial and other.

A new sheet was then created in Excel which mapped the terms with the articles in a cross-matrix. A screenshot of the cross-matrix can be seen in Figure 4. The vertical part of the matrix (rows) consisted the specific terms where categorized under the major terms. The articles further constituted the horizontal part of the matrix (columns) sorted by year. The text which had been copied into Excel for the articles was further provided into the matrix so that each term on the vertical part could be matched with the corresponding article. It can also be clarified that longer texts were also copied into the cells. As the articles also were sorted by date, a term could be scrolled and the alignments of a concept and different authors could easily be seen. In total about 350 of the collected and downloaded articles were coded into the internal framework and into the cross-matrix. It can be mentioned that Figure 3 and Figure 4 only illustrate an overview of the framework, why the content in the figures may appear as small and blurry.

	A	B	C	D	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH
1					XC	XC	XC	XC	BM	UGC	UGC	UGC	UGC	P	BR	BMI	EC
2					11	13	27	28	6	2	12	13	37	9	11	3	7
3					Eldon+	Chena+	Mallat	Ngai	Zott	Chesbroug	Singh	Banks	Lai	Evans	Jones	Johnson	Chen+
4					2007	2007	2007	2007	2007	2007	2008	2008	2008	2008	2008	2008	2008
5																	
6																	
7																	
8																	
9																	
10																	
11																	
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Figure 4. Screenshot of a small section of the cross-matrix aligning keywords and articles

Finally, the filenames for each article on the computer were also coded with the internal metadata in order to easily find a related article if needed. This framework required some extra initial efforts but it was very useful when everything was in place. For example, related terms and references used in the papers could easily be traced back to the source, and relevant sources for new articles could easily be found by just searching for a term in Excel.

3.4 Data collection

The data for the three research papers was collected from the following three sources: Scopus, Google Play and individual websites. Moreover, this section will provide a background of the motives, choices and selections of the data collection.

The data collection for the first paper was mainly carried out on Scopus where more than 250 articles were examined in some level of detail and the procedure for the collected data followed the same systematic approach as described in the literature review section.

The data for the second paper concerning digital zero-price markets was collected from Google Play¹². Even though the data considered apps on smartphones, the data could be collected by a regular computer using a Web browser. For each app it was possible to click on a link and easily view the request from that specific app. As there are many apps to choose from, a proper selection was considered. In order to be as relevant as possible for as many users as possible it was decided to investigate the 10 most downloaded apps. As Google Play itself did not provide such statistics, a search on Google ended up with a couple of lists of the 10 to 20 most downloaded apps. As the different lists were analyzed it turned out that they included mainly the same apps but in slightly different order. Since the order was not crucial for the study it was decided to choose the most trusted websites according to impression of the structure and references provided. It was finally decided to use the top 10 list from MakeUseOf¹³.

The apps from the list were then found on Google Play, and the headings and specific requests for the apps could further easily be identified and copied into an Excel spreadsheet. A potential source of error was that Google Play only could be accessed in Swedish even though attempts were made to find an English page. After some unsuccessful attempts it was decided to instead translate the request into English. As only the headings were provided in Swedish and the more specific specifications were still in English, it was not seen as a big problem to just translate the headings.

After collecting data from a few apps, it was noticed that the app requests were in different orders, and some apps had many requests and some only had a few. Several doublets were also identified. Some structuring and managing had to be done. This was a straightforward process which was carried out as follows. First the doublets were removed; second, the data was sorted according to the headings in an alphabetic order; third, the same headings of different apps were aligned in the same corresponding rows, so that they could be compared to each other.

Finally, in the third research paper, primary data was collected from the websites of the blockchain service providers. The selection of service providers was based on two criteria. First the service provider had to utilize blockchains for their service, and second,

¹² <https://play.google.com/store?hl=sv>

¹³ <https://www.makeusof.com/tag/most-popular-android-apps/>

it had to be a service provider of *digital media* which could support a content creator. In order to find potential blockchain service providers, a search on Google was carried out. The search terms were ICO, media, copyright and blockchains, which were used in different combinations. In order to complement the search, the snowball method was considered appropriate. With references and blogs revealing new service providers, a total of 30 providers were finally identified. The search was carried out from February to May 2018 and the number of service providers was considered to be sufficient.

However, after a first analysis of the websites, it turned out that five of the service providers did not fulfill the criteria, and they were consequently removed. As the research paper was developed further, a more detailed investigation of the websites was carried out during December 2019. It then turned out that some of the remaining 25 service providers had either shut down their service or reshaped their offer, thus falling outside the criteria. As mentioned, more detailed data about the services were conducted in the second step, and it also included additional sources, such as whitepapers or blogs of the service providers, but also information given by links to YouTube or other external publications and descriptions. This way, the most relevant data and information was collected.

3.5 Data analysis

The first research paper was solely based on a literature review and included many definitions, contexts and relations. An exploratory data analysis was therefore found suitable as it focuses on visualization and structuring of data. According to Behrens (1997), the graphical representation is the most important part of the analysis in order to find underlying structures. It was therefore decided to provide a taxonomy which could gather the different concepts and relations into one representation. More specifically, the construction of the taxonomy was decided to be done through a bottom-up approach according to Baden-Fuller and Morgan (2010). It turned out that the work to provide the taxonomy required several iterative reconstructions and representations. For example, concepts were provided in Excel, and further re-ordered and restructured on the whiteboard, and further imported into PowerPoint in order to give a characterization.

When more data successively were gathered the procedure needed to be iterated several times. Miles and Huberman (1994) emphasize that data should be analyzed during the data collection phase. However, it could perhaps be argued that another analysis method would have been more suitable, such as the content analysis method (Guthrie et al., 2004). Since the exploratory data analysis method had focus on structuring and visualization of data it was however considered as a sufficient analysis method for the study.

The data in the second research paper was analyzed according to general principles of qualitative data analysis given by Miles and Huberman (1994) and exploratory data analysis principles according to Behrens (1997) and Leinhardt and Leinhardt (1980). The aim was to structure the data in such a way that patterns could reveal information about

the characterization of values. The personal data request from the apps was therefore provided in a table so that patterns and characteristics would appear which could be further analyzed in order to provide conclusions. However, in the third and last paper the content data analysis according to Guthrie et al. (2004) was found to be suitable for analyzing the data collected from the websites based on the three selected concepts (rights, payments and transparency). Therefore, the data from the websites were first analyzed and categorized according to these concepts. Finally, the analysis provided a table related to the concepts, and conclusions of the importance of the features could be made according to how many ICOs were related to a concept or had abandoned the concept.

3.6 Quality criteria

Quality criteria is based on testing validity and reliability where the validity (or accuracy) is defined as “the extent to which obtained measures approximate values of the true state of nature.” Reliability refers to “the capacity of the instrument to yield the same measurement value when brought into repeated contact with the same state of nature.” Also, research questions and objectives must clearly be defined in order to provide a study of high quality Miles and Huberman (1994).

Validity

As described in the introduction, the research idea of this dissertation was to provide a characterization of personal data e-commerce regarding how consumers manage their values in a consumer-centric digital economy. As this challenge bridges a research gap, this implied an exploratory research design. As a next step, qualitative methods were considered appropriate for the type of data which were about to be collected and analyzed. Also, as all data was collected from secondary sources, it could be argued that an increased in-depth understanding could have been achieved if complemented by interviews. However, by collecting data directly from secondary sources it implies that the study avoids relying on perceptual perspectives. In order to increase the validity of the collected data and the conclusions, all three research papers were presented at international conferences where feedback was provided from scholars.

The research papers and the proposal of this dissertation also received feedback by being presented at several internal seminars and workshops, such as PhD seminars at Linköping University, Continuous Innovation Network PhD seminar¹⁴ and workshop¹⁵, and at a Research Institutes of Sweden (RISE) seminar. Also, to gain additional knowledge the following two additional conferences were attended. First was the BLOXPO¹⁶ blockchain conference in Stockholm in 2018 which, according to the organizers, is the largest blockchain conference in Europe. The second attended conference was the MyData conference¹⁷ in Helsinki in 2019 which was the fourth conference held within the field of

¹⁴ <https://www.continuous-innovation.net/events/phdseminars/2018.html#0>

¹⁵ <https://www.continuous-innovation.net/events/phdworkshops/2018.html>

¹⁶ <https://bloxpo.co/>

¹⁷ <https://mydata2019.org/>

human-centered data economy. As the conference both facilitated seminars and workshops it also led to many discussions about personal data and its related challenges.

Finally, the results of this study are seen as potentially generalizable as they describe value of consumer data in general in the context of the digital economy and do not consider different groups of populations. As an example, it can be seen from the first research paper that social media service providers within digital zero-price markets utilizing personal data require more access to personal data than for example gaming apps such as Candy Crush Saga. A study with another set of service providers within digital zero-price markets utilizing personal data would therefore most likely provide the same results regarding requests for personal data. The synthesized findings of value creation and value capture by consumers can potentially also be generalized to businesses as the boundary between content creators and professional artists (having a business) is quite small.

Reliability

As the study did not include any interviews, the reliability of potential research errors and biases needs to be commented on. First, the study includes many concepts which implied many choices of interpretation. In order to minimize errors in perception of terms and concepts, continuous meetings were held with the supervisors discussing and reflecting on the different interpretations. The meetings also aimed at reducing bias throughout the reflections and to provide second opinions. Also, discussions and reflections made with other scholars aimed at reducing bias, by providing other opinions and comments.

In order to maximize the replicability, all methods and sources are described and disclosed. For example, a more comprehensive trend analysis and background of the most relevant concepts is included (see Appendix C), but also statements (quotes) from the literature review (see Appendix D) in order to justify the choice of selection for the different concepts as well as pointing out further reading.

3.7 Publications and authorship

The first paper concerned content creators and business models and also provided a taxonomy of e-commerce and related concepts. The main idea and outline of the paper was generated by me and also included Nicolette Lakemond and Robert Forchheimer as co-authors. Nicolette contributed clarifications and modifications of the text and content, and Robert mainly acted as support in the development of the taxonomy, but also contributed improvements on the manuscript.

A first version of the paper was accepted and presented at the International Society for Professional Innovation Management (ISPIM) in Florence, Italy in June 2019. However, an invitation from Technology Innovation Management Review to develop and publish the article was accepted, leading to a journal version of the paper which went public in October 2019.

The second paper concerned digital zero-price markets and how service providers such as Facebook and Instagram requested access to personal data as payment. The main idea and outline of the paper was generated by me and the final version was co-authored together with Nicolette Lakemond who contributed feedback regarding selections, methods as well as clarifying the text. The publication was accepted and presented at the 20th International Continuous Innovation Network (CINet) conference in Odense, Denmark in September 2019.

Finally, the main idea and the outline of the first version of the third paper was solely developed by me and I presented the paper at the CINet conference in Dublin in September 2018. The second version was further developed in December 2019 together with Nicolette Lakemond as a co-author who contributed with feedback as well as clarifying the manuscript from a scientific point of view. It still constitutes a working paper and focuses on the blockchain technology and how blockchain service providers can address value in their offerings for content creators.

In total this dissertation constitutes the combined result of the three conference papers where the first paper also has been modified and published as a journal publication. An overview of the appended papers and related authorships can be seen in Table 5.

Table 5. Appended papers and authorship

<i>Paper</i>	<i>Title (authors)</i>	<i>Appended papers</i>
1	Towards a taxonomy of e-commerce: -Characterizing content creator-based business models. (Mileros, Lakemond and Forchheimer)	Published in Technology Innovation Management Review 2019. (An earlier version of the paper was presented by Mileros at the ISPIM conference 2019.)
2	Characterizing value creation based on personal data in digital zero-price markets. (Mileros and Lakemond)	Presented by Mileros at the CINet conference 2019.
3	Blockchain-based value creation for handling digital media. (Mileros and Lakemond)	Working paper (An earlier version of the paper was presented by Martin at the CINet conference 2018.)

3.8 Reflections

In this final section, I would like to give a reflection on my role as an industrial PhD candidate in the context of engaged scholarship. Van de Ven (2007) mentions that research can undertake different perspectives and purposes which can be summarized into four forms. The forms are described as action or collaborative research and basic or policy science. The first two imply an attached research perspective inside or in combination with a client and the latter two imply a detached research perspective. While basic science and collaborative research have the purpose to describe and explain, policy science and action research have the purpose to design and control. An illustration of the forms according to Van de Ven (2007) can be seen in Figure 5.

<i>Research perspective</i>	To describe / explain	To design / control	
	Basic science (stakeholder advice)	Policy science (research for professional practice)	
	Collaborative research (co-produce)	Action research (for client)	
	<i>Research question/purpose</i>		
			Extension Detached Outside
			Intention Attached Inside

Figure 5. An illustration of four forms of engaged scholarship

The model implies that there are different stakeholders and options for collaboration and knowledge transfer which could be considered. In my case it provided support for how I could form my perspective and my research questions. First, as I did not conduct policy science or carry out any action research I saw my current situation as a combination of basic science and collaborative research as my research purpose is to explore and explain how consumers create and capture value within a consumer-centric digital economy. By having a background as a practitioner and also being a consumer, my initial research perspective was quite attached and subjective when it comes to how consumers create and capture value. More specifically I was strongly attached to my subject and I therefore constantly had to work to become more detached to obtain a more objective view of my phenomenon. In my research process I therefore constantly strived to detach myself from the problem and thus gain a more objective view of the situation. To accomplish this detached perspective, I have constantly questioned my own interpretations and I also frequently discussed my findings and interpretations with my supervisors. Their questions and feedback were a good support helping me to obtain a more objective perspective.

4 Summary of the papers

This chapter provides a brief summary of the three appended papers in this dissertation.

4.1 Paper 1

As research on e-commerce had grown rapidly and new concepts emerged such as social commerce, digital platforms and user-generated content, no overarching perspective had been formulated for distinguishing the new content creator-based business models. The aim of the first paper was therefore to characterize content creator-based business models by formulating a taxonomy of e-commerce based on concepts related to Web 2.0.

In order to characterize those business models, secondary data based on current e-commerce-related literature was collected. In total more than 250 papers were examined in some degree of detail. After analyzing the collected material a bottom-up approach by Baden-Fuller and Morgan (2010) was used to create the taxonomy. Interconnections and relations between the concepts could be found by analyzing the concepts visually on a whiteboard and restructuring them. The following result was achieved. For e-commerce, B2C, C2C, e-shops, e-malls, e-auctions, Web 1.0 and websites were found. For social commerce, C2C, C2B, word-of-mouth, trust, branding, group purchase, Web 2.0, UGC, platforms and content creators were found.

As the business relationships indicated that a content creator could do business directly with other consumers (C2C) or with businesses (C2B), it implied two combinations of how content creators could commercialize their values. As it also was important to pay attention to whether the value was created outside or inside a platform, it gave rise to the following four combinations, namely the C2C, C2B, [C]2C, and [C]2B combinations. The bracket around the C refers to the fact that the value is within the boundaries of the platform. A more detailed description and discussion of the combinations will follow in the next chapter. Finally, as it also was noted that the value could be captured by the platform [B] or consumers within the platform, eight combinations in total were found, which can be seen in Table 6.

As can be seen, if the value creation process (for instance taking photos with an app) takes place within the boundaries of a platform (inside platform), traditional copyright is more likely overruled by the platform terms, which implies that content creators may lose some of their rights (such as exclusivity rights), control or reimbursement. In total the paper included three results. First, several business model types (BM Types) for business-oriented content creators, including an anomaly was found for one of the business relationships. Second, the paper introduced business-oriented content creators as professional amateurs who had the intention of getting reimbursed for their efforts. In contrast with traditional content creators, this type of commerce was referred to as intellectual commerce, meaning that the commerce was based on the intellectual skills of the content creators. Third, the taxonomy characterized several central concepts within Web 1.0, Web 2.0, and e-commerce.

Table 6. Eight business model types for content creators within intellectual commerce

No.	Value creation	Value capture	Initial rights	BM Type
1	Outside platform	Outside platform	Copyright	C2C
2	Outside platform	Outside platform	Copyright	C2B
3	Outside platform	[Inside platform]	Copyright	C2[C]
4	Outside platform	[Inside platform]	Copyright	C2[B]
5	[Inside platform]	Outside platform	Terms	[C]2C
6	[Inside platform]	Outside platform	Terms	[C]2B
7	[Inside platform]	[Inside platform]	Terms	[C2C]
8	[Inside platform]	[Inside platform]	Terms	[C2B]

The brackets symbolize value limited by the boundaries (terms) of a platform.

4.2 Paper 2

The second appended paper dealt with consumers and their personal data which is exchanged for free access to services provided by apps. As there are no monetary transactions, the study was framed to digital zero-price business markets which refer to seemingly free products based on access granted to the user's personal data. The aim was to analyze granted permissions of ten major apps from Google Play in order to identify where the value of personal data is created. The study also looked into value asymmetries which may occur as a result of the exchange. The study was carried out by a systematic literature review in combination with empirical data from Google Play. In the study, personal data was structured and analyzed according to the access request by the 10 most downloaded apps on Google Play. The results gave a value chain perspective and the specific role of businesses in the value creation process. Based on the results three areas in which value asymmetries occur were identified. The study also showed that social media apps requested a large number of access and that eight out of the 10 investigated apps requested access to Wi-Fi, contact lists, phone data, camera, location (GPS), identity, photos and media files and device ID. In addition, some of them also requested access to the microphone, stored SMS, app history and calendar as can be seen in Table 7.

Table 7. Primary data collection on app request to personal data (selection from the paper)

	Requests (x)	Facebook	FB Messenger	WhatsApp	Instagram	Skype	Subway Surfers	Twitter	Clean Master	Candy Crush Saga	Snapchat
Wi-Fi		x	x	x	x	x	x	x	x	x	x
Contacts		x	x	x	x	x	x	x	x	x	x
Phone		x	x	x	x	x		x	x		x
Camera		x	x	x	x	x		x	x		x
Place		x	x	x	x	x		x	x		x
Identity		x	x	x	x	x		x	x		x
Photos/Media/Files		x	x	x	x	x		x	x		x
Device ID and call information		x	x	x	x	x		x	x		x
Microphone		x	x	x	x	x		x			x
SMS		x	x	x	x	x					
Device and app history		x		x	x	x			x		
Calendar		x	x								
Number of downloaded apps (millions)		4,119	3,408	2,979	1,843	1,039	1,025	833	833	805	782

The study concluded that data provided by the consumer can be seen as being fragmented and has a lack of context. This implied that the initial value created by the consumers could be assumed to be low. In contrast, as big data companies put data into context it could also be seen that the main value increase was created by the businesses. The paper also concluded that when consumers granted the apps access to their personal data, the value creation changed from being created outside the boundaries of the platform to being created inside the boundaries and control of the platform.

4.3 Paper 3

The blockchain technology has gained prominence and often is seen as an enabler to handle trust and value transferred on the Internet. The technology may more specifically provide benefits for royalty distribution, online payments and for tracking intellectual property (Adams et al., 2017; Savelyev, 2018), especially for content creators who contribute their creative works such as audio, video and text (Barnes, 2002). The lack of transparency related to creative works could also imply that recognition, ownership and reimbursements may be lost since the original creation easily could be separated from its creator within the digital world (McConaghy et al., 2017). Despite the unbounded optimism of the future use of the blockchain technology it has not yet reached its full potential. In October 2019, one of Gartner's analysts argued that "Blockchain technologies had not yet lived up to the hype and most enterprise blockchain projects by new blockchain service providers were stuck in experimentation mode."¹⁸

As it remained unclear how these blockchain service providers could support value creation and value capture by consumers, the purpose of the paper was consequently to explore how blockchain technology could support value creation and value capture by consumers. The paper was based on 50 blockchain and value-related articles which were found on Scopus. The study also comprised empirical data collected from the websites of 25 blockchain service providers. The literature revealed three central concepts, namely, rights, payment and transparency, which were matched with the empirical data from the websites, blogs and whitepapers of the service providers. The paper concluded that, although that blockchains were utilized, it seemed that the content creators had limited control of managing their metadata (for example, authorship and date as proof-of-creation) and payment on the blockchain. This implied that to a high degree they were still dependent on the blockchain service provider in order to create and capture their value. The paper showed that there may be three distinctive approaches used by the blockchain service providers when it comes to managing metadata and creative works which were subject to value division, see Figure 6. A value division in owning and controlling metadata seems to occur between the blockchain service provider and the blockchain and when the ownership, payment stream and content is separated. The content creators could be seen as being dependent on the blockchain service provider in order to manage the rights and payments through the blockchain.

¹⁸<https://www.gartner.com/en/newsroom/press-releases/2019-10-08-gartner-2019-hype-cycle-shows-most-blockchain-technologies-are-still-five-to-10-years-away-from-transformational-impact>

Figure 6. Service levels of the blockchain service providers for the aspects and media

For example, in order for content creators to manage their rights, they may need some metadata which also has to be stored by the blockchain service provider. As the blockchain service providers mainly are in some level of control regarding the payments and files, it is considered that the blockchain service providers can be trusted in the same way as non-blockchain based platforms. Not much is said about the risks when a blockchain service provider terminates or if the blockchain which is used is abandoned by the blockchain network (community utilizing the blockchain) or the blockchain service provider.

5 Analysis and discussion

In this chapter the findings are analyzed and discussed in accordance with the research questions which will constitute the two subheadings of this chapter.

5.1 Understanding value creation and capture in a consumer-centric digital economy

The first research question corresponds to how value creation and value capture by consumers can be understood and characterized within a consumer-centric digital economy.

The research has focused on two distinctly different types of consumers, i.e., those that actively create and share content and make money from it and those that instead make use of the app functionality provided, without monetary payment but based on an exchange involving allowing access to personal data. The first will be further referred to as business-oriented consumers (B-O consumers). To distinguish between content creators who provide photos on Instagram or other media for free (such as traditional consumers), commerce by business-oriented consumers is denoted as intellectual commerce, meaning that these types of content creators have the intention of being rewarded. For each of the two types, the results outline some specific and distinct ways of, and aspects related to, value creation and value capture. In order to contribute to the understanding of how value is created and captured in a consumer-centric digital economy, these findings will be outlined and characterized.

Previous research on the consumer-centric digital economy has highlighted the role of platforms, but much of the research is focused on the businesses involved, especially the platform providers rather than the consumers (Gawer, 2014). The findings also point at the role of the platform when considering consumers. In relation to the B-O consumers, it seems that value capture is dependent on whether the content is created inside or outside of the platform due to potential implications of the rights and ownership. The results therefore point at the interplay between the prerequisites provided by the platform, including benefits and limitations for B-O consumers to publish their content.

In relation to the second type of consumers, those that implicitly pay with their personal data, the results indicate that value creation and value capture may be fragmented. Even though they pay with personal data, which has been shown to be worth quite a lot (Boyd & Crawford, 2012; Enders, 2018; Slaughter, 2015; Spiekermann et al., 2015), businesses such as big data companies only reap the benefits through compiling, integrating, and analyzing the data of many consumers. Consequently, although these consumers may provide value, the aggregated value is created by the platform providers rather than by the consumers themselves. This has implications on the way value capture can be considered. These overall results will be discussed in more detail below and result in a characterization of different types of relationships (also referred to as business models)

that have consequences for the way value can be created and captured. When it comes to business-oriented consumers, there is not only one way to do business, like trading personal data for free services such as previously described for the consumers. Instead, the results show that business-oriented consumers have the ability to monetize their data in several ways.

Firstly, several types of business possibilities for business-oriented consumers were found. Even though there is no sharp line of how much value or creativity a business-oriented consumer must provide, a suitable distinction could be that business-oriented consumers normally pay more attention to value capture than traditional consumers. In the literature, relationships between businesses are normally denoted as business to business (B2B), while relationships that concern businesses and consumers are denoted as B2C. In a consumer-centric digital economy, such a relationship could be considered as consumer to business (C2B) when a business is involved. Such a notation emphasizes that consumers are initiating the value creation.

Secondly, and when further looking into the value creation and value capture, the results specifically show that business-oriented consumers may have the ability to develop their content either within a platform or outside a platform. This is illustrated in Figure 7. A business-oriented consumer who is creating value outside the platform is denoted with a “C” (see Figure 7a), and a business-oriented consumer who is creating value inside a platform is denoted with a “[C]” (see Figure 7b), where the brackets symbolize the boundaries of the platform. The distinction between creating value within or outside the platform has consequences for several aspects of the value creation process, e.g. how the intellectual property rights are distributed and can be reinforced. As a business-oriented consumer can capture value both from other consumers, denoted as “C” or from businesses, denoted as “B” and the consumers or businesses can be either outside, “C” or “B” or inside the platform “[C]” or “[B]”, it results in eight different combinations of how the created value can be captured. It can be noted that [B] actually denotes the platform itself.

Figure 7. Eight business models representing value created a) outside, and b) inside a platform

These eight business relationships of how value can be created and captured by business-oriented consumers will now further be discussed in accordance with an adjacent illustration (Figure 8 a-h). Examples are also provided in the heading.

1. C2C business relationship (Peer-to-peer, ...)

The first business relationship refers to business-oriented consumers who commercialize their creative works directly to other consumers through peer-to-peer¹⁹ software, such as Napster²⁰ or Kazaa²¹. Traditionally this market has been characterized by illegal file sharing. However, new technologies such as blockchains can perhaps mediate the potential disadvantages with uncontrolled sharing and piracy, and enable rights to be managed properly and business-oriented consumers to be more fairly reimbursed (Adams et al., 2017; McConaghy et al., 2017; O'Dair & Beaven, 2017; Ryan, 2017; Swan, 2017). In relation to this, the results in this thesis point at some of the potential negative effects of the use of blockchain based services as well, e.g. related to lock-in effects- and lack of methods to reinforce rightful value division.

Figure 8a. C2C business relationship

2. C2B business relationship (peer-to-peer, YouTubers, bloggers, ...)

As a second type, business-oriented bloggers have emerged in a C2B type of relationship where they can publish their texts and images on their own websites. Quite often, they also promote products and get reimbursed by the businesses selling the promoted products. For the bloggers, their rights are mainly in their control since the content does not leave the website. The viewers have to be guided to the website. The same type of relationship could also consider YouTubers or vloggers who, besides uploading videos to platforms (such as YouTube), also have the possibility of communicating brands of external businesses (Korhonen et al., 2017; Postigo, 2016; Van Dijck, 2009).

Figure 8b. C2B business relationship

¹⁹ <https://en.wikipedia.org/wiki/Peer-to-peer>

²⁰ <https://en.wikipedia.org/wiki/Napster>

²¹ <https://en.wikipedia.org/wiki/Kazaa>

3. C2[C] business relationship (no examples)

The third potential type of relationship which concerns consumers that create content outside a platform, can be seen as reaching out to consumers that are within a platform. No examples in the real world could be found of this relationship.

Figure 8c. C2[C] business relationship

4. C2[B] business relation (YouTubers, ...)

The fourth business relationship can be referred to YouTubers as they upload their creation to a platform, and are being reimbursed by the platform [B] (Postigo, 2016).

Figure 8d. C2[B] business relationship

5. [C]2C business relationship (authors, illustrators, ...)

In the fifth business relationship, [C]2C, denotes when the value creation is developed within the platform, but the content may be downloaded and commercialized outside the platform. An example is an author who writes a manuscript using a cloud service. Distribution to the consumers may be handled by blockchain technology or by means of third-party (intermediary) solutions (Adams et al., 2017; McConaghy et al., 2017; O'Dair & Beaven, 2017; Ryan, 2017; Swan, 2017). However, the distribution probably requires a publisher, since the marketing channels probably are missing. More specifically the platforms can be seen as a good marketer as they collect potential customers and thereby can support the marketing.

Figure 8e. [C]2C business relationship

6. [C]2B business relationship (authors, illustrators, ...)

The sixth business relationship can be exemplified by an author writing a manuscript in a cloud service such as Google Docs, but who, instead of directly selling to consumers, for instance submits it to a publisher (Business). By using a platform, the business-oriented consumers may encounter limitations such as not being able to grant exclusivity to the publisher. Another example could be when taking photos with certain apps on a smartphone which may require some rights.

Figure 8f. [C]2B business relationship

7. [C2C] business relationship (gamers, ...)

This business relationship mainly refers to virtual worlds such as Second Life (Kaplan & Haenlein, 2010), and consumers who create and are allowed to sell the creations to other consumers within the game. In virtual worlds [C2C] the business-oriented consumers fully act within the domain of the platform, and even though consumers sometimes are allowed to sell and trade their creations amongst other consumers within the platform, the platform is in control of all rights and rules and content.

Figure 8g. [C2C] business relationship

8. [C2B] business relationship (app developers, ...)

The final [C2B] relationship can mainly be seen as apps being developed by business-oriented consumers for App Store or Google Play and that they are getting reimbursed by those platforms. Once the provided content is created it can be seen as being kept and utilized within the boundaries of the platform.

Figure 8h. [C2B] business relationship

In summary, platforms may play an important role and affect how value can be created and particularly captured. It can be seen that if the creation is developed outside a platform, the creative works are covered by copyright law, but if the creation is developed within the boundaries of a platform, the platform terms apply and may overrule and thus limit the copyright. However, the rights may also be limited to a certain level when the content is created outside a platform. For instance, by using a software which may request some degree of rights to the created content. An implication of this is for example when an author uses a platform to write a manuscript. Even if the manuscript can be downloaded, the right to grant a publisher exclusivity rights could have been limited or lost.

In the second study it was found that there can be different perspectives taken on the implicit payment of personal data. For instance, a single data source (e.g. to storage or calendar), could initially be seen as having a low value due to its low context. But, as the different streams of data are aggregated, the value is refined, thus providing a higher value, since the data can be put in context with other data sources. Moreover, the aggregation could further be carried out on a next level by aggregating the data streams of several utilized apps for the same user, particularly if the business provides several apps to the same consumers.

The appending aggregated sources of data can thus be seen as a value chain with the ability to provide an increasingly higher value as more and more data is aggregated. For instance, the initial sources of data by the user could further be complemented with a next level of aggregation, for instance when data from other users is combined. Even though some scholars refer to free labour by the consumers (Fumagalli et al., 2018), the labour of consumers may perhaps mainly constitute the initial part, e.g. by giving access to the data sources of value and thus shifting them into the domain and control of the platform (i.e., that initial value creation starts inside a platform). As the data is further aggregated and analyzed by the business it can be seen as the businesses provide a large part in the creation of value rather than the consumers. Specifically as the big data companies which, according to Spiekermann et al. (2015a), can constitute many thousands of data attributes, arrange and put the data into different context.

Another perspective, concerning that the net income for Facebook in 2018 surpassed 22 billion dollars²², could provide the view that consumers are underpaid. However, as each consumer pays a different price for the services based on their granted data access, it is hard and probably impossible to determine how much a consumer really pays for the provided service, which also has been concluded by Malgieri and Custers (2018). A similar view is that the consumer is making a bad deal by only being granted access to an app and its current services as payment.

²² <https://www.statista.com/statistics/277229/facebooks-annual-revenue-and-net-income/>

However, as the initial data by the individual is so fragmented and not used in context, it probably would be very hard to monetize it in another way (Jerome, 2013) and the app can also provide many different services which can be of value for the consumer. In order to generate large values data has to be put into context (DeNardis & Hackl, 2015).

A common misunderstanding is that consumers give away huge values, but the values are rather generated by the big data companies as referred to by Boyd and Crawford (2012). As the businesses can refine the data and use it for personalized advertisements, the value can even increase by a factor of ten since no effort needs to be put on users who would be unlikely to purchase the product anyway (Malgieri & Custers, 2018). For consumers, this can be seen in a positive way as the marketing actually will not “spam” users like traditional broadcast marketing can do. Spiekermann et al. (2015b) adds that even if the consumers could aggregate their data they would probably not do it because the payment would not be worth the effort. However, new innovative approaches are proposed which could change the way data is provided as payment.

An analogy of consumer data is that the user produces “crude oil” where the “raw material” has a low value until it has been refined (by the businesses). In contrast to refined oil, personal data can be used over and over again, and have multiple buyers of the same personal data set (Malgieri & Custers, 2018). A potential problem though in digital zero-price markets is that the consumer does not really know how much the “oil” will gain in value after it has been refined, which leads to a value asymmetry between the consumers and the businesses. However, today’s targeted ads require many intermediates such as big data companies, app service companies and marketing companies. The market that they have created could one day be disrupted leaving an opening for new actors leveraging personal data and providing advertisements without the need of reimbursing intermediates. When, or if, this market will ever be disrupted it could have an impact on the global world economy.

Another important issue is that the terms of service set the rules of what and how the business may use and further commercialize personal data by consumers. As the result of the study of the terms of common apps show (see Figure 9), a platform seems to capture as many sources as possible on the smartphone. This ranges from GPS data, calendar data, and even the microphone and camera. This implies that the value creation by the consumer is shifting from being created outside a platform to being created inside a platform where the platform terms apply. Even if many consumers are not aware or even don’t care, this may have implications for how they can use some of their work. For example, a picture taken by the default mobile camera is normally protected by copyright law, but if the picture is instead taken by an app, such as Instagram, exclusivity rights and other rights may be limited or lost. Even if many consumers do not care, the future implications of this behavior and the effect on values does not seem to have been described in the literature. What could be seen as another implication is that platforms often have the right to update their terms of service. By doing this they continuously seem

to request more and more access (Acquisti et al., 2015). Slaughter (2015) has suggested dividing digital assets into two categories depending on where they are stored. For example, photos, videos and contact information which are held on devices owned by consumers are referred to as being locally stored. Meanwhile, the other type of storage can be a cloud-based server where the user has less access control.

Figure 9. Some sources of value created by consumers, which are captured by the platform

Moreover, Facebook is now also requiring access to personal data which may constitute confidential information. It seems that the requests to personal data by the businesses have constantly increased and in some cases may not be required (Acquisti et al., 2015). This may currently be a golden era for the businesses as they can easily request more and more access to personal data, but a growing concern has been raised and this era may end by a disruption (Malgieri & Custers, 2018). When it comes to the characterization of consumer data, some of the data is transferred when the user is aware (active way), such as having a conversation in a message service, or providing actions such as commenting or liking things (interactions, actions, views).

However, the rest of the transfer occurs without the user being fully aware (passive way) (Acquisti et al., 2015). This happens for instance when the apps access the calendar, storage or GPS which are seen as private property (Gabisch & Milne, 2014). This uncertainty of when and what really happens behind the scenes is one of the concerns of personal data referred to by Shklovski et al. (2014). However, it should be emphasized that the data can also generate value in a more collective way such as providing information about traffic jams for other users of the app, e.g. Google Maps. Another example is when value can be captured as increased knowledge by joining a certain group of interest on Facebook or by watching tutorials on YouTube.

5.2 Understanding value by blockchain service providers for content creators

The second research question corresponds to how blockchain service providers can address value in their offerings for content creators (business-oriented consumers).

In summary, the study shows that rights and ownership seem to be the first level of service provided by the blockchain service providers. Payments follow as a second level of service and file management as the third. The study also revealed some vulnerabilities, for example if the possibility to access value is dependent on the service and the service shuts down, or if the blockchain which is used is abandoned by its community. However, the findings seem to imply that this may be more complex, thus implying a value division. A more detailed analysis and discussion of the findings will now follow.

According to the findings, almost all relationships could be seen as relevant, and it was also found that the blockchain service providers act as intermediaries and may provide lock-in situations for the business-oriented consumers. For example, the blockchain service providers store data or metadata which is necessary to have in order to verify ownership on the blockchain or to be able to access the created content. The results have shown that all active blockchain services, in some way or another, manage rights which therefore can be seen as the easiest or most important feature of the blockchain when it comes to business-oriented consumers.

Payment was found to be the second most utilized feature for supporting the business-oriented consumers, however it was sometimes difficult to understand and investigate the process due to a lack of information or access restrictions. Finally, the study did not find transparency as a service (even though it is important). Instead the support and service of managed files was in some cases handled by the blockchain service providers. As all history of a blockchain is stored, it is desirable not to store too much data in the blockchain, but rather only manage metadata or hashes. The files (creative works) consequently have to be stored by the blockchain service provider or via a distributed peer-to-peer file system such as IPFS or OIP. Even if the blockchain itself provides trust, it can be questioned whether the service providers themselves can be trusted.

As the study was carried out in two steps, for a year and a half, it was found that some of the service providers already had shut down or abandoned the blockchain technology. A lock-in situation with these type of service providers could lead to severe consequences for the business-oriented consumers. Another risk also appears if a service provider develops its own blockchain. Such a blockchain could become abandoned by the developer and the value store on the blockchain thereby could become inaccessible. Also, if a blockchain has too few nodes, hackers could take control over the blockchain.

When it comes to transparency, Savelyev (2018) mentions that the blockchain has the potential to introduce transparency into the world of digital rights but that there certainly will be new challenges to take care of. A more broad question is if blockchains will have a place in the future in order to manage value as a trusted third party that handles control and authority is replaced by community consensus (Adams et al., 2017).

6 Conclusions

This chapter provides an answer to the purpose of this dissertation. In addition, several theoretical and practical implications of the research are described, and recommendations for further research are formulated.

6.1 Synthesis of the findings and answers to the research questions

The purpose and focus guiding the research reported in this dissertation is how consumers create and capture value within a consumer-centric digital economy. In order to explore this, the research approach was very much focused on bringing together previous and emerging insights from scientific and popular scientific articles, and secondary sources such as the information from the emerging blockchain-based service providers.

The overall research findings have contributed to describing the emerging phenomenon of the consumer-centric economy, particularly different approaches to, and types of, value creation and value capture by consumers. The results point at several particular aspects that contribute to the synthesis of the findings. With regards to value creation and consumers, the results indicate that access requested by social media apps has a high access level to personal data, compared with other types of apps. The logic and consequences of creating value within or outside these platforms seem to be different. When consumers grant access to their personal data and sensors on their smartphones, the value is mainly created inside the platforms. Commonly, platforms obtain direct access to the sources of value. Consumers more or less constantly supply the platform-based business providers with value.

The value created by consumers can be seen as being done in a passive way as the consumers do not have the intention to create value. Consumers may even be unaware of the data they share, e.g. contacts, location (GPS), and storage (Acquisti, et al., 2015) that by many users is considered private property (Gabisch & Milne, 2014). Value may also be created in an active way, for instance by utilizing communication services throughout the platform, such as sharing opinions (likes), chats and user-generated content, e.g. uploading personal photos on Instagram but also collecting a network of viewers or subscribers. Even though it has been argued that consumers in the passive state provide platform-based businesses with enormous amounts of value (Boyd & Crawford, 2012), our results indicate that value created by passive consumers is based on low and fragmented value streams characterized by a low level of creativity and context. This supports current research that consumers probably would encounter problems if they tried to commercialize their own personal data (Jerome, 2013). Even if consumers would have the possibility to aggregate their data on their own, it would probably not be worth the effort (Spiekermann et al., 2015). It seems that the real value cannot be created until a certain level of data has been aggregated. The results indicate that platforms such as Facebook, which controls Instagram, WhatsApp and Messenger, and according to their terms, have the right to combine data from all their platforms, solve this problem by providing them with many different and direct sources of value from the users.

In regards to business-oriented consumers, the results indicate that these provide compiled data rather than fragmented data, such as videos that have a high level of creativity and context (DeNardis & Hackl, 2015). This can be contrasted to traditional consumers and explains partly why some business-oriented consumers can generate large values, and even make a living out of it. The study also identifies two types of value creation. Business-oriented consumers may create values inside as well of outside the boundaries of the digital platforms. For instance, a YouTuber create the value outside the platform and has the possibility at the same time to be reimbursed by the platform and another external business, for instance if the content provided to the platform contains some marketing for the external business. Nevertheless, it seems to be important for business-oriented consumers to pay attention to where the content was created. Finally, when it comes to the blockchain technology the findings indicate that it could be seen as a support in protecting and capturing value rather than playing a role in the actual value creation process.

When it comes to value capture by consumers, it is common that they are rewarded by getting seemingly free access to the services provided by the platform. The value capture is therefore a [C2B] relationship since the consumers mainly both create and capture the value within the boundaries of a platform. It seems that consumers within digital zero-price markets do not put much effort into the value capture, which perhaps could be explained by the fact that there are no good options for a bargaining process, especially when there is a lack of exchange value (Bowman & Ambrosini, 2000). When it comes to business-oriented consumers, the findings indicate that their ability to capture value is determined by where the value was created. If the content is created within the boundaries of a platform, the platform terms may overrule the copyright and the value capture could become limited (Teece, 2010). Finally, in order to distinguish between business-oriented consumers posting images and videos for free throughout social media, the term intellectual commerce has been. The above can be summarized in four distinctive characteristics of how consumers create and capture value within a consumer-centric digital economy as shown in Figure 10.

Figure 10. Value creation and value capture by consumers in a digital economy

The taxonomy, which continuously was updated and modified during the research process, provides an even more comprehensive overview of how consumers create and capture value within a consumer-centric digital economy. This taxonomy is presented as Figure 11 and is also now briefly explained.

The axes and the four quadrants of the circle correspond to the axes and the four squares of Figure 10. The innermost circle (circle 1) denotes business-oriented consumers depicted on the upper half-plane and consumers (app users) depicted on the lower half-plane. The second circle determines the market in which business-oriented consumers and consumers create their values. The third circle determines if the initial value is created inside or outside of the platform and the fourth circle determines the rights or limitations of the created value. Finally, the fifth circle describes the business relationship of the parties in which the value is captured. Brackets symbolize that the addressed value is within the boundaries of a platform. Examples of the different characterizations are provided outside the circle. The upper half-plane constitutes the more compiled values and the lower half-plane constitutes the more fragmented values. Finally, the left half-plane relates to the values less controlled by the consumers whereas the right half-plane relates to the more controlled values.

Figure 11. A taxonomy of value creation and value capture by consumers

Finally, when it comes to the blockchain technology the findings indicate that it can be seen as a support in protecting and capturing values rather than creating values for the business-oriented consumers. Value capture becomes important when it comes to the blockchain technology since the main feature turns out to be rights management, for instance to explicitly prove that a business-oriented consumer is the creator. Another important feature is to manage payments and to increase transparency in the value chain. However, although the blockchain service providers offer many different solutions, it seems though that they may lock in the business-oriented consumers, thus providing limitation of their rights and value capture by possessing some level of essential metadata. This may be the paradox of blockchain, e.g. while the promise of blockchain increases the possibility to capture value through transparency and traceability, the blockchain-based service providers instead limit the possibilities to capture value through a lock-in effect.

Current indications also show that the situation of a combined centralized (by the blockchain service providers) and decentralized (by the blockchain) way of managing value capture by the business-oriented consumers tends to bring more complexity into the value aspect.

6.2 Theoretical implications

As scholars have argued for the necessity to develop more insight into how consumers create, capture and secure value based on their provided content (Baden-Fuller et al., 2017; Morgan & Finnegan, 2014; Yrjölä et al., 2017; Zyskind et al., 2015), this dissertation contributes to the literature on value creation and value capture by consumers within the consumer-centric digital economy. Several ways in which consumers can create and capture value within the digital economy have been pointed out which can shed more light on this emerging phenomenon. For instance, as the different types were exemplified, quite surprisingly no real-life example could be found of one of the types which concerned business-oriented consumers.

It has been stated, for instance by Teece (2010) that intellectual property rights are important in the digital economy, but the aspect of consumers creating value inside or outside a platform has not previously been described. This aspect can provide implications for business-oriented consumers as they are large providers of value to the platforms (Scarle et al., 2012). Platforms have been seen as the foundation of value creation where large amounts of data are created and exchanged (Gatautis, 2017). Explanations of the high values generated by the platforms has mainly been related to the amount of data, for instance as hours of uploaded video (Slaughter, 2015). However, another aspect to the generated values could be that the content by the business-oriented consumers consists of compiled data with a relatively high amount of creativity and context.

Another data source which has been studied and which generates huge values to the platforms is based on “free apps” and the collection of personal data from passive and active consumers. The data have, on the one hand, been described as e-mails, texts, social media, dating sites, online courses, questions in search engines, reading news or books or navigating streets, and on the other hand as large amount of personal information which unwittingly or unknowingly has been revealed as described by Acquisti et al. (2015) and DeNardis and Hackl (2015). The aspects of the type of the sources of value and where the value creation takes place seems not to have been investigated in detail by other scholars. It has however been considered that these zero-price markets at least include both information and attention costs, both of which are nonmonetary (Newman, 2015).

This study has shed light on the fact that the initial values by the consumers are low due to the fact that it consists of many fragmented streams of value sources. The values could therefore be seen as being generated by the businesses, as they aggregate the different value streams from the users and from their different platforms. The study indicates that social media apps request a high level of access to personal data, even confidential data, and it is also found that businesses such as Google make sure that they can aggregate data from their different sources and platforms. The intensive data collection and aggregation have previously been described by Polykalas and Prezerakos (2019), who found that many “free” apps request access to the phone’s entire file system under the pretext of accessing photos, media and files without informing the users of the extent of the required access.

In this dissertation it has been pointed out that the moment a platform has been granted access, the sources of value creation granted by the consumer instantly shift from generating value outside the platform into generating value inside the platform. This could provide an explanation of the high values generated by the platforms. This continuous monetization of personal data has been described as consumers constantly being at work and thus more or less providing the platforms with “free” labour as for instance described by Terranova (2000) and Fumagalli et al. (2018). This is even though personal information seems to be an important aspect for the consumers as stated by Hong and Thong (2013). Studies by Leon et al. (2013) and Acquisti et al. (2013) however showed that consumers tend to give up their rights to facilitate that information on the Internet should be free of charge, which supports the commonly referenced privacy paradox (Brandimarte et al., 2013; Newman, 2018; Norberg, Horne, & Horne, 2007; Shklovski et al., 2014; Wottrich et al., 2018).

When it comes to blockchains, it has been seen as a technology with high potential to prevent gaps in ownership and rights by business-oriented consumers (McConaghy et al., 2017). The study provided in this thesis found however that even if the blockchain technology is seen as an enabler of managing rights properly there are challenges which have to be taken care of. For instance, the study indicates complexities regarding how rights, payment and content are managed amongst the business-oriented consumers,

platform and blockchain, which implies a value division that does not yet seem to have been investigated. Moreover, the study also identifies that, despite the promises of the technology of being transparent and providing more control to business-oriented consumers by tracking ownership and transactions (Kewell et al., 2017; Shermin, 2017; Swan, 2017; Tapscott & Tapscott, 2017), the current situation seems to have become the opposite. As the value structure is complex, the study indicates that business-oriented consumers, instead of having more control, tend to lose control due to lock-in effects by the service providers, thus leading towards the “paradox” of the blockchain.

6.3 Practical implications

The practical implications can probably serve both consumers and businesses. As a first example, YouTubers or bloggers can achieve a more business-oriented approach and perhaps also introduce their own business model. Businesses could probably also utilize the findings in order to find new business opportunities in alliance with the business-oriented consumers.

Other practical implications are the fact that business-oriented consumers utilize cloud services for their creations creates limitations on how the content can be further downloaded and commercialized outside the platform. Especially in virtual worlds where the platforms fully control the created value of the business-oriented consumer, it may imply that the platforms successively change the rules of how the value can be managed. This may thus also imply that a forgotten password or a violation of platform rules could lead to a loss of the generated value. Finally, as the blockchain service providers require a high level of control which can lead to a lock-in situation, this approach of utilizing new technology can thus imply new risks for business-oriented consumers.

6.4 Further research

As people increasingly become dependent on digital apps in their daily lives and thus reveal an increased amount of personal information as stated by e.g. Acquisti et al. (2015) and Malgieri and Custers (2018), a more unified view on the consumer-centric digital economy is desirable. In particular, the consumer value has largely been ignored. For instance, if consumers are considered to pay with their time and attention, how are personal data advertisements related to value for the consumer if they have problems distinguishing advertising from content as pointed out by Lewandowski (2017).

Another issue to further look into could be how active and passive consumers create and capture value by providing more in-depth studies investigating the use values of the provided services utilizing theories of use and exchange value by Bowman and Ambrosini (2000) or Lepak et al. (2007). For example, how can the granted data be compared with the provided service if there is no price for the service? This question has also been provided by Fleischer (2017), but since value is considered to be complex, more perspectives on the phenomenon would be desirable. Another view could also be to shed more light on consumer contributions as labour according to Terranova (2000) or as co-

created values by consumers and businesses in the view of Chandler and Vargo (2011). Different research frameworks, such as use value and exchange value could perhaps also be a suitable starting point for further investigations in order to clarify the value asymmetries which seem to occur between the passive consumers and the service providers, see Belleflamme and Jacqmin (2016) or Malgieri and Custers (2018). A further example could also be to investigate what a granted app really does when it comes to collecting value. For example, what data is transferred to the platform, and how often is the platform accessing the personal data? As the value structures of consumers are complex, different multidisciplinary approaches could serve as important contributions to the theory building and thus provide increased understanding of the phenomenon. For instance, sociotechnical (e.g. Postigo, 2016), business-oriented (e.g. Holland & Gutiérrez-Leefmans, 2018), and psychological approaches could all shed more light from different perspectives in order to provide different views of the current situation.

Studies could also be aimed at capturing the perspectives of the actors involved, for example both consumers and business. As things move fast on the Internet an in-depth study by interviews to learn about the different types of value creation and innovation processes could also serve as a good complement to the current understanding, for instance due to technological transitions or interorganizational relationships. Several further lines of research could take a starting point in the different types of consumers as proposed in this thesis. For example, to further investigate business-oriented consumers within different business relationships in line with previous findings by for instance Postigo (2016) or provide more in-depth insights by complementing current studies with more primary data. A business model approach elaborating on the contributions by Teece (2010) and Bowman and Ambrosini (2000) towards explaining business-oriented consumers and how they create and capture value could also be a basis for further studies. Further research concerning business-oriented consumers could also include a business perspective on the current arrangement and thus be explored in a higher level of detail, by adding primary sources of data, such as interviews. The control and ownership of value and rights inside and outside platforms also require further investigations and further in-depth studies.

Finally, when it comes to the blockchain technology, the value division which seems to occur between the parties could be further explored and explained. Especially the value capture process is quite unclear, and multiple views using multiple frameworks, including adjacent research fields, such as innovation, could shed more light on this new technology and its potential. Also, rights, payments and content which seems to be subject to a value division could be an interesting area that could elaborate on the previous contributions given by Adams et al. (2017), Fabian (2017), O'Dair and Beaven (2017) and Savelyev (2017). Another final question which could be further explored is whether business-oriented consumers utilizing blockchains are dependent on having an intermediate platform even though the blockchain technology is recognized as eliminating intermediaries.

References

- Acquisti, A., Adjerid, I., Balebako, R. H., Brandimarte, L., Cranor, L. F., Komanduri, S., ... Wilson, S. (2017). Nudges for Privacy and Security: Understanding and Assisting Users' Choices Online. *ACM Computing Surveys*, 50(3), 44. <https://doi.org/10.2139/ssrn.2859227>
- Acquisti, A., Brandimarte, L., & Loewenstein, G. (2015). Privacy and human behavior in the age of information. *Science*, 347(6221), 509–514.
- Acquisti, A., John, L. K., & Loewenstein, G. (2013). What Is Privacy Worth? *The Journal of Legal Studies*, 42(2), 249–274.
- Adams, R., Parry, G., Godsiff, P., & Ward, P. (2017). The future of money and further applications of the blockchain. *Strategic Change*, 26(5), 417–422. <https://doi.org/10.1002/jsc.2141>
- Aithal, S. (2016). A review on various E-business models and M-business models & Research Opportunities. *International Journal of Management, IT and Engineering*, 6(1). <https://doi.org/10.5281/zenodo.161146>
- Almuhimedi, H., Schaub, F., Sadeh, N., Adjerid, I., Acquisti, A., Gluck, J., ... Agarwal, Y. (2015). Your Location has been Shared 5,398 Times! A Field Study on Mobile App Privacy Nudging. *Proc. of the 2015 ACM Conference on Human Factors in Computing Systems (CHI)*, 787–796.
- Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic Management Journal*, 22(6–7), 493–520.
- Anderson, C. (2008). *The long tail: How endless choice is creating unlimited demand*. Random House Business Books.
- Angehrn, A. A., Luccini, A. M., & Maxwell, K. (2009). InnoTube: A video-based connection tool supporting collaborative innovation. *Interactive Learning Environments*, 17(3), 205–220.
- Antony, S., Lin, Z., & Xu, B. (2006). Determinants of escrow service adoption in consumer-to-consumer online auction market: An experimental study. *Decision Support Systems*, 42, 1889–1900. <https://doi.org/10.1016/j.dss.2006.04.012>
- Ariely, D., Gneezy, U., & Haruvy, E. (2018). Social Norms and the Price of Zero. *Journal of Consumer Psychology*, 28(2), 180–191. <https://doi.org/10.1002/jcpy.1018>
- Baden-Fuller, C., Giudici, A., Haeffliger, S., & Morgan, M. S. (2017). Business models and value: Theoretical types, scale and scope. In *Annual Meeting of the Academy of Management, AOM 2017*.
- Baden-Fuller, C., & Morgan, M. S. (2010). Business Models as Models. *Long Range Planning*, 43(2–3), 156–171. <https://doi.org/10.1016/j.lrp.2010.02.005>
- Balebako, R., Jung, J., Lu, W., & Cranor, L. F. (2013). “Little brother’s watching you”: raising awareness of data leaks on smartphones. In *SOUPS 2013 - Proceedings of the 9th Symposium on Usable Privacy and Security*.
- Banks, J., & Humphreys, S. (2008). The Labour of user co-creators Emergent social network markets? *Convergence*, 14(4), 401–418.
- Barnes, S. J. (2002). The mobile commerce value chain: Analysis and future developments. *International Journal of Information Management*, 22(2), 91–108.

- Behrens, J. T. (1997). Principles and Procedures of Exploratory Data Analysis. *Psychological Methods*, 2(2), 131–160.
- Belleflamme, P., & Jacqmin, J. (2016). An Economic Appraisal of MOOC Platforms: Business Models and Impacts on Higher Education. *CESifo Economic Studies*, (August 2015), 148–169. <https://doi.org/10.1093/cesifo/ifv016>
- Bhullar, A., & Gill, P. S. (2019). Future of Mobile Commerce : An Exploratory Study on Factors affecting Mobile Users' Behaviour Intention. *International Journal of Mathematical, Engineering and Management Sciences*, 4(1), 245–258.
- Björkdahl, J., & Holmén, M. (2013). Editorial: Business model innovation – the challenges ahead. *International Journal of Product Development*, 18(3–4), 213–225.
- Boell, S. K., & Cecez-Kecmanovic, D. (2014). A Hermeneutic Approach for Conducting Literature Reviews and Literature Searches. *Communications of the Association for Information Systems*, 34(12), 257–286.
- Bowman, C., & Ambrosini, V. (2000). Value creation versus value capture: towards a coherent definition of value in strategy - an exploratory study. *British Journal of Management*, 11(1), 1–15.
- Bowman, C., & Ambrosini, V. (2010). How value is created, captured and destroyed. *European Business Review*, 22(5), 479–495.
- Bowman, C., & Swart, J. (2007). Whose human capital? The challenge of value capture when capital is embedded. *Journal of Management Studies*, 44(4), 488–505. <https://doi.org/10.1111/j.1467-6486.2006.00635.x>
- Boyd, D., & Crawford, K. (2012). Critical questions for big data: Provocations for a cultural, technological, and scholarly phenomenon. *Information Communication and Society*, 15(5), 662–679. <https://doi.org/10.1080/1369118X.2012.678878>
- Brake, D. R. (2014). Are we all online content creators now? Web 2.0 and digital divides. *Journal of Computer-Mediated Communication*, 19(3), 591–609. <https://doi.org/10.1111/jcc4.12042>
- Brandimarte, L., Acquisti, A., & Loewenstein, G. (2013). Misplaced Confidences: Privacy and the Control Paradox. *Social Psychological and Personality Science*, 4(3), 340–347. <https://doi.org/10.1177/1948550612455931>
- Busalim, A. H., & Hussin, A. R. C. (2016). Understanding social commerce: A systematic literature review and directions for further research. *International Journal of Information Management*, 36(6), 1075–1088.
- Bustard, J. (2015). The impact of EU privacy legislation on biometric system deployment: Protecting citizens but constraining applications. *IEEE Signal Processing Magazine*, 32(5), 101–108. <https://doi.org/10.1109/MSP.2015.2426682>
- Chandler, J. D., & Vargo, S. L. (2011). Contextualization and value-in-context: How context frames exchange. *Marketing Theory*, 11(1), 35–49. <https://doi.org/10.1177/1470593110393713>
- Chen, D., Jeng, B., Lee, W., & Chuang, C. (2008). An agent-based model for consumer-to-business electronic commerce. *Expert Systems with Applications*, 34(1), 469–481.
- Chesbrough, H. (2007). Business model innovation: it's not just about technology anymore. *Strategy and Leadership*, 35(6), 12–17.

- Chesbrough, H. (2010). Business Model Innovation: Opportunities and Barriers. *Long Range Planning*, 43(2–3), 354–363. <https://doi.org/10.1016/j.lrp.2009.07.010>
- Chesbrough, H., & Rosenbloom, R. S. (2002). The Role of the Business Model in Capturing Value from Innovation: Evidence from Xerox corporation's technology spinoff companies. *Industrial and Corporate Change*, 11(3), 529–555.
- Choi, S., Whinston, A., & Stahl, D. (1997). Economics of Electronic Commerce. *Macmillan Computer Publishing*, 16–19.
- Clarke, R. (2004). Open source software and open content as models for ebusiness. In *BLED Proceedings*.
- Cucculelli, M., & Bettinelli, C. (2015). Business models, intangibles and firm performance: Evidence on corporate entrepreneurship from Italian manufacturing SMEs. *Small Business Economics*, 45(2), 329–350.
- Dasilva, C. M., & Trkman, P. (2014). Business Model : What It Is and What It Is Not. *Long Range Planning*, 47(6), 379–389. <https://doi.org/10.1016/j.lrp.2013.08.004>
- Decker, C. (2016). *On the Scalability and Security of Bitcoin. Doctoral dissertation, ETH Zürich*.
- DeNardis, L., & Hackl, A. M. (2015). Internet governance by social media platforms. *Telecommunications Policy*, 39(9), 761–770.
- Dey, D., & Nath, A. (2012). A Comprehensive study on E-Commerce Models: Merits, Demerits and Future Scope. *International Journal of Advanced Computer Research*, 2(6), 163–168.
- Du, H. S., Yu, H., Fang, Y., & Wang, S. (2012). Empirical Investigation of EachNet: The eBay Model of C2C Online Auction in China. *IEEE Transactions on Engineering Management*, 59(1), 160–175. <https://doi.org/10.1109/TEM.2011.2139214>
- Dufva, M., Koivisto, R., Ilmola-Sheppard, L., & Junno, S. (2017). Anticipating Alternative Futures for the Platform Economy. *Technology Innovation Management Review*, 7(9), 6–16. <https://doi.org/10.22215/timreview/1102>
- Dye, J. (2006). Meet Generation C: Creatively Connecting Through Content. *EContent-Digital Content Strategies and Resources*, 30(4), 38–43.
- Enders, T. (2018). *Exploring the Value of Data - A Research Agenda*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-00713-3>
- European Commission. (2016). Regulation (EU) 2016/679 of the European parliament and of the council. *Official Journal of the European Union*, (April 27).
- Evans, D. S., & Noel, M. D. (2008). The analysis of mergers that involve multisided platform businesses. *Journal of Competition Law & Economics*, 4(3), 663–695.
- Fabian, E. (2017). Blockchain, Digital Music and Lex Mercatoria. *US-China Law Review*, 14(12), 852–863. <https://doi.org/10.17265/1548-6605/2017.12.005>
- Figallo, C., & Rhine, N. (2001). Tapping the grape. *EContent*, 24(3), 38–39.
- Fleischer, R. (2017). If the Song has No Price, is it Still a Commodity? : Rethinking the Commodification of Digital Music. *Culture Unbound: Journal of Current Cultural Research*, 9(2), 146–162. <https://doi.org/10.3384/cu.2000.1525.1792146>

- Foss, N. J., & Saebi, T. (2016). Fifteen Years of Research on Business Model Innovation: How far have we come, and where should we go? *Journal of Management*, 43(1), 200–227.
- Frankenberger, K., Weiblen, T., Csik, M., & Gassmann, O. (2013). The 4I-framework of business model innovation: A structured view on process phases and challenges. *International Journal of Product Development*, 18(3–4), 249–273.
- Fumagalli, A., Lucarelli, S., Musolino, E., & Rocchi, G. (2018). Digital labour in the platform economy: The case of Facebook. *Sustainability (Switzerland)*, 10(6), 1757.
- Gabisch, J. A., & Milne, G. R. (2014). The impact of compensation on information ownership and privacy control. *Journal of Consumer Marketing*, 31(1), 13–26.
- Gallarza, M. G., Gil-Saura, I., & Holbrook, M. B. (2011). The value of value: Further excursions on the meaning and role of customer value. *Journal of Consumer Behaviour*, 10, 179–191. <https://doi.org/10.1002/cb>
- Garcia-Swartz, D. D., & Garcia-Vicente, F. (2015). Network effects on the iPhone platform: An empirical examination. *Telecommunications Policy*, 39(10), 877–895.
- García, R., & Gil, R. (2008). A Web Ontology for Copyright Contract Management. *International Journal of Electronic Commerce*, 12(4), 99–114. <https://doi.org/10.2753/JEC1086-4415120404>
- Gatautis, R. (2017). The rise of the platforms: Business model innovation perspectives. *Engineering Economics*, 28(5), 585–591.
- Gatteschi, V., Lamberti, F., Demartini, C., Pranteda, C., & Santamaria, V. (2018). To Blockchain or Not to Blockchain: That Is the Question. *IT Professional*, 20(2), 62–74. <https://doi.org/10.1109/MITP.2018.021921652>
- Gawer, A. (2014). Bridging differing perspectives on technological platforms: Toward an integrative framework. *Research Policy*, 43(7), 1239–1249.
- Gefen, D. (2000). E-commerce: The Role of Familiarity and Trust. *Omega*, 28(6), 725–737.
- Goh, K.-Y., Heng, C.-S., & Lin, Z. (2013). Social Media Brand Community and Consumer Behavior: Quantifying the Relative Impact of User- and Marketer-Generated Content. *Information Systems Research*, 24(1), 88–107. <https://doi.org/10.1287/isre.1120.0469>
- Gou, J., Li, J., Jing, X., & Justin, Z. (2018). Innovating Service Delivery Through a Community-Based B2B2C Platform. *Journal of Cases on Information Technology*, 20(4), 17–31. <https://doi.org/10.4018/JCIT.2018100102>
- Grönroos, C. (2011). Value co-creation in service logic: A critical analysis. *Marketing Theory*, 11(3), 279–301. <https://doi.org/10.1177/1470593111408177>
- Gu, B., Park, J., Konana, P., Gu, B., & Park, J. (2012). Sources on Retailer Sales of High-Involvement Products The Impact of External Word-of-Mouth Sources on Retailer Sales of High-Involvement Products. *Information Systems Research*, 23(1), 182–196.
- Guadamuz, A., & Marsden, C. (2015). Blockchains and Bitcoin: Regulatory responses to cryptocurrencies. *First Monday*, 20(12). <https://doi.org/10.5210/fm.v20i12.6198>

- Gurkaynak, G., Inanilir, Ö., Diniz, S. inan, & Yasar, A. G. (2017). Multisided markets and the challenge of incorporating multisided considerations into competition law analysis. *Journal of Antitrust Enforcement*, 5(June 2016), 100–129. <https://doi.org/10.1093/jaenfo/jnw007>
- Guthrie, J., Petty, R., Yongvanich, K., & Ricceri, F. (2004). Using content analysis as a research method to inquire into intellectual capital reporting. *Journal of Intellectual Capital*, 5(2), 282–293. <https://doi.org/10.1108/14691930410533704>
- Hagiu, A., & Wright, J. (2014). Marketplace or reseller? *Management Science*, 61(1), 184–203.
- Hagiu, A., & Wright, J. (2015). Multi-sided platforms. *International Journal of Industrial Organization*, 43, 162–174. <https://doi.org/10.1016/j.ijindorg.2015.03.003>
- Hajli, M. (2013). A research framework for social commerce adoption. *Information Management & Computer Security*, 21(3), 144–154. <https://doi.org/10.1108/IMCS-04-2012-0024>
- Hajli, M. N. (2014). The role of social support on relationship quality and social commerce. *Technological Forecasting & Social Change*, 87, 17–27.
- Hajli, N., & Sims, J. (2015). Social commerce: The transfer of power from sellers to buyers. *Technological Forecasting & Social Change*, 94, 350–358. <https://doi.org/10.1016/j.techfore.2015.01.012>
- Halliday, S. V. (2016). User-generated content about brands: Understanding its creators and consumers. *Journal of Business Research*, 69(1), 137–144. <https://doi.org/10.1016/j.jbusres.2015.07.027>
- Harrison, T. M., & Barthel, B. (2009). Wielding new media in Web 2.0: Exploring the history of engagement with the collaborative construction of media products. *New Media & Society*, 11(1–2), 155–178.
- Hedman, J., & Kalling, T. (2002). Behind the Scenes of the E-Business Construct. <https://doi.org/10.1007/978-0-387-35617-4>
- Hennig-Thurau, T., & Walsh, G. (2003). Electronic Word-of-Mouth: Motives for and Consequences of Reading Customer Articulations on the Internet. *International Journal of Electronic Commerce*, 8(2), 51–74.
- Holland, C. P., & Gutiérrez-Leefmans, M. (2018). A Taxonomy of SME E-Commerce Platforms Derived from a Market-Level Analysis. *International Journal of Electronic Commerce*, 22(2), 161–201. <https://doi.org/10.1080/10864415.2017.1364114>
- Hong, W., & Thong, J. Y. L. (2013). Internet Privacy Concerns: An Integrated Conceptualization and Four Empirical Studies. *MIS Quarterly: Management Information Systems*, 37(1), 275–298.
- Huang, Z., & Benyoucef, M. (2013). From e-commerce to social commerce: A close look at design features. *Electronic Commerce Research and Applications*, 12(4), 246–259.
- Huang, Z., & Benyoucef, M. (2015). User preferences of social features on social commerce websites: An empirical study. *Technological Forecasting & Social Change*, 95, 57–72.

- Jensen, A. B. (2014). Do we need one business model definition? *Journal of Business Models*, 1(1), 61–84.
- Jerome, J. W. (2013). Buying and selling privacy: Big data's different burdens and benefits. *Stanford Law Review Online*, 66, 47–53.
- Jerslev, A. (2016). In the time of the microcelebrity: Celebrification and the YouTuber Zoella. *International Journal of Communication*, 10, 5233–5251.
- Jones, K., & Leonard, L. N. K. (2008). Trust in consumer-to-consumer electronic commerce. *Information & Management*, 45(2), 88–95.
<https://doi.org/10.1016/j.im.2007.12.002>
- Kafentzis, K., Georgolios, P., Bouras, A., & Mentzas, G. (2006). An Ontology-based Architecture for Knowledge Commerce. In *Proceedings of the 39th Hawaii International Conference on System Sciences*.
- Kane, S. K. (2007). Everyday inclusive Web design: An activity perspective. *Information Research*, 12(3).
- Kaosiri, Y. N., José, L., Fiol, C., Ángel, M., Tena, M., María, R., ... García, J. S. (2019). User-Generated Content Sources in Social Media: A New Approach to Explore Tourist Satisfaction. *Journal of Travel Research*, 58(2), 253–265.
<https://doi.org/10.1177/0047287517746014>
- Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons*, 53(1), 59–68.
- Kewell, B., Adams, R., & Parry, G. (2017). Blockchain for good? *Strategic Change*, 26(5), 429–437. <https://doi.org/10.1002/jsc.2143>
- Kim, D. (2013). Under what conditions will social commerce business models survive? *Electronic Commerce Research and Applications*, 12(2), 69–77.
- Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision Support Systems*, 44(2), 544–564.
- Kim, Y. A., & Srivastava, J. (2007). Impact of social influence in e-commerce decision making. *ACM International Conference Proceeding Series*, 293–302.
- Kleinrock, L. (2010). An early history of the Internet. *IEEE Communications Magazine*, 48(8), 26–36.
- Knirsch, F., Unterweger, A., & Engel, D. (2019). Implementing a blockchain from scratch: why, how, and what we learned. *EURASIP Journal on Information Security*, 2019(1). <https://doi.org/10.1186/s13635-019-0085-3>
- Korhonen, H., Still, K., Seppänen, M., Kumpulainen, M., Suominen, A., & Valkokari, K. (2017). The Core Interaction of Platforms: How Startups Connect Users and Producers. *Technology Innovation Management Review*, 7(9), 17–29.
<https://doi.org/10.22215/timreview/1103>
- Korkman, O. (2006). *Customer value formation in practice: A practice-theoretical approach*.
- Kotarba, M. (2018). Digital transformation of business models. *Foundations of Management*, 10(1), 123–142.

- Lai, L. S. L., & Turban, E. (2008). Groups Formation and Operations in the Web 2.0 Environment and Social Networks. *Group Decision and Negotiation*, 17(5), 387–402. <https://doi.org/10.1007/s10726-008-9113-2>
- Lambrick, J. (2009). Piracy, file sharing...and legal fig leaves. *Journal of International Commercial Law and Technology*, 4(3), 185–195.
- Leeraphong, A., & Papasratorn, B. (2018). Business Models and Transactions in C2C Social Commerce: Practices of Selected Social Commerce Practitioners in Thailand. *International Journal of Innovation and Technology Management*, 15(5), 1850048 (28) pages. <https://doi.org/10.1142/S0219877018500487>
- Leinhardt, G., & Leinhardt, S. (1980). *Exploratory Data Analysis : New Tools for the Analysis of Empirical Data* (Vol. 8).
- Leon, P. G., Ur, B., Wang, Y., Sleeper, M., Balebako, R., Shay, R., ... Cranor, L. F. (2013). What matters to users?: factors that affect users' willingness to share information with online advertisers. *Proceedings of the Ninth Symposium on Usable Privacy and Security*, 7.
- Leonard, L. N. K., & Jones, K. (2009). The role of self-efficacy, trust, and experience and the mediating effects of satisfaction in the choice of C2C e-commerce among young adults. *Journal of Electronic Commerce in Organizations*, 7(3), 1–20.
- Leonard, L. N. K., & Jones, K. (2010). Consumer-to-Consumer e-commerce Research in Information Systems Journals. *Journal of Internet Commerce*, 9(3–4), 186–207. <https://doi.org/10.1080/15332861.2010.529052>
- Leonard, L. N. K., & Jones, K. (2017). Ethical Awareness of Seller's Behavior in Consumer-to-Consumer Electronic Commerce: Applying the Multidimensional Ethics Scale. *Journal of Internet Commerce*, 16(2), 202–218. <https://doi.org/10.1080/15332861.2017.1305813>
- Lepak, D. P., Smith, K. E. N. G., & Taylor, M. S. (2007). Value creation and value capture: A multilevel perspective. *Academy of Management Review*, 32(1), 180–194.
- Leroi-Werelds, S. (2019). An update on customer value: state of the art, revised typology, and research agenda. *Journal of Service Management*, 30(5), 650–680. <https://doi.org/10.1108/JOSM-03-2019-0074>
- Levina, N., Arriaga, M., & Arriaga, M. (2014). Distinction and Status Production on User-Generated Content Platforms: Using Bourdieu's Theory of Cultural Production to Understand Social Dynamics in Online Fields. *Information Systems Research*, 25(3), 468–488.
- Lewandowski, D. (2017). Users' understanding of search engine advertisements. *Journal of Information Science Theory and Practice*, 5(4), 6–25.
- Liang, T., Ho, Y., Li, Y., & Turban, E. (2011). What drives social commerce: The role of social support and relationship quality. *International Journal of Electronic Commerce*, 16(2), 69–90.
- Libai, B., Bolton, R., Bügel, M. S., Ruyter, K. De, Götz, O., Risselada, H., ... Stephen, A. T. (2010). Customer-to-customer interactions: broadening the scope of word of mouth research. *Journal of Service Research*, 13(3), 267–282.

- Lin, H., & Sun, C. T. (2011). Cash trade in free-to-play online games. *Games and Culture*, 6(3), 270–287.
- Lippi, M., Palka, P., Contissa, G., Lagioia, F., Micklitz, H. W., Sartor, G., & Torroni, P. (2019). CLAUDETTE: an automated detector of potentially unfair clauses in online terms of service. *Artificial Intelligence and Law*, 27(2), 117–139.
- Lyubareva, I., Benghozi, P.-J., & Fidele, T. (2014). Online Business Models in Creative Industries: Diversity and Structure. *International Studies of Management & Organization*, 44(4), 43–62. <https://doi.org/10.2753/IMO0020-8825440403>
- Ma, H., Mo, Z., Zhang, H., Wang, C., & Fu, H. (2018). The temptation of zero price: Event-related potentials evidence of how price framing influences the purchase of bundles. *Frontiers in Neuroscience*, 12(APR), 1–8. <https://doi.org/10.3389/fnins.2018.00251>
- Malgieri, G. (2018). ‘User-provided personal content’ in the EU: digital currency between data protection and intellectual property. *International Review of Law, Computers & Technology*, 1(32), 118–140.
- Malgieri, G., & Custers, B. (2018). Pricing privacy – the right to know the value of your personal data. *Computer Law and Security Review*, 34(2), 289–303.
- Manski, S. (2017). Building the blockchain world: Technological commonwealth or just more of the same? *Strategic Change*, 26(5), 511–522. <https://doi.org/10.1002/jsc.2151>
- Mart, M. (2017). Digital rights management - Blockchain and digital music content management (Thesis). *Department of Computer Science and Information Systems*.
- McConaghy, M., McMullen, G., Parry, G., McConaghy, T., & Holtzman, D. (2017). Visibility and digital art: Blockchain as an ownership layer on the Internet. *Strategic Change*, 26(5), 461–470. <https://doi.org/10.1002/jsc.2146>
- McDonald, A. M., & Cranor, L. F. (2008). The cost of reading privacy policies. *ISJLP*, 4, 543.
- Mehar, M. I., Shier, C. L., Giambattista, A., Gong, E., Fletcher, G., Sanayhie, R., ... Laskowski, M. (2019). Understanding a revolutionary and flawed grand experiment in blockchain: The DAO attack. *Journal of Cases on Information Technology*, 21(1), 19–32. <https://doi.org/10.4018/JCIT.2019010102>
- Michelman, P. (2017). Seeing beyond the blockchain hype. *MIT Sloan Management Review*, 58(4), 17–19.
- Miles, M. B., & Huberman, M. A. (1994). *Qualitative data analysis: An expanded sourcebook*. Sage.
- Model, B. (2012). Creating Value Through Business Model Innovation. *MIT Sloan Management Review*, 53(3), 40–50.
- Mohajan, H. K. (2018). Qualitative Research Methodology in Social Sciences and Related Subjects. *Journal of Economic Development, Environment and People*, 7(1), 23–48.
- Montes, R., Sand-Zantman, W., & Valletti, T. M. (2019). The value of personal information in online markets with endogenous privacy. *Management Science*, 65(3), 1342–1362.

- Morgan, L., & Finnegan, P. (2014). Beyond free software: An exploration of the business value of strategic open source. *Journal of Strategic Information Systems*, 23(3), 226–238. <https://doi.org/10.1016/j.jsis.2014.07.001>
- Muzellec, L. M., Ronteau, S., & Lambkin, M. (2015). Two-sided Internet platforms: A business model lifecycle perspective. *Industrial Marketing Management*, 45(1), 139–150.
- Naab, T. K. (2017). Studies of user-generated content : A systematic review. *Journalism*, 18(10), 1256–1273. <https://doi.org/10.1177/1464884916673557>
- Nakamoto, S. (2008). *Bitcoin: A Peer-to-Peer Electronic Cash System*. www.bitcoin.org. <https://doi.org/10.1007/s10838-008-9062-0>
- Narayanan, A., Bonneau, J., Felten, E., Miller, A., & Goldfeder, S. (2015). Bitcoin and cryptocurrency technologies: a comprehensive introduction. *Princeton University Press*, 308. <https://doi.org/10.1057/palgrave.jit.2000080>
- Newman, J. M. (2013). Copyright Freeconomics. *Vanderbilt Law Review*, 66(5), 1409–1470.
- Newman, J. M. (2015). Antitrust in zero-price markets: Foundations. *University of Pennsylvania Law Review*, 164(1), 149–206.
- Newman, J. M. (2018). The myth of free. *George Washington Law Review*, 86(2), 513–586.
- Ng, C. S. (2013). Intention to purchase on social commerce websites across cultures: A cross-regional study. *Information & Management*, 50(8), 609–620. <https://doi.org/10.1016/j.im.2013.08.002>
- Nicolau, J. L. (2012). Battle royal: Zero-price effect vs relative vs referent thinking. *Marketing Letters*, 23(3), 661–669. <https://doi.org/10.1007/s11002-012-9169-2>
- Norberg, P. A., Horne, D. R., & Horne, D. A. (2007). The privacy paradox: Personal information disclosure intentions versus behaviors. *Journal of Consumer Affairs*, 41(1), 100–126.
- Nowiński, W., & Kozma, M. (2017). How can blockchain technology disrupt the existing business models? *Entrepreneurial Business and Economics Review*, 5(3), 173–188. <https://doi.org/10.15678/EBER.2017.050309>
- O'Dair, M., & Beaven, Z. (2017). The networked record industry: How blockchain technology could transform the record industry. *Strategic Change*, 26(5), 471–480. <https://doi.org/10.1002/jsc.2147>
- Obar, J. A., & Oeldorf-Hirsch, A. (2018). The biggest lie on the Internet: ignoring the privacy policies and terms of service policies of social networking services. *Information Communication and Society*, 0(0), 1–20.
- Oliveira, D. T. De, & Cortimiglia, M. N. (2017). Value co-creation in web-based multisided platforms: A conceptual framework and implications for business model design. *Business Horizons*, 60(6), 747–758. <https://doi.org/10.1016/j.bushor.2017.07.002>
- Park, S. C., Keil, M., Kim, J. U. K., Bock, G., Park, S. C., Keil, M., ... Bock, G. (2017). Understanding overbidding behavior in C2C auctions: An escalation theory perspective. *European Journal of Information Systems*, 21(6), 643–663. <https://doi.org/10.1057/ejis.2012.11>

- Pavlou, P. A. (2003). Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model. *International Journal of Electronic Commerce*, 7(3), 101–134.
<https://doi.org/10.1080/10864415.2003.11044275>
- Phang, C. W., Tan, C., Sutanto, J., Magagna, F., & Lu, X. (2015). Leveraging O2O Commerce for Product Promotion: An Empirical Investigation in Mainland China. *IEEE Transactions on Engineering Management*, 61(4), 623–632.
<https://doi.org/10.1109/TEM.2014.2354056>
- Polykalas, S. E., & Prezerakos, G. N. (2019). When the mobile app is free, the product is your personal data. *Digital Policy, Regulation and Governance*, 21(2), 89–101.
- Postigo, H. (2016). The socio-technical architecture of digital labor: Converting play into YouTube money. *New Media & Society*, 18(2), 332–349.
- Pousttchi, K., & Gleiss, A. (2019). Surrounded by middlemen - how multi-sided platforms change the insurance industry. *Electronic Markets*, 29, 609–629.
<https://doi.org/10.1007/s12525-019-00363-w>
- Pöyry, E., Parvinen, P., & Malmivaara, T. (2013). Can we get from liking to buying? Behavioral differences in hedonic and utilitarian Facebook usage. *Electronic Commerce Research and Applications*, 12, 224–235.
<https://doi.org/10.1016/j.elerap.2013.01.003>
- Pringle, R. (2016). Narrative, Design, and Comprehension: Connective Technologies and their Terms of Service Agreements. *IEEE Technology and Society Magazine*, 35(1), 40–46. <https://doi.org/10.1109/MTS.2016.2518252>
- Punj, G. (2015). The relationship between consumer characteristics and willingness to pay for general online content: Implications for content providers considering subscription-based business models. *Marketing Letters*, 26(2), 175–186.
<https://doi.org/10.1007/s11002-013-9273-y>
- Raciti, M. M., Ward, T., & Dagger, T. S. (2013). The effect of relationship desire on consumer-to-business relationships. *European Journal of Marketing*, 47(3), 615–634.
- Rochet, J. C., & Tirole, J. (2003). Platform competition in two-sided markets. *Journal of the European Economic Association*, 1(4), 990–1029.
- Ryan, P. (2017). Smart Contract Relations in e-Commerce: Legal Implications of Exchanges Conducted on the Blockchain. *Technology Innovation Management Review*, 7(10), 14–21. <https://doi.org/10.22215/timreview/1110>
- Saarijärvi, H., Joensuu, J., Rintamäki, T., & Yrjölä, M. (2018). One person's trash is another person's treasure: Profiling consumer-to-consumer e-commerce in Facebook. *International Journal of Retail and Distribution Management*, 46(11–12), 1092–1107.
- Sampanier, K., Mazar, N., & Ariely, D. (2007). Zero as a special price. *Marketing Science*, 26(6), 742–757. <https://doi.org/10.1287/mksc.1060.0254>
- Savelyev, A. (2017). Contract law 2.0: 'Smart' contracts as the beginning of the end of classic contract law. *Information and Communications Technology Law*, 26(2), 116–134. <https://doi.org/10.1080/13600834.2017.1301036>

- Savelyev, A. (2018). Copyright in the blockchain era: Promises and challenges. *Computer Law and Security Review*, 34(3), 550–561.
<https://doi.org/10.1016/j.clsr.2017.11.008>
- Scarle, S., Arnab, S., Dunwell, I., Petridis, P., Protopsaltis, A., & Freitas, S. De. (2012). E-commerce transactions in a virtual environment: Virtual transactions. *Electronic Commerce Research*, 12(3), 379–407.
- Scott, B., Loonam, J., & Kumar, V. (2017). Exploring the rise of blockchain technology: Towards distributed collaborative organizations. *Strategic Change*, 26(5), 423–428.
<https://doi.org/10.1002/jsc.2142>
- Shen, Y., Guo, B., Shen, Y., Zhang, H., Duan, X., & Dong, X. (2019). Pricing personal data based on Information Entropy. *ACM International Conference Proceeding Series*, 143–146. <https://doi.org/10.3390/app9163388>
- Sherman, W. R., & Craig, A. B. (1995). Literacy in virtual reality: a new medium. *Computer Graphics (ACM)*, 29(4), 37–42. <https://doi.org/10.1145/216876.216887>
- Shermin, V. (2017). Disrupting governance with blockchains and smart contracts. *Strategic Change*, 26(5), 499–509. <https://doi.org/10.1002/jsc.2150>
- Shklovski, I., Mainwaring, S. D., Skúladóttir, H. H., & Borgthorsson, H. (2014). Leakiness and creepiness in app space. *Conference on Human Factors in Computing Systems - Proceedings*, 2347–2356.
- Singh, T., Veron-Jackson, L., & Cullinane, J. (2008). Blogging: A new play in your marketing game plan. *Business Horizons*, 51(4), 281–292.
- Slaughter, M. (2015). The barriers of Facebook's terms of service agreement: hardships placed on fiduciaries access to digital assets. *Information and Communications Technology Law*, 24(2), 183–204.
- Smith, A. D. (2004). Potential for Growth and Security in Internet File- Sharing: The VPN Concept of Gnutella. *Journal of Internet Commerce*, 3(2), 1–19.
<https://doi.org/10.1300/J179v03n02>
- Smith, J. B., & Colgate, M. (2007). Customer Value Creation: A Practical Framework. *Journal of Marketing Theory and Practice*, 15(1), 7–23.
- Spiekermann, S., Acquisti, A., Böhme, R., & Hui, K. L. (2015). The challenges of personal data markets and privacy. *Electronic Markets*, 25(2), 161–167.
- Spiekermann, S., Böhme, R., Acquisti, A., & Hui, K.-L. (2015). Personal data markets. *Electronic Markets*, 25(2), 91–93.
- Steinfeld, N. (2016). “I agree to the terms and conditions”: (How) do users read privacy policies online? An eye-tracking experiment. *Computers in Human Behavior*, 55, 992–1000.
- Stephen, A. T., & Toubia, O. (2009). Explaining the power-law degree distribution in a social commerce network. *Social Networks*, 31(4), 262–270.
- Stephen, A. T., & Toubia, O. (2010). Deriving value from social commerce networks. *Journal of Marketing Research*, 47(2), 215–228.
- Still, K., Seppänen, M., Korhonen, H., Valkokari, K., Suominen, A., & Kumpulainen, M. (2017). Business Model Innovation of Startups Developing Multisided Digital Platforms. *2017 IEEE 19th Conference on Business Informatics*, 70–75.

- Swan, M. (2015). *Blockchain - Blueprint for a new economy*. O'Reilly Media.
- Swan, M. (2017). Anticipating the Economic Benefits of Blockchain. *Technology Innovation Management Review*, 7(10), 6–13.
<https://doi.org/10.22215/timreview/1109>
- Sweeney & Soutar. (2001). Consumer perceived value: The development of a multiple item scale. *Journal of Retailing*, 77, 203–220.
- Tapscott, D. (1999). Governance in the Digital Economy. *Finance and Development*, 36(4), 34–37.
- Tapscott, D., & Tapscott, A. (2017). How Blockchain Will Change Organizations. *MIT Sloan Management Review*, 58(2), 10–13.
- Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning*, 43(2–3), 172–194. <https://doi.org/10.1016/j.lrp.2009.07.003>
- Teece, D. J. (2018). Profiting from innovation in the digital economy: Enabling technologies, standards, and licensing models in the wireless world. *Research Policy*, 47(8), 1367–1387. <https://doi.org/10.1016/j.respol.2017.01.015>
- Terranova, T. (2000). Free Labor: Producing Culture for the Digital Economy. *Social Text*, 18(2), 33–58.
- Timmers, P. (1998). Business models for electronic markets. *Electronic Markets*, 8(2), 3–8.
- Tsai, W., & Sumantra, G. (1998). Social Capital and Value Creation: The Role of Intrafirm Networks. *American Journal of Business and Management*, 41(4), 464–476. <https://doi.org/10.11634/216796061706277>
- Turgut, D., & Boloni, L. (2017). Value of Information and Cost of Privacy in the Internet of Things. *IEEE Communications Magazine*, 55(9), 62–66.
- Van de Ven, A. H. (2007). *Engaged scholarship: a guide for organizational and social research*. Oxford University Press. <https://doi.org/10.1080/13678860902764191>
- Van Dijck, J. (2009). Users like you? Theorizing agency in user-generated content. *Media, Culture & Society*, 31(1), 41–58.
- Van Esch, P., Arli, D., Castner, J., Talukdar, N., & Northey, G. (2018). Consumer attitudes towards bloggers and paid blog advertisements: what's new? *Marketing Intelligence and Planning*, 36(7), 778–793.
- Vanmeter, R. A., Grisaffe, D. B., & Chonko, L. B. (2015). Of “Likes” and “Pins”: The effects of consumers’ attachment to social media. *Journal of Interactive Marketing*, 32, 70–88.
- Wang, C., & Zhang, P. (2012). The evolution of social commerce: The people, management, technology, and information dimensions. *Communications of the Association for Information Systems*, 31(1), 105–127.
- Wang, K., Wang, E. T. G., & Tai, C.-F. (2002). A study of online auction sites in Taiwan: Product, auction rule, and trading type. *International Journal of Information Management*, 22(2), 127–142.
- Wang, Wei-tsong, Wang, Y., & Liu, E.-R. (2016). The stickiness intention of group-buying websites: The integration of the commitment – trust theory and e-commerce success model. *Information & Management*, 53(5), 625–642.

- Wang, Weina, Ying, L., & Zhang, J. (2016). The Value of Privacy: Strategic Data Subjects, Incentive Mechanisms and Fundamental Limits. *ACM Transactions on Economics and Computation*, 6(2), 8.
- Weill, P., Malone, T. W., & Apol, T. G. (2011). The business models investors prefer. *MIT Sloan Management Review*, 52(4), 17–19.
- Weill, P., & Woerner, S. L. (2018). Is Your Company Ready for a Digital Future? *MIT Sloan Management Review*, 59(2), 21–26.
<https://doi.org/10.1016/j.juro.2013.10.003>
- Wottrich, V. M., van Reijmersdal, E. A., & Smit, E. G. (2018). The privacy trade-off for mobile app downloads: The roles of app value, intrusiveness, and privacy concerns. *Decision Support Systems*, 106, 44–52.
- Wu, F., Li, H., & Kuo, Y. (2011). Reputation evaluation for choosing a trustworthy counterparty in C2C e-commerce. *Electronic Commerce Research and Applications*, 10(4), 428–436.
- Xu, H., & Gupta, S. (2009). The effects of privacy concerns and personal innovativeness on potential and experienced customers' adoption of location-based services. *Electron Markets*, 19, 137–149. <https://doi.org/10.1007/s12525-009-0012-4>
- Yadav, M. S., Valck, K. De, Hennig-Thurau, T., Hoffman, D. L., & Spann, M. (2013). Social Commerce: A Contingency Framework for Assessing Marketing Potential. *Journal of Interactive Marketing*, 27(4), 311–323.
- Yang, Z., Shi, Y., & Yan, H. (2017). Analysis on pure e-commerce congestion effect, productivity effect and profitability in China. *Socio-Economic Planning Sciences*, 57, 35–49. <https://doi.org/10.1016/j.seps.2016.08.002>
- Yayla, A. A., & Hu, Q. (2011). The impact of information security events on the stock value of firms: The effect of contingency factors. *Journal of Information Technology*, 26(1), 60–77.
- Yeoman, I. (2015). When the price is free. *Journal of Revenue and Pricing Management*, 14(1), 57–59.
- Yrjölä, M., Rintamäki, T., Saarijärvi, H., & Joensuu, J. (2017). Consumer-to-consumer e-commerce: Outcomes and implications. *International Review of Retail, Distribution and Consumer Research*, 27(3), 300–315.
- Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing*, 52(3), 2–22. <https://doi.org/10.2307/1251446>
- Zhang, K. Z. K., & Benyoucef, M. (2016). Consumer behavior in social commerce: A literature review. *Decision Support Systems*, 86, 95–108.
- Zhang, X., Williams, A., & Polychronakis, Y. E. (2012). A comparison of e-business models from a value chain perspective. *EuroMed Journal of Business*, 7(1), 83–101. <https://doi.org/10.1108/14502191211225392>
- Zott, C., Amit, R. H., & Massa, L. (2011). The Business Model: Recent developments and future research. *Journal of Management*, 37(4), 1019–1042.
- Zwass, V. (1996). Electronic Commerce: Structures and issues. *International Journal of Electronic Commerce*, 1(1), 3–23.

Zyskind, G., Nathan, O., & Pentland, A. S. (2015). Decentralizing privacy: Using blockchain to protect personal data. *Proceedings - 2015 IEEE Security and Privacy Workshops, SPW 2015*, 180–184. <https://doi.org/10.1109/SPW.2015.27>

Appendix A – Descriptions of related concepts

Appendix. Taxonomy of e-commerce divided by Web 1.0 and Web 2.0 concepts

Descriptions of concepts	Related references
Web 1.0 (Business-centric)	
The World Wide Web (Web 1.0) was introduced in 1989 by Sir Timothy John Tim Berners-Lee. At that time the web was first utilized by individuals and their personal websites which were connected with hyperlinks. In the mid '90s, businesses started to get established on the web which gave birth to the business-centric era with increased focus towards business models.	(Singh et al., 2008; Timmers, 1998)
Business Models (BM)	
There is no generally accepted definition of business models, but one view is that it is a model of how to do business. A business model may be seen as a tool which helps the business to calculate revenues and costs for business actors and their roles, for example, customers, suppliers, and partners. The model may also reveal if the business may be able to sustain itself and how much profit can be expected.	(Amit & Zott, 2001; Baden-Fuller & Morgan, 2010; Foss & Saebi, 2016; Teece, 2010; Timmers, 1998; Chesbrough, 2007)
Business-to-Consumer (B2C)	
A traditional business relationship between a business B and a consumer (customer) C.	(Pavlou, 2003)
Consumer-to-Consumer (C2C)	
Business relationship between two consumers which may utilize an e-auction (within e-commerce) to trade items directly between each other. The term is sometimes also referred to as customer-to-customer or individual-to-individual (I2I). C2C within intellectual commerce refers to a C2C relation where a business-oriented content creator is doing the commerce based on intellectual skills and creative works.	(Antony, Lin, & Xu, 2006; Du, Yu, Fang, & Wang, 2012; Jones & Leonard, 2008; Leonard & Jones, 2010; Libai et al., 2010; Saarijärvi et al., 2018)
Copyright	
Copyright is a national legal right which helps creators to protect the original expression of their creative work. Copyright is complex as it comes with many exemptions (e.g. fair use) and many nation-specific conditions.	(García & Gil, 2008; Newman, 2013)

It mainly consists of two rights, an economic right, which for instance allows creators to be reimbursed for their efforts within a limited time period (in some nations 50 or 70 years after the death of the creator), and a moral right, which allows creators to be recognized for their creative works. The economic right is exclusive but quite often transferred to other parties such as a publisher. The right of being recognized normally remains. When creating contributions within a platform in several cases, both the economic and moral rights may be overruled, as for example in Minecraft, where several creators can collaborate and build entire worlds. Copyright does not protect the idea itself but instead the original expression from an idea, referred to as creative works.

Electronic Commerce or e-commerce (EC)

Electronic commerce or e-commerce may be seen as doing business electronically, for instance, through online services. The term commerce is related, for example, to buying, selling, and trading activities, and is mainly seen as a subset of e-business, also including other activities such as marketing and other business activities. Some specific terms related to e-commerce are the e-shop, which refers to business sales throughout a website; the e-mall, which refers to a website containing a collection of e-shops, for example, Amazon or Alibaba; and finally, the e-auction, which refers to an online auction where buyers can bid on different items, for example, eBay.

(Choi et al., 1997; Timmers, 1998; Wang et al., 2016; Wu et al., 2011; Zott et al., 2011; Zwass, 1996)

Long Tail (Short Tail)

The long tail refers to a large amount of niched low-volume products. For example, a physical bookstore needs to select high-volume authors (referred to as head or short tail) due to physical space limitations, in contrast with space online which is not limited.

(Anderson, 2008; Lyubareva et al., 2014; Swan, 2017; Zhang et al., 2012)

Pure (Full) and partial e-commerce

Pure e-commerce refers to when an agent (merchant), product/service, and delivery channel all coincide within the digital domain (carried out online). Partial e-commerce refers to the fact that some of them (but not all three) are carried out in the physical domain. For example, when clothes are ordered online, but delivered by traditional mail, the agent belongs to the digital domain, while the product and delivery belong to the physical domain. If all three are carried out in the physical domain it becomes traditional commerce within the physical world.

(Choi et al., 1997; Dey & Nath, 2012; Yang et al., 2017; Yayla & Hu, 2011)

Web 2.0 (Consumer-centric)

Web 2.0 (popularized by Tim O'Reilly and Dale Dougherty in 2004) is seen as an enhancement of Web 1.0 by utilizing new technologies, such as asynchronous JavaScript and Extensible Markup Language (XML), together referred to as AJAX. The tools made the web more dynamic, gave rise to platforms, and facilitated users' interactions. As the business-centric Web 1.0 was about providing information, the consumer-centric Web 2.0 is focused on participation. Concepts of Web 2.0 are, for instance, platforms, user-generated content, content creators, social commerce, and social media.

(Hajli, 2013; Harrison & Barthel, 2009; Singh et al., 2008)

Blockchains (DLT, DAO)

Blockchains consist of network software protocols that manage transactions of value and ownership over the Internet in a decentralized manner, without the need of any third parties (intermediaries). The technology is mainly based on peer-to-peer (P2P) technology, cryptography, and an immutable ledger (file that keeps track of the transactions) by which a user may transfer values (for example, digital tokens and assets) to other parties on the same blockchain. There are two types of blockchains, public and private, where Bitcoin represents a public blockchain (where the user's real identity is not known), in contrast to private blockchains, which are mainly managed as business consortia or by governments and where user identities are known. Distributed ledger technology (DLT) is a more general form of the technology based on a ledger, consensus update, cryptographic signatures, and tamper-proof auditable history, without necessarily being updated by sequences of blocks such as a blockchain. Some blockchains may also encompass possibilities of handling decentralized autonomous organizations (DAOs), which may be seen as organizations represented by rules encoded as a computer program.

(McConaghy et al., 2017; Mehar et al., 2019; Nowiński & Kozma, 2017; Ryan, 2017; Swan, 2017; Tapscott & Tapscott, 2017)

Business Model Innovation

Business model innovation can be seen as a business changing one or multiple components in their business model, such as introducing a novel way to create or capture value (for example, licensing instead of selling products).

(Amit & Zott, 2001; Björkdahl & Holmén, 2013; Frankenberger et al., 2013; Model, 2012)

Consumer-to-Business (C2B)

In social commerce the relationship refers to group buying (Chen et al., 2008; Vanmeter et al., 2015; Wang et al., 2002; Yrjölä et al., 2017) (a group of consumers who get together) in order to obtain volume discounts. In intellectual commerce the relationship may refer to creators (for instance bloggers) making money by promoting business products.

Platforms

Platforms facilitate users to upload or develop content and can be seen as organizations which serve and create value for two or more distinct types of customers: application developers, manufacturers, advertisers, and consumers. An early stage problem that platforms must overcome is referred to as the chicken-and-egg problem. For example, YouTube needed to have many content creators to be able to attract viewers, but at the same time content creators require many viewers in order to incentivize their efforts into producing and sharing creative works. After accomplishing a critical mass, platforms may have the ability to utilize network effects (NE), which may trigger self-reinforcing feedback loops that can magnify incumbents' early advantages, and thus lead the platform to a winner-takes-all outcome. The purpose of a platform is to facilitate the exchange of products or information but also to provide greater accessibility, speed, efficiency, user experience, and convenience. Marketplaces usually comprise of e-auctions (for example, C2C trading), but also e-malls that utilize the long-tail concept.

Social Commerce or s-commerce (SC)

Social commerce means commerce through social interactions by consumers. Social commerce is mainly seen as a subset of e-commerce or as utilizing Web 2.0 features in e-commerce. Traditional e-commerce is mainly seen as a one-directional business relationship where information rarely is sent back to the business compared to social commerce, which constitutes a multidimensional flow between businesses and consumers. The term social commerce was introduced in 2005 when Yahoo allowed consumers to create, share, and comment on product lists of a collaborative shopping feature on their platform.

Social Media (SM)

Social media mainly consist of online services which facilitate communication channels of information between different types of users in a multidirectional way. The information can consist of entertainment, news, education, discourse, or user-generated content.

(Halliday, 2016; Kaplan & Haenlein, 2010; Liang et al., 2011; Saarijärvi et al., 2018; Vanmeter et al., 2015)

Terms

The terms of service, which mainly are provided by a business, specify the rights and obligations which apply to the users of the service. Terms may also include a privacy policy which states how personal data will be protected and handled. There are different connotations for user terms, for instance, terms and conditions, terms of service, service agreements, or statements.

(Lippi et al., 2019; Steinfeld, 2016)

User-Generated Content (UGC, UCC)

User-generated content may be seen as publicly accessible creative works made by non-professionals. More specifically, the three parts may be addressed as: 1) it needs to be publicly accessible; 2) it needs to include some creative effort; and 3) it needs to be created outside of professional routines. The term became popular in 2004 and according to our trend analysis seems to have been referred to as user-created content (UCC) (Table 3). It may also be mentioned that in the early 1990s, its early users created all of its content. Some common terms of content creators applied on the Internet are, hobbyists, amateurs, unpaid laborers, and volunteers. The term perhaps should have a broader definition nowadays and not only cover creative contributions, as the boundary between amateurs and professionals has also become more dynamic. Normally, consumers or users contribute online by submitting text, image, sound, video, and combinations of them (multimedia). Such creative works are subject to copyright.

(Angehrn et al., 2009; Banks & Humphreys, 2008; Barnes, 2002; Dye, 2006; Figallo & Rhine, 2001; Goh et al., 2013; Hajli & Sims, 2015; Harrison & Barthel, 2009; Kane, 2007; Kaplan & Haenlein, 2010; Lai & Turban, 2008; Postigo, 2016; Scarle et al., 2012; Van Dijck, 2009; Van Esch et al., 2018)

Virtual Worlds

Virtual worlds are mainly characterized as virtual social worlds where users appear as avatars and interact as in real life, such as in Second Life, or as virtual gaming worlds where users behave according to stricter rules.

(Kaplan & Haenlein, 2010)

Word-of-Mouth (WOM)

Word-of-mouth mainly refers to the interconnections between consumers that may be used to strengthen a brand or trust in an online product or service. It mainly solves the problem of not having a salesperson whom you can ask and gain trust from as in physical stores. Reviews by consumers are also seen as word-of-mouth and can improve buying decisions, as well as saving time for other consumers. Word-of-mouth is seen as powerful and can easily change consumer preferences and purchase behavior.

(Figallo & Rhine, 2001; Gefen, 2000; M. N. Hajli, 2014; Hennig-Thurau & Walsh, 2003; Libai et al., 2010; Stephen & Toubia, 2010)

Appendix B – The blockchain – How does it work?

The explanation will concern the Bitcoin blockchain. First, the network will be described. Second, an explanation of the transfer will be provided. And third, it will be explained how the verification of the transfer is carried out.

In order to explain the blockchain technology, two traditional examples of value transfer within the physical world will be presented. First, if a girl named Alice has a 100-euro bill which she gives to Bob as payment for a bike it is quite obvious that Alice no longer possesses the bill, see Figure B1.

Figure B1. Traditional payment channel (physical)

In this second example Alice has 100 euros in her bank account, as digital money, and sends it to Bob's bank account. In this case a third party is required, namely the bank. The bank is a trusted party that guarantees that the balance on Alice's account after the transfer is reduced by 100 euros and that Bob's account is increased by 100 euros. But the transfer requires that Alice has a bank account and some kind of password by which the bank can verify her real identity and ownership, see Figure B2.

Figure B2. Traditional payment channel (digital)

So, why doesn't it work to transfer a file or message representing digital money or digital value directly between two parties without any intermediates? Unfortunately, this is not possible since every time a transfer is carried out on the Internet it constitutes a copy of the source data, for instance an e-mail (Tapscott & Tapscott, 2017). This implies that if 100 euros represented as digital money on a personal computer is transferred to another personal computer directly, it would provide an identical copy of the 100 euros, thus creating more money each time a transfer is made.

This problem is well known and referred to as the double-spending problem (Decker, 2016). After many years and many attempts, a solution to the double-spending problem was finally presented in 2008. This discovery was made by an anonymous person or group and described in the form of a publication titled “Bitcoin: A Peer-to-Peer Electronic Cash System” (Nakamoto, 2008).

In 2009 the first blockchain (which contains the transactions) was implemented according to the instructions by Nakamoto, which resulted in the birth of the Bitcoin application. This major enhancement of the Internet is sometimes referred to as Internet of value (Tapscott & Tapscott, 2017), meaning that digital money (such as Bitcoins), assets and other types of value can be instantly exchanged between two parties through the Internet without any need of a third trusted party.

Network

The blockchain technology is based on a peer-to-peer network in contrast to a server-client network, see Figure B3. In a server-client case the bank acts as a server and the users can access their accounts through a client software on their computer or smartphone, see Figure B3a. The server normally executes the request of the clients as well as stores the data. A peer-to-peer network does not have a server or client, instead each node in the system acts both as a client and server at the same time see Figure B3b. This implies that the full blockchain needs to be locally stored on each (at least many) node and also implies that each node contributes both to storage and computation. Each node in a peer-to-peer network can, in contrast to the server-client, deliver value to another node directly (Swan, 2017). Peer-to-peer networks, such as Napster²³ or Kazaa²⁴, normally allow several types of files to be transferred between the peers. A unique property of the blockchain is that it only constitutes one file (referred to as a ledger) that is being shared and updated by the peers and which contains all history of all transactions. It may be emphasized that the ledger does not contain any files such as images, videos or attachments. (Lambrick, 2009; Tapscott & Tapscott, 2017)

Figure B3. An illustration of a server-client network a), and peer-to-peer network b)

²³ <https://en.wikipedia.org/wiki/Napster>

²⁴ <https://en.wikipedia.org/wiki/Kazaa>

Transfer

Each node (user) on the peer-to-peer network needs to have a specific software (protocol) in order to communicate with the other peers. In order to make transactions, each node (represented by a user of the network) also needs to have a wallet (account), a private key and a public key. The wallet is represented by an address which is a text string (comprising 26-35 alphanumeric characters) and which is temporary and only used to receive money. The private key is used to verify the owner when sending money in the same way as a password to a bank account. An example of a private key is²⁵:

E9873D79C6D87DC0FB6A5778633389F4453213303DA61F20BD67FC233AA33262

The ledger which is shared among the nodes is updated for each transaction as it keeps track of the wallets and how much money each wallet contains, see for instance blockchain.com²⁶. So, if Alice has money in her wallet (according to the blockchain) which she wants to send to Bob, Alice has to use a peer-to-peer software when specifying to which wallet the money should go and how much she wants to send. This also requires that Alice gets a valid address to Bob's wallet for this transaction. A wallet address contains many characters but can be provided as a QR code. Alice further needs to specify the amount and confirm her transaction to Bob by typing in her private key.

Normally a transaction fee is also specified, and the higher the fee is the faster it may be processed as will be explained below. The local software signs the transaction with the private key (normally by entering a password for the key which is encrypted and stored on the computer or smartphone) and without disclosing it. The transaction is then broadcast to the other peers where the authority can be verified through the use of Alice's public key. (Kewell et al., 2017; Narayanan et al., 2015; Savelyev, 2017)

Verification

After having been signed, each transaction is broadcast to the memory pools of the nodes. A memory pool (mempool) is a place that consists of all recent and pending transactions, and thus acts as a temporary buffer of unprocessed transactions²⁷. So-called miners collect the transactions and can easily verify the validity of the transactions by the public key of each transaction. The public key has been generated from the private key and can be used to verify the correct authorship of the sender. The miners collect about 1000 – 2000 transactions (normally according to the highest fees) and then use a specific software where they make a calculation based on the information of all transactions (so-called Merkel tree) in order to receive only one string of text. The outcome of this string (referred to as a hash) is then altered by adding a number (noun) until a valid hash is found. In order to be considered a valid hash within the Bitcoin network, the miners need to find a noun that creates a hash which starts with a given number of zeros (for instance, four zeros). It can be emphasized that adding a noun to a hash can result in a very different

²⁵ https://en.bitcoin.it/wiki/Private_key

²⁶ <https://www.blockchain.com/explorer>

²⁷ <https://coinguides.org/bitcoin-mempool/>

hash than the previous. This search requires a lot of time and computer power, but when a valid hash finally has been found, a so-called new block of transactions has been found. The solution of the miner can easily be verified by the network and added to the existing ledger of the nodes. The name “blockchain” comes from the fact that the new block also contains the hash from the previous block meaning that there is a link from the new block to the previous and so on until the first block (genesis block) has been reached. After finding the solution to the new block the miners are rewarded by the fees of the transactions but also by an internal reward of the blockchain programmed software. This reward decreases with time but is currently 12.5 new Bitcoins which are created and provided to the miner’s Bitcoin wallet, which also is specified in the mined block (referred to as Coinbase). The Bitcoin blockchain is based on the fact that one new block is mined every 10 minutes on average.

In order to be stable, every four weeks the network measures the average mining time and if it turns out to be five minutes, the block-solving problem difficulty is increased by requiring for instance five initial zeros in the hash. If it instead turns out to be 15 minutes, the zeros in the hash could be set to three initial zeros which would simplify the search. It can be emphasized that once a block is accepted by the network and added to the chain, it cannot be changed. The blockchain is therefore referred to as being permanent, transparent, and immutable. (Kewell et al., 2017; Narayanan et al., 2015; Savelyev, 2017)

Appendix C – Trend chart of concepts

Trend chart of the emergence and decrease of concepts (most relevant as bold)

Concepts	1990 - 1999	2000 - 2009	2010 - 2019	Results
Consumer-to-consumer	- - - - -	-----■	■■■■■■■■■■	208
Long tail	- - - - -	-----■	■■■■■■■■■■	507
Social commerce	-	---	-----■	392
Business Models	- - - - -	-----■	■■■■■■■■■■	13,375
E-commerce OR Electronic commerce	- - - - -	-----■	■■■■■■■■■■	25,663
Business Model Innovation	- - - - -	-----■	-----■	900
Consumer-to-business		- ■ -	-----■	18
Freeconomics			■	2
Partial e-commerce		■		1
Pure e-commerce			■	3
Digital Zero-price markets				0
Social Capital	- - - - -	-----■	■■■■■■■■■■	18,710
Intellectual Capital	- - - - -	-----■	■■■■■■■■■■	3,793
Relational Capital	- - - - -	-----■	■■■■■■■■■■	702
Virtual commerce		■	■	7
Mobile commerce		-----■	■■■■■■■■■■	851
Location-based services		-----■	■■■■■■■■■■	1,465
Location commerce			■	3
Knowledge commerce		■	■	3
Facebook commerce			■	9
Online-to-offline commerce			■	5
Tablet commerce			■	1
Personal data	- - - - -	-----■	■■■■■■■■■■	2,326
Privacy policy	- - - - -	-----■	■■■■■■■■■■	510
Terms of service	- - - - -	-----■	■■■■■■■■■■	467
Personally identifiable information	-	-----■	■■■■■■■■■■	144
Privacy paradox		- - - - -	-----■	95
Technological platforms	- - - - -	-----■	■■■■■■■■■■	359
Big data		- - - - -	-----■	11,887
Web 2.0		-----■	■■■■■■■■■■	6,609
Web 1.0		-----■	■■■■■■■■■■	152
Multisided platforms		-	-----■	36
Blockchains			-----■	209
Decentralized autonomous organizations			-----■	18
Distributed ledger technology			-----■	124
Word of mouth	- - - - -	-----■	■■■■■■■■■■	4,627
Social media	- - - - -	-----■	■■■■■■■■■■	29,221
Digital media	- - - - -	-----■	■■■■■■■■■■	5,419
Social Networking Site	- - - - -	-----■	■■■■■■■■■■	3,674
Content creator	-	-----■	■■■■■■■■■■	259
User-generated content		-----■	■■■■■■■■■■	1,957
User-created content		-----■	■■■■■■■■■■	60
Consumer-generated content		-----■	■■■■■■■■■■	60
Consumer-generated media		-----■	■■■■■■■■■■	45
Virtual worlds	- - - - -	-----■	■■■■■■■■■■	3,675
Vlog	- - - - -	-----■	■■■■■■■■■■	74
Blog	- - - - -	-----■	■■■■■■■■■■	4,286
YouTube	- - - - -	-----■	■■■■■■■■■■	54
E-sport	- - - - -	- - - - -	-----■	79
Prosumer	- - - - -	-----■	■■■■■■■■■■	361
ProdUser		-----■	■■■■■■■■■■	14
Human intelligence tasks			-----■	8

Background data to the trend chart of concepts (articles per year)

Concepts	1990	-91	-92	-93	-94	-95	-96	-97	-98	-99	2000	-01	-02	-03	-04	-05	-06	-07	-08	-09	2010	-11	-12	-13	-14	-15	-16	-17	-18	-19
Consumer-to-consumer	1		1			1	1	1			2	1	2	3	6	7	7	7	11	8	17	17	13	9	13	13	16	21	14	17
Long tail																														
Social commerce																														
Business Models	1	1	1	1	1	3	2	4	2	2	1	2	3	4	9	12	17	24	25	30	36	38	39	49	46	57	67	74	84	79
Electronic commerce	2	4	1	3	20	9	16	43	76	102	131	222	236	342	340	453	439	551	694	661	711	842	890	1011	1201	1393	1528	1454	109	
Business Model Innovation	2	1	9	29	83	145	240	647	676	783	922	774	1,004	870	1,188	1,483	2,978	2,977	3,898	1043	853	931	896	1,006	1,078	1,138	1,012	113	1012	
Consumer-to-business	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Freecomics																														
Partial e-commerce																														
Pure e-commerce																														
Social Capital	4	3	9	11	10	23	38	68	131	142	187	239	292	413	401	564	647	739	870	956	1,013	1,075	1,189	1,323	1,213	1,404	1,322	1,418	1,487	1,519
Intellectual Capital	2	1	2	2	9	33	25	37	69	68	63	85	129	131	116	169	166	202	184	213	190	237	241	278	251	316	301	273	301	273
Relational Capital	1																													
Virtual commerce																														
Mobile commerce																														
Location-based services																														
Location commerce																														
Knowledge commerce																														
Facebook commerce																														
Online-to-offline commerce																														
Tablet commerce																														
Personal data	5	9	6	4	3	7	6	10	16	13	18	18	21	23	36	35	40	71	66	97	92	98	128	137	140	159	205	284	302	277
Privacy policy	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Terms of service	1	2	3	6	3	2	3	4	4	3	5	6	5	14	7	10	16	11	21	20	30	29	15	23	49	30	37	42	34	32
Personally identifiable information	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Privacy paradox	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Technological platforms	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Big data	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Web 2.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Web 1.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Multisided platforms	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Blockchain	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Distributed ledger technology	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Word of mouth	3	2	14	13	19	16	19	20	28	23	29	37	42	48	45	56	85	122	146	151	194	255	243	311	320	370	400	484	515	617
Social media	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Digital media	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Social Networking Site	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Content creator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
User-generated content	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
User-created content	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Consumer-generated content	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Consumer-generated media	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1										

Appendix D – Statements (quotes)

Business models

The development of electronic money (E-money) called reengineering of money by some may be expected to further limit the role of cash in the economy. E-money in its various forms is expected to become a substitute for credit cards and debit instruments, checks or debit cards or for banknotes and coins, which offer anonymity to the owner (Zwass, 1996).

The business model can be seen as an architecture for product, service and information flow (Timmers, 1998).

Business model innovation can be defined as a novel way of how to create and capture value, which is achieved through a change of one or multiple components in the business model (Amit & Zott, 2001).

Business conducted over the Internet referred to as e-Business (Amit & Zott, 2001).

Analyzes 66 business models, which includes customers and competitors. “An organization may have several business models and a business model may include several organizations” (Hedman & Kalling, 2002).

Every company has a business model, whether they articulate it or not (Chesbrough, 2007).

The business model describes the design or architecture of the value creation, value delivery and value capture mechanisms employed by a particular business (Teece, 2010).

Business model and business model innovation are key components to competitive advantage (Baden-Fuller & Morgan, 2010).

The business model defines the way the company creates and delivers value to customers, and then captures a portion of this value to make profit and grow. There is no single consensus definition of a business model, but Teece (2010) suggests at the core is the: “design or architecture of the value creation, delivery, and capture mechanisms” (Teece, 2010).

Companies have extensive investments for exploring new ideas and technologies, but little ability to innovate the business model (Chesbrough, 2010).

Despite the overall surge in the literature on business models, scholars do not agree on what a business model is. (Zott et al., 2011).

E-business means “doing business electronically.” It encompasses “e-commerce,” “e-markets,” and “Internet-based business,” and refers to firms that conduct commercial transactions with their business partners and buyers over the Internet (Zott et al., 2011).

The business model is more important than technology (Chesbrough, 2007).

Many references of e-business (Hedman & Kalling, 2002).

A useful interpretation of the term business models is to answer the question “Who pays what, to whom and why?” (Clarke, 2004).

Historically, the business model has its roots in the late 1990s when it emerged as a buzzword in the popular press. Ever since, it has raised significant attention from both practitioners and scholars and nowadays forms a distinct feature in multiple research streams. In general, the business model can be defined as a unit of analysis to describe how the business of a firm works (Frankenberger et al., 2013).

Identified three classes of online business models: participative, distributive, and editorial (Lyubareva et al., 2014).

Today the majority of online business models can find new opportunities in implementing multiple sources of revenue, such as subscriptions, advertising, usage fees, and premium services (Lyubareva et al., 2014).

The rise of freely available material has reshaped consumer expectations about price. It was Anderson (2009) who coined the term Free, focusing on how the digital technology is changing life and business through pricing models that give products and services to customers for free, often as a strategy for attracting users and up-selling some of them to a premium level. *Free: The Future of a Radical Price* (Yeoman, 2015).

Two-sided business models. From B2B to B2C and the combination B2B&C and B2C&B. The business audience B2B and B2C are not clearly identified (Muzellec, Ronteau, & Lambkin, 2015).

An electronic business model uses electronic communication technology such as Internet for exchanging information. It includes eight ingredients of business: value proposition, revenue model, market opportunity, competitive environment, competitive advantage, market strategy, organizational development and management team. Electronic business models can fall under three main categories (B2B, B2C and C2C) (Aithal, 2016).

The term “business model” was first mentioned in an academic article in 1957 (Bellman et al., 1957). The article investigates the construction of business games for training purposes. The term is mentioned just once. Jones (1960) wrote the first academic article using “business model” in its title. Peer-reviewed journal papers on “business model” remained low until the 1990s, with only five papers containing the words “business model” in their title over the whole decade (Leonard & Jones, 2017).

Multisided business models (Oliveira & Cortimiglia, 2017).

Describes six business models in C2C social commerce. S-retailing, S-special market, S-preorder, S-auction,- S-reverse auction and S-portal (Leeraphong & Papasratorn, 2018).

B2B and B2C are the two major categories of models incorporating major e-business activities. There is a hybrid category of e-business models, called B2B2C that combines major features of both models of B2B and B2C (Gou, Li, Jing, & Justin, 2018).

The business model can be described as the logic of how an organization creates, delivers, and captures value, and incorporates different facets of an organization activities (Holland & Gutiérrez-Leefmans, 2018).

As early as 1938, “There ain't no such thing as a free lunch (often denoted by the acronym ‘TANSTAAFL’) encapsulated the lay understanding of modern economics” (Newman, 2018).

Personal data of individuals represent monetary value in the data-driven economy and are often considered as a counter performance for “free” digital services or for discounts for online products and services. At the same time, when the consumer purchases the service or product, he or she can “pay” in different manners. Usually in the digital market, it is possible to pay with money, with (personal) information, or both. This is sometimes referred to as “disclosure as by-product” (Malgieri & Custers, 2018).

Business relations

C2C associated with peer-to-peer-systems such as Napster (A. D. Smith, 2004).

C2B is seldom found. A possible reason for this phenomenon is the transaction cost; to unite a group of candidate buyers common needs and preferences to buy a product or service is uneasy (Chen et al., 2008).

B2B e-commerce cannot be utilized in C2C e-commerce. In C2C trust must be felt by both buyers and sellers; both trustors and trustees (Jones & Leonard, 2008).

Consumers can meet and transact in online auctions, discussion forums, and chat rooms, or as part of an online community or third-party listing service. C2C e-commerce venues can be categorized into two areas: structured/intended and unstructured/unintended (Leonard & Jones, 2009).

Online auctions are for instance based on C2C relations where consumers can make transactions directly with each other (Wu et al., 2011).

Buyers and sellers lack information and trust (Wu et al., 2011).

Consumers may overbid. Auction fever may lead to a winner's curse (Gu, Park, Konana, Gu, & Park, 2012).

Group buying is considered a unique, innovative and interesting online C2B business model type which enables buyers to obtain volume discounts and helps sellers to sell a considerable number of items (Wei-tsong Wang et al., 2016).

Consumer-to-consumer e-commerce can be defined as consumers transacting – both buying and selling – electronically (Leonard, 2011) directly from one to another. It is already a significant retailing phenomenon. For instance, C2C is estimated to represent roughly 80% of all electronic commerce in China (Yrjölä et al., 2017).

C2C e-commerce, as previously indicated, occurs between two or more consumers using electronic means. This is most often thought to occur in an online auction, but can also be a result of a third-party listing service, e-mail, or chat room discussion. Trust has been explored regarding C2C e-commerce (Leonard & Jones, 2017).

C2C e-commerce is conducted in online auction, chat room, third-party services or e-mail. C2C e-commerce occurs between two or more consumers using electronic means (Leonard & Jones, 2017).

Gender, age and income are likely to influence consumer behavior in domain of C2C e-commerce (Yrjölä et al., 2017).

(B2B2C) companies do not directly communicate and interact with terminal consumers, one of the core problems that they have to deal with is how to indirectly deliver information to customers so as to build the trust with them (Gou et al., 2018).

Commerce

Electronic commerce or E-commerce is sharing business information, maintaining business relationships, and conducting business transactions by means of telecommunications networks (Zwass, 1996).

Defined e-commerce according to the following three dimensions: agent (e.g. a supplier), channel (e.g. a website) and product or service, all three of which can be in the physical or virtual domain but where at least one of them needs to be in the virtual domain in order to count as e-commerce (Choi et al., 1997).

E-commerce, according to the definition of the European Commission in 1997 is “doing business electronically” (Timmers, 1998).

When equipped with a strategy that combines Internet potential and knowledge commercialization, almost every company is capable of creating business opportunities from a knowledge-commercialized business model, also called knowledge commerce (KC). Businesses such as consulting firms or research companies use knowledge-based activities as their main business model feature and try to engage in web-based knowledge trading (Kafentzis, Georgolios, Bouras, & Mentzas, 2006).

S-commerce is seen as utilizing Web 2.0 in e-commerce, particularly core Web 2.0 features such as user-generated content and content sharing (D. J. Kim et al., 2008).

Customers usually interact with e-commerce -platforms individually and independently from other customers, while social commerce involves online communities that support social connection to enhance conversation between customers (Y. A. Kim & Srivastava, 2007).

Many niche products and low volumes in the long tail may give a bigger value than compared to the traditional demand curve which consists of the short tail and where the market consists of a few high-volume producers (Anderson, 2008).

Mainly referred to as Location-Based Services (LBS). Positioning technology is used to provide individual users the capability of being constantly reachable and accessing network services while “on the move.” However, privacy concerns associated with the use of LBS may ultimately prevent consumers from gaining the convenience of “anytime anywhere” personalized services (Xu & Gupta, 2009).

T-commerce is now an offshoot of M-commerce and it is any transaction completed on a tablet device in which a payment is rendered through the device either through a retailer’s website, through a proprietary app or throughout swipe device attached to a tablet (Xu & Gupta, 2009).

Virtual social worlds offer a multitude of opportunities for companies in marketing (advertising, communication, virtual product sales/v-Commerce, marketing research), and human resource and internal process management (Kaplan & Haenlein, 2010).

S-commerce is mainly seen by scholars as a subset of e-commerce (Stephen & Toubia, 2010; D. Kim, 2013; M. N. Hajli, 2014).

There is no agreed definition of social commerce, but two fundamental elements are identified: social media and commercial activities (Liang et al., 2011).

Despite the skeptical view in 2008 that social commerce is good for branding but not for making money, Facebook begins to make money. The term Facebook commerce is coined (C. Wang & Zhang, 2012).

The term social commerce was introduced by Yahoo in 2005 to describe a new collaborative shopping feature on its shopping platform that allowed consumers to create, share and comment on product lists (C. Wang & Zhang, 2012).

In 2011, Google launched its social network service, Google+, which was expected to lead to g-commerce in the near future (C. Wang & Zhang, 2012).

Business are making real-world money out of virtual or even real-world assets. Highest price for virtual asset is US \$ 300,000 paid by Erik Novak via his avatar Buzz Erik Lightyear. First virtual millionaire on virtual assets in Second Life was Anshe Chung (Scarle et al., 2012).

The Internet has shifted the bargaining power from sellers to consumers (D. Kim, 2013).

There is a lack of clarity in the literature regarding the meaning and domain of social commerce (Yadav et al., 2013; Busalim & Hussin, 2016).

The aim of the seller is to convert customers into brand advocates, whereas the aim of the buyer is to make better informed purchasing decisions. Either or both aims are achieved when a consumer shares purchasing experiences. One-third of shoppers would prefer to make a purchase directly from Facebook or Twitter (Ng, 2013).

O2O commerce can be seen as a specific form of multichannel integration where the focus is on doing online promotion through the social media so as to enhance the physical store sales. Social media-enabled O2O include e.g. Yelp, productreview.com, openrice.com (Phang, Tan, Sutanto, Magagna, & Lu, 2015).

Social commerce can be explained from many different perspectives such as marketing, retailing, computer science, sociology, and psychology, making it hard to agree on a common definition (Huang & Benyoucef, 2015).

E-commerce provides a classical one-way business relation where information rarely is sent back to the seller or other customers as compared to social commerce, which is seen as a multidimensional flow of information between customers and sellers (Busalim & Hussin, 2016).

Describes four pathways: operational efficiency (traditional, transformed) or customer experience (traditional or transformed) (Weill & Woerner, 2018).

Mobile commerce (M-commerce) is a subset of e-commerce, and signifies a new field of business opportunity (Bhullar & Gill, 2019).

Personal data

Privacy and personal information (Figallo & Rhine, 2001).

Today, privacy has become a commodity that can be bought and sold (Jerome, 2013).

Previous research has shown that smartphone users are often unaware of the data collected by their apps and express surprise and discomfort when they find out (Almuhimedi et al., 2015).

“Privacy fix” try to show users their value to companies, and a recent study suggested that free Internet services offer \$2,600 in value to users in exchange for their data. Curiously, this number tracks closely with a claim by Chief Judge Alex Kozinski that he would be willing to pay up to \$2,400 per year to protect his family's online privacy. In an interesting Kickstarter campaign, Federico Zannier decided to mine his own data to see how much he was worth. He recorded all of his online activity, including the position of his mouse pointer and a webcam image of where he was looking, along with his GPS location data for \$2 a day and raised over \$2,700. “Monetizing privacy” has become something of a holy grail in today's data economy (Jerome, 2013).

46% felt that wireless providers who collected location should not store it at all, and an additional 28% thought it should be deleted within a year. A separate telephone survey of 2,254 US adults found that 57% of all smartphone app users have either uninstalled an app over concerns about having to share their personal information, or declined to install an app in the first place for similar reasons (Balebako et al., 2013).

We communicate using e-mails, texts, and social media; find partners on dating sites; learn via online courses; seek responses to mundane and sensitive questions using search engines; read news and books in the cloud; navigate streets with geotracking systems; and celebrate our newborns, and mourn our dead, on social media profiles. Through these and other activities, we reveal information—both knowingly and unwittingly—to one another, to commercial entities, and to our governments (Acquisti et al., 2015).

On every ordinary day, BlueKai transacts over 75 million online auctions for personal information. The company, which belongs to Oracle, says it owns 750 million user profiles of people who regularly surf the web, and it processes more than 30,000 attributes about these users. BlueKai claims to run the world's largest third-party data marketplace, but it is just one player in a huge web of over a thousand firms that have established themselves in the business that some call the new oil: personal data (Spiekermann, Böhme, et al., 2015).

Reading and understanding the privacy policies of competing suppliers is an incredibly difficult task for those few customers who actually undertake it. Even many attorneys well-versed in contract law would be unable ex ante to draw any meaningful conclusions regarding relative information costs (Newman, 2015).

On Privacy and the Status Quo, The now colloquial saying, “If you have nothing to hide, you have nothing to fear,” does a disservice to public dialogue around privacy issues, as it equates privacy with secrecy. This discrepancy between attitudes and behaviors has become known as the “privacy paradox” (Acquisti et al., 2015).

As personal data proves to be a form of currency, new hierarchies are being established, whereby those who own the infrastructures that collect digital information have unprecedented power, and in turn, potential for profit. Among the most profitable companies in the world are those whose services claim to be “free” to the user. But in these cases, the user is the product, and his or her data is the commodity. Because of this economic model, there is little incentive for these corporations to be transparent with their users, as to how profit is earned, or how personal data is used (Pringle, 2016).

Privacy is a form of autonomy, because a person under surveillance is not free (Pringle, 2016).

Privacy is difficult to define as it can mean different things to different people (Acquisti et al., 2017).

“I agree to the terms and conditions” is referred to anecdotally as “The Biggest Lie on the Internet” (Obar & Oeldorf-Hirsch, 2018).

People don't read the fine print in terms of service agreements. From a purely aesthetic standpoint, the text is too small and too dense. From a communications perspective, the writing is too opaque and the language is not clear. Terms of service agreements appear to be constructed for experts in legalese, as opposed to being written for the average consumer (Pringle, 2016).

During the past few years, personal data have become the currency for mobile app users to pay for various mobile services, such as social networking, messaging, or entertainment apps. Instead of paying for an app with "real" money, app users often (unwittingly) reimburse app developers by accepting their permission request, that is, an app's demand to control the mobile device and to access and use the personal information stored in the device. By accepting permission requests, app users often share personal information with an app, such as their device ID, call log information, or address book contacts (Wottrich et al., 2018).

If people read and understand the information (terms) provided, they may still not understand the consequences of the information provided. Finally, even if they understand the consequences, the policies and settings may not offer the options they prefer. This may also apply to providing information on the value of personal data: people may not take notice, may not understand the information provided, may not understand the consequences and may not be able to act upon this information in ways they would like (Malgieri & Custers, 2018).

When individuals disclose their data, they suffer an objective loss of privacy in terms of higher exposure to discrimination (including price discrimination) and information asymmetry, which may yield commercial vulnerability. Subjective harms may be difficult to quantify, though this may not be entirely impossible (Malgieri & Custers, 2018).

Digital platforms

Word-of-mouth (WOM) is important not only for gaining trust, but also for branding (Gefen, 2000).

Many markets with network externalities are two-sided. To succeed, platforms in industries such as software, portals and media, payment systems and the Internet, must "get both sides of the market on board." Platform owners or sponsors in these industries must address the celebrated "chicken-and-egg problem" and be careful to "get both sides on board" (Rochet & Tirole, 2003).

A market is two-sided if a platform can affect the volume of transactions by sharing more to one side of the market and reducing the price paid on the other side by an equal amount (Rochet & Tirole, 2003).

Consumers read online recommendations to save time in decision-making and to improve buying decisions (Hennig-Thurau & Walsh, 2003).

Social Media (SM) are based on online platforms and tools that people use to share opinions (photos, videos, music, insights and perceptions) (Lai & Turban, 2008).

Multisided platforms (MSPs) serve as an intermediary for two or more groups of customers who are linked by indirect Network effects (NE). A price increase can affect both sides, the buyer side decreases which can lead to that the first side also decreases (Evans & Noel, 2008).

Social Media is a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User-generated Content (Kaplan & Haenlein, 2010).

Claim that C2C interaction has the potential to change consumers' preferences, actual purchase behavior, or the way they further interact with others through the power of word-of-mouth (WOM) (Libai et al., 2010).

Social networking sites (SNS) are for example Facebook, Twitter, LinkedIn and Pinterest (Pöry, Parvinen, & Malmivaara, 2013).

Platforms treat developers and consumers jointly as consumers (Gawer, 2014).

Word-of-mouth (WOM) is defined as the occurrence when consumers share their experiences about a product or present their view to another consumer (M. N. Hajli, 2014).

The chicken-and-egg problem is one of the most difficult challenge for many multisided platforms (Hagiu & Wright, 2015).

Platforms are characterized as managing two or more distinct types of customers (users, application developers, handset manufacturers, network operators and advertisers) (Garcia-Swartz & Garcia-Vicente, 2015).

Platforms are e.g. Alibaba, eBay, TaoBao, Rakuten, Airbnb, Uber app, FB, Apple iOS, Google Android, Sony PlayStation, Microsoft Xbox, American Express, PayPal, Shopping malls, Fandango, Ticketmaster. Platforms reduce search and transaction cost to seller or producer. Characterization of a MSP: 1. Each group of participants "side" are customers of the MSP in some meaningful way. 2. MSP enables direct interaction between the sides. Product platforms violate (1) and Resellers violate (2) as there is no direct interaction between the sides. A three-sided platform can connect individual users (professionals), recruiters and advertisers (Hagiu & Wright, 2015).

Network effects are characterized by that value increases on one side when the number of participants increases on the other side. Cross-side network effects are sometimes referred to as indirect network effects (Hagiu & Wright, 2015).

"Two-sided markets" (TSM), "platform industries," "multisided platforms" have all been used to refer to platform businesses. In addition, despite the widespread use of "two-sided markets" terminology, some platforms may have more than two sides. Therefore, we prefer using the "multisided market" and "multisided business" terminology as opposed to "two-sided markets" terminology (Gurkaynak et al., 2017).

MSP characterization: 1. Two or more groups of customers, 2. need each other in some way 3. cannot capture the value of their mutual attraction on their own 4. rely on the catalyst to facilitate value-creating interactions (Gurkaynak et al., 2017).

Multisided platforms (MSP) are seen as business models that enable external producers and users to create value together by interaction with each other (Still et al., 2017).

No consensus or limited consensus on the definition of multisided markets (MSM). The users in MSM can either be distinct groups of users or the same user switching sides in each transaction (Gurkaynak et al., 2017).

The role of the platform has remained unexplored and the literature still lacks insights on how the distinct characterizations of different C2C e-commerce platforms influence consumers' perceptions of value and future behavior (Saarijärvi et al., 2018).

Multisided platforms (MSP) defined as organizations that get two or more sides on board and enable direct interactions between them (Hagiu & Wright, 2014).

Economics see platforms as double-sided markets, engineers see them as technological architectures (Gawer, 2014).

Digital platforms (DP) began as electronic marketplaces, such as eBay, which is primarily intended to be a consumer-focused marketplace enabling C2C and B2C transactions, although it also supports B2B transactions. These marketplaces matched buyers and sellers, facilitated the exchange of information, goods, services, and payments associated with market transactions, and provided an institutional infrastructure (Holland & Gutiérrez-Leefmans, 2018).

Technology

Web 2.0 is not a new technology but instead an introduction of several new tools on the Internet such as Ajax, RSS, JavaScript, XML, stylesheets and more. These tools create and enable an architecture for participation and user interactions, shared knowledge and shared information among consumers (Harrison & Barthel, 2009).

Blockchain is one type of DLT (distributed ledger technology) where data is governed by consensus not being centralized (Tapscott & Tapscott, 2017).

User-generated content

When the Web interface first appeared in the early 1990s, its early users created all of its content. As the Web was commercialized, business plans described a sharp distinction between “information providers” and “information consumers” (Figallo & Rhine, 2001).

Content creators create digital material, such as audio, video and textual information, for example digital news feed and real-time stock information, voice, music, logos, photos, movies, cartoons and design (Barnes, 2002).

The term “content” is used here to refer to digital works other than software, including text, image, sound, video, and combinations of them (“multimedia”). Such works are subject to copyright law. For almost all of its 300 years, the function of copyright law has been to grant a set of limited monopoly rights to originators of literary and similar works (Clarke, 2004).

States that the creators of content are consumers as well (Dye, 2006).

Users contribute creative efforts outside of professional routines and practices. Terms such as “hobbyists,” “amateurs,” “unpaid laborers” and “volunteers” often applied to internet contributors, in contrast with the words “professionals,” “stars,” “paid experts” and “employees” commonly attributed to people producing traditional television content. In order to understand the changes in user agency, it is important to scrutinize “human resources” management of UGC sites such as YouTube. Why devote much time and energy to creating content and what to expect in return? (Van Dijck, 2009).

UGC as defined by the Organization for Economic Cooperation and Development (OECD, 2007). UGC needs to fulfill three basic requirements in order to be considered as such: first, it needs to be published either on a publicly accessible website or on a social networking site accessible to a selected group of people; second, it needs to show a certain amount of creative effort; and finally, it needs to have been created outside of professional routines and practices. The term UGC achieved broad popularity in 2005, and was usually applied to describe the various forms of media content that are publicly available and created by end-users (Kaplan & Haenlein, 2010).

The term “weblog” was first used at the same time, and truncated as “blog” a year later when one blogger jokingly transformed the noun “weblog” into the sentence “we blog” (Kaplan & Haenlein, 2010).

Social networking sites are applications that enable users to connect by creating personal information profiles and interact (photo, video, audio, blogs) (Kaplan & Haenlein, 2010).

The estimated amount paid for digital content is related to income and education, willingness to pay is more related to age and gender. The findings have important implications for digital content providers who are evaluating the possibility of shifting from an advertising supported content-for-free model to a subscription supported pay-for-content business model (Punj, 2015).

UGC phenomenon is still relatively new compared to research on traditional mass media content produced by professions. A stable definition of UGC is a necessary precondition for understanding the changes in the research on the phenomenon over time and between different research areas and theoretical and methodological traditions (Naab, 2017).

Categorized content creators into three classes: entertainment, career and family (Van Dijck, 2009).

A blogger is the replacement for missing salesperson as in the physical world. Consumer often leaves online transaction due to lack of trust (Van Esch et al., 2018).

A blogger could generate middle-class income by promoting product (Van Esch et al., 2018).

User-provided content (UPC) lack uniformity and tend to consider “information” on a sector-specific basis (Malgieri, 2018).

Web 2.0 is the technological foundation that introduces the concepts of interactivity and UGC, which include blogs, discussion forums, social bookmarks, wikis, media sharing, reviews, and social networking (Holland & Gutiérrez-Leefmans, 2018).

Value

Value cannot be captured unless it is first created (Bowman & Ambrosini, 2000).

There is little consensus on what value creation is or on how it can be achieved (Lepak et al., 2007).

However, the process of value creation is often confused with the process of value capture. In addition, it has been argued that both value creation and capture should be viewed as distinct processes, since the source that creates value may or may not be able to capture that value in the long-term (Lepak et al., 2007).

It is suggested that value is not a single phenomenon, but rather multi-faceted and in need of some clarification. We propose that value means different things to different stakeholders of the firm, specifically its customers, suppliers, employees and investors (Bowman & Ambrosini, 2010).

Personal data is increasingly conceived as a tradable asset. Markets for personal information are emerging and new ways of valuating individuals’ data are being proposed. Personal data is the new oil of the Internet and the currency of the digital world. A report by the Boston Consulting Group (2012) projects that the sectors leveraging personal data will leap ahead of the rest of the economy and produce €1 trillion in corporate profits in Europe by 2020 (Spiekermann, Acquisti, et al., 2015).

The Boston Consulting Group has been watching the development of personal data markets closely. It recently predicted that the economic use of personal data can deliver up to EUR 330 billion in annual economic benefit to organizations in Europe alone by 2020. All consumers are generally willing to share personal data with organizations, but this sharing depends on the benefits and terms of the exchange as well as the context. Context of data exchange is even more important than the data itself (Spiekermann, Acquisti, et al., 2015).

Profit-seeking firms will seek to optimize the sum of exchange value captured for a given amount of use value supplied (Bowman & Ambrosini, 2010).

According to a 2011 survey from McAfee, on average Americans value their digital assets at almost \$55,000. Digital assets include YouTube videos, emails or social media accounts. Not all digital assets are barred from fiduciary access. Digital assets can be subdivided. Evan Carroll introduces two categories based on where they are stored: Locally stored digital assets usually include data such as contact information, photos, and videos held on devices owned by the user. For example, digital assets can be loaded onto a flash drive and then stored in a safety deposit box. Digital devices, held and owned by the decedent, are distributed like any other asset held in the estate. The second category is stored on what is described as cloud-based servers ("cloud"). These are the type of digital assets that fiduciaries have had trouble accessing. Information stored on cloud storage is kept and accessed away from the account holder's own storage devices (Slaughter, 2015).

The ascent of the so-called Web 2.0 (blogs, social media, online social networks) has rendered individuals no longer mere consumers of information, but public producers of often highly personal data. In this environment, a few "gatekeeper" firms are in a position to control the tracking and linking of those behaviors across platforms, online services, and sites for billions of users (Acquisti et al., 2017).

Mobile apps may offer different kinds of value to the user, which may be related, among others, to social interaction, information seeking, or entertainment. Depending on how much value an app has to offer in general, app users may be more or less inclined to grant an app's permissions, thereby sharing personal information with it (Wottrich et al., 2018).

When consumers can pay for privacy, the data supplier finds it optimal to sell its consumer information to one firm only (Montes et al., 2019).

PART II: PAPERS

II

Papers

The papers associated with this thesis have been removed for copyright reasons. For more details about these see:

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FACULTY OF SCIENCE AND ENGINEERING

Linköping Studies in Science and Technology, Dissertation No. 1873, 2020
Department of Management and Engineering

Linköping University
SE-581 83 Linköping, Sweden

www.liu.se