



# Digital Ventures: Current State of Research and Future Directions - A Systematic Literature Review

Master's thesis

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## Abstract

Digital ventures are shaping business and the whole society, one industry at a time. Some of these ventures are impactful enough to change our habits and social norms, like Uber has done to the transportation sector or Facebook to the social media sector. While digital ventures have become a medium for handling plenty of the aspects of our everyday lives, yet the overall picture of how these ventures work and what are their main elements and patterns is missing. The purpose of this study is to gain a comprehensive understanding of the current state of knowledge on digital ventures as found in academic literature. Simultaneously, the paper seeks to address how these ventures differ from traditional organizations. Through a systematic literature review, this study is systematically capturing knowledge from 47 academic journals and conference papers studying the topic.

The main findings are the following. Digital ventures are unique by their value creation process based on scaling a large user base, the founder teams high-level of risk tolerance leading to more flexibilities in the business, the common usage of the lean start-up approach for settling the right technology design, and the use of financing and successful IPOs as a measurement of venture success. Furthermore, the findings of the liability of newness, the value creation components, the lean start-up approach, and the impact of financing and IPOs, are also adaptable for traditional organizations, but with gradually different motives and impacts. This study represents theoretical and managerial implications through understanding the characteristics of digital ventures and their differences in the stages of the growth journey. The paper is useful for laying a basis for further research, to understanding the current state of digital ventures, and to understand better the future developments of businesses.

*Keywords: digital venture, start-up, digitalization, entrepreneurship, systematic literature review*

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# 1. Introduction

It's the year 2005. You are in an unfamiliar city and need to move quickly from place A to place B. There is no public transportation available. A taxi might be an option. However, you do not see any nearby. You search for the number, and the phone line charges you high service costs per minute used. After managing to order a taxi you end up having no idea when it will come. You go outside and hope that it arrives soon. When standing outside you have the time to check that you have enough cash with you, since taxis in some countries and cities might not accept any other payment method. Luckily you find money from your pocket that should be enough for the ride. You smile slightly because for once you do not have to ask the driver to stop by an ATM.

Uber and uber-like competitors have disrupted the inconvenient traditional taxi industry in the last years. Uber was founded in 2009 and boomed rapidly as it was found to answer the needs of the new generations that are used to customize and availability of products and services (Hartsmans and Leskin, 2019). Uber bases its taxi-like model, or "ride-sharing service", on modern technology, flexible payment, pricing strategies, and app-based tracking of cars. The app detects the user's location, gives the user the possibility to set the pickup time and location, gives a real-time tracker for the driver's way to the pickup point, shows an estimation of time for arrival to the destination set, and for time-saving purposes allows the ride to be paid digitally in the app. Additionally, the app includes a rating system for drivers to manage a high level of customer service (Bick, 2019).

After the appearance of this new digital venture, regular taxi rides decreased to 30% from 2012 to 2015 and people started referring to the drop in regular taxis prices as the "Uber effect" (Morris, 2016). The ride-sharing service was able to gain its competitive advantage since the cars are not taxis and the drivers are not employees but contractors, which is why they do not have to pay tax licenses and other high expenses (Scheiber, 2019). Thereby, the app can maintain competitive pricing for the rides. However, Uber has nowadays several competitors with similar kinds of

platforms, wherefrom it can be stated that the era of traditional taxis is slowly diminishing with the growth of these digitally-based businesses.

We have seen that digital ventures are disrupting more industries than just the taxi industry, but still have relatively little knowledge of these new types of businesses. Similarly, to Uber owning no cars, other digital ventures such as Facebook create no content and Airbnb does not own any real estate. Yet, they control the platform between the customer and the provider of the products and services and takes profits from the use of it (McRae, 2015).

Different digital products and services are present in most aspects of our everyday activities, whether it is sports tracking, personal banking, shopping, or connecting with other people across the world (Matell, 2016). Since digital businesses building on digital products and services are associated with such a variety of things, they are cutting across traditional industry boundaries, ecosystems, and communities with the new products and services set in the market. Some of the digital products and services might even end up changing the general norm of doing things and gaining global implications – as Uber and Facebook have done for the transportation and social media sectors (Misra, 2018). Consequently, it is important for the future to understand what the features of these ventures are, how does the journey of a digital venture look like, and how these ventures differ from traditional organizations.

Digital ventures are quite a new phenomenon, with only a limited number of academic studies about these new ventures which differ from other information systems technologies. Therefore, the purpose of this study is to understand the knowledge base on digital ventures in terms of innovation, growth, and success and how they differ from traditional organizations. The research question is being answered with a Systematic Literature review to capture knowledge in top-tier management information systems journal publication.

## 1.1. Previous research

The problem with the previous research is the lack of a comprehensive understanding of research conducted and the knowledge gathered from digital ventures. This is mainly due to the small number of researches done that have a narrower focus on specific aspects of digital ventures. Some of the main articles found in the literature review discuss digital ventures as following. Digital ventures are defined by Von Briel et al., (2018) as start-ups uniquely having digital artifacts at the core of their venture creation. The authors state that these ventures are taking advantage of digital technologies such as cloud, artificial intelligence, joint financing platforms, 3D printing, social media platforms, mobile, and big data and analytics. Regarding the growth process of a digital venture, previous research has discussed the cruciality of scaling a large user base as being in the core of it (Cavallo et al., 2019; Huang et al., 2017; Lehmann & Recker, 2019). Whereas digital ventures aim their focus on scaling a user base in the beginning, König et al., (2019) states that the growth journey of traditional organizations starts by gaining financing for the initial business idea. Furthermore, various authors resonate that the actions and decision-making of new ventures are impacted by the underlying issues of resource constraints and uncertainty that are tried to overcome with different resources and strategies (Chang, 2004).

## 1.2. Problem formulation

This paper aims to gain a deeper knowledge of digital ventures and the features associated with them, but also of how those might differ from traditional organizations. Furthermore, the paper seeks to understand what kinds of gaps might exist in the present studies as a basis for future research. To do so, a method of a Systematic Literature Review (SLR) has been used. This method allows to conduct a structured literature review to gain a comprehensive understanding of the topic in question. Consequently, this paper represents a wide understanding of the aspects and patterns associated with different stages of the growth of a digital venture. Simultaneously, the paper seeks

to outline the main differences between digital ventures and traditional organizations as presented in the academic literature and the study's research questions are:

*What is the current state of knowledge on digital ventures as found in the academic literature?*

&

*What are the differences between digital ventures and traditional organizations as found in the academic literature?*

The literature review conducted identifies seven commonly appearing themes of digital ventures that are, the liability of newness, scaling, financing, patents, networks and relationships, technology design, and human capital and education. Even if some of the patterns are overlapping for both digital and non-digital ventures, the patterns include gradual differences between digital ventures and traditional organizations regarding the usage and impact of these themes. Some of the unique features of digital ventures are associated with the value creation tactics, the role of technology design and its development with the lean start-up approach, the role of networks, and the methods of measuring success. These findings are in line with the argument of König et al. (2019) stating that there are differences in the maturing process of the ventures. Consequently, the knowledge and perceptions of traditional organizations cannot be straightly copied to digital ventures, but they needed to be adapted, measured and analyzed with different aspects of focus. This study is contributing to the literature by giving a comprehensive overview of what is known about digital ventures in the current literature.



### 1.3. Thesis structure

The research is divided into the introduction, theoretical background, methodology, results and analysis, discussion, and conclusion. Firstly, the introduction includes the motivation, problem identification, and problem formulation of the paper. Secondly, the theoretical overview represents the key concepts relevant to the paper, which are in this study digitalization, ventures, and digital ventures. Thirdly, the methodology chapter explains the method of a Systematic Literature Review, the characteristics of the search for the literature, and the process used to collect the sample of literature review. Next, the results of the systematic literature review are being represented and analyzed. Followed, the discussion is interpreting the results, limitations, and suggestions for future research. As for the last chapter, the conclusion is summarizing the findings being stated.

## 2. Theoretical Background

Before proceeding in this study some core concepts should be explained to ensure the topic is understood correctly. This chapter will help the reader to understand the concepts of digitalization, ventures, and digital ventures.

### 2.1. Digitalization

Digitalization is one of the trending words in the 21<sup>st</sup> century used to cover a wide range of multidisciplinary activities and processes. Actually, the ideas of digital products, mediums, and services were already being acknowledged in the 1990s, followed by smart gadgets and social media platforms created from 2000 to 2015. These built the digital world of customer expectations of multi-channel availabilities response times that have formed the society we live in now

(Schallmo et al., 2018). Moreover, Fitzgerald (2013) argues that the adaption of new technologies has the ability to increase business efficiency through for example better customer usage purchase processes, improved operations, or modern business models.

The concept of digitalization is easily confused as a synonym for information technology (IT) or digitization. To avoid misunderstandings, these concepts and their differences are described next. The concept of IT is defined as computers used for collecting, storing, processing, and transmitting information. As concluded, information technology covers computers, processing of text, and communications of these processes (Boaden & Lockett, 1991). As a difference with digitalization, now in the era of social networks, mobile, big data, and cloud services, the concept of digitalization is describing the process of digital transformation, in other words, an adoption or increased use of technology in key operations by individuals, companies, or society (Brennen & Kreiss, 2014; Reis et al., 2018; Fitzgerald, 2013).

Digitization and digitalization might often be confused as synonyms, even though they describe different things in digital innovations. Digitization describes the technical process of converting physical products into digital format making them more effective, as described by Yoo et al. (2010) "*digitization makes physical products programmable, addressable, sensible, communicable, memorable, traceable and associable*". In turn, digitalization is defined as a driver of change through applying digital technology to broader social and institutional contexts influencing the organization's economic activity. Digitalization covers business model innovation using digital technology, which can be categorized as reinventing industries (Uber), replacing products and services (Amazon's Kindle), build new digital businesses, recompose value delivery models, or revise value propositions. Due to mobile computing environments that have enabled computing anywhere at any time, digitalization is in an increasing manner perceived as a socio-technical process that requires entrepreneurial activities and digital infrastructures and changes social and institutional contexts, leading to numerous business opportunities and the world's most valued and fastest-growing companies (Warner et al., 2019).

Importantly, digitalization and digital products do not just exist but impact our habits and lives in different ways (Nambisan et al., 2020). In order to lay a basis to understand this, the section will first introduce information technology (IT) artifacts. The integration of software and hardware as a whole that is often needed in digitalization is done by IT artifacts (Goldkuhl, 2013). IT artifacts are objects or a bundle, processing information of predefined-rules and they are developed and adopted to benefit individuals with their goals in specific contexts (Zhang et al., 2011). As exemplified by Goldkuhl (2013), having only hardware is an “empty shell” without any software. These artifacts are laying the basis for further process of digitalization.

An article by Orlikowski and Iacono (2001) clarifies that IT artifacts have five characteristics. First, the authors state that IT artifacts are not neutral, universal, or given, but instead they are always connected to actions or outcomes and being used, shaped, and defined by individuals according to their interests and values. Second, the authors argue that IT artifacts are always linked to material and culture. This is exemplified by discussing the impacts from the usage of an IT artifact, stating that there’s a difference in whether the technology used, and the focus is on large manufacturing companies or small startups. Third, IT artifacts are seldom perfectly integrated and flawless since they are different pieces linked together in order to get desired outcomes, not a unified thing as we characterize them by calling them with words as “The technology” or “The digital society”. Fourth, IT artifacts are not fixed things but change over time and within the individuals’ social and economic exercises that they depend on. As a last and the fifth characteristic, IT artifacts are stated to be dynamic with their nature of reconfigurations and redesign of their capabilities and usage.

By having explained artifacts and their impacts as described by Orlikowski and Iacono (2001), a study by Nambisan et al., (2020) discusses further how digital artifacts, digitalization, and digital products do not just exist but affect our habits in several different ways. The authors categorized these affecting forces as the agential core, the semiotic binding, and the ontological reversal, which are built upon the artifacts used. The categories are described as following:

First, the agential core discusses the changing role of the interaction between technology objects and individuals that has changed from technology solely being a technological object with capabilities used by an individual, to mobile and wearable tools in constant interaction with the individual making the technology more interactive. The agential core and the nature of re-programmability, user communities and the global infrastructure explains why digital innovations and their capabilities are not fully known, or only known by prediction, in other words, “ex-ante”.

Second, the semiotic binding describes digital representations that are meaningful in social settings, but meaningless without a context to a machine or social setting. According to the authors, data and behavior based on codes need to be placed in a setting for individuals, such as “likes” on Facebook, “points” in a reward system, or “trades” in trading systems. In these examples, the context where the likes, points, or trades are appearing sets the value of these specific representations that individuals mutually share and agree in the social setting. Therefore, reward points wouldn’t have the same value on Facebook and likes wouldn’t have the same value in a trading system.

Last, the ontological reversal describes how IT objects are in addition to representing the existing and expected reality, being the real version over physical objects. This can be exemplified with the help of, for example, airplane tickets, concert tickets, or contractual documents that used to only be available for the customer in a physical form and a digital version may have been saved in a company’s system only as proof of the transaction. Nowadays, these tickets and contractual documents are often only available in a digital version and if a physical version would be needed, the customer reproduces a physical copy of the digital version of the ticket, which makes the digital version the real version.

In addition to other characteristics of digitalization, these three elements are important to note in any field focusing on digital innovations, to understand the fundamental features making digital products evolve so fast, and to acknowledge the power they must change the participation,

engagement, and support in organizations, as well as strategies and foundations of competition (Nambisan, 2020).

## 2.2. Ventures and start-ups

Ventures are defined by Cambridge Dictionary (2020) as: *“a new activity, usually in business that involves risk or uncertainty”*. Vogel (2017) continues the description of ventures by discussing them as young business models, where the business is still gathering information and resources needed for their future development. Moreover, he considers ventures as being *“as the “glue” of the framework, connecting venture ideas and venture opportunities”*. Since ventures are defined by the stage of the business instead of the type of the business, the concept covers both businesses that might focus on a smaller niche and slower growth as well as businesses aiming to grow rapidly in a large market (Upcounsel, 2020).

The variety of the businesses covered by ventures can be illustrated with differences with the two commonly known and referred novel forms of businesses: Start-ups and Small business ventures. The difference between start-ups and small business ventures is that whereas start-ups usually focus on disrupting markets with a rapid phase, small business ventures have longer-term goals and aim to establish on an already existing market (Kriss, 2020). Start-ups and small business ventures differ by financing, strategy for exit, and approach to growth. Small business ventures are often receiving their financing from bank loans and funds, whereas start-ups attract angel firms or venture capitalists. Furthermore, venture capitalists usually require an exit plan for a start-up to secure get the most out of their investments. On the contrary, small business ventures tend to have the plan to run the business for a longer-term. The difference between the growth aspects of start-ups and small business ventures is that start-ups can operate a bit differently and with a faster phase due to the flexibility of their business models, contrary to the more fixed business models and strict competition more often associated with small business ventures. (Mahzeb, 2019; Price, 2015).

However, even if ventures cover various forms of new businesses, start-ups seem to be the commonly used term to describe any new business. This can be explained by that start-ups seem to be one of the buzzing things in today's world and one in five millennials plan to change their day-to-day job for starting an own business, and over half of millennials would like to do it (Curtis, 2013). Since the term of a start-up is commonly appearing within the studies of digital ventures, it will be next explained in more detail.

Start-ups have many definitions as they vary in for example size, age, and industry, but they always share the idea of having an entrepreneur's actions based on an idea or opportunity in the core (Salamzadeh and Kirby, 2017). As one definition of start-ups, the European Start-up monitor report (2019) describes three main characteristics of a startup. First, a startup is a company younger than ten years old. Second, it is a company having an innovative product, service, or business model. Third, a startup aims to scale up the number of employees, the turnover, or the markets in which they operate (Borsmans et al., 2019). Additionally, Ries (2011) highlights uncertain conditions as one of the main characters of a startup and argues that it's one of the core things differentiating start-ups from other businesses. In line with Ries (2011) Neil Blumenthal states in a Forbes interview that *"A startup is a company working to solve a problem where the solution is not obvious, and success is not guaranteed"* (Robehmed, 2013). In short, start-ups are businesses younger than ten years old, that are based on solving a problem with either having knowledge that other individuals do not have, having a distinctive product or service, delivering an already existing product or service for a customer segment that does not have the access to it yet, or delivering an existing product or service in a faster or a cheaper way (Ready, 2011; Borsmans et al., 2019).

### 2.3. Digital ventures

New technologies have the capability to rapidly change and reshape the markets and offer new business opportunities by challenging our traditionally known business models with the advantages brought by digital technology (Cohen et al., 2017). Mahzeb (2019) discusses how tech

startups have started to rise over traditional ventures due to the possibility of overcoming time, geographical or cultural barriers, and covering larger markets.

Digital ventures are described as start-ups uniquely having digital artifacts in their core impacting the creation of the venture. These start-ups are taking advantage of digital technologies such as artificial intelligence, cloud, joint financing platforms, 3D printing, social media platforms, big data and analytics, and mobile (Von Briel et al., 2018). Consequently, digital ventures can be described as the forming of and the change occurred in market offerings, business models, and business processes caused by using digital technology (Nambisan et al., 2020). Moreover, digital ventures are based on software and data, benefiting from digital foundations and technologies such as the internet, mobile connection, the cloud, and the practices embedded in our society where individuals are constantly connected to different devices to access the various digital services (König et al., 2019).

Digital ventures and technology ventures describe gradually different things, even if easily confused as one since both of them are using technological advantages to capture and create value for the business (Bailetti, 2012; König et al., 2019). These two definitions differ from each other by the way of how technology is used in the core of the venture. As discussed earlier, digital ventures cover products and services found on digital artifacts and are integrated into information and communication technologies, like the internet, or empowered by them (Von Briel et al., 2018). Furthermore, digital ventures have a specific characteristic of high and fast scalability and they are known to often iterate their business models, which differs from technology ventures being more fixed and not as rapidly scalable (König et al., 2019). Appropriately, it can be argued that in digital ventures the technology is an input factor and, in less focus, than the offered product or service itself.

On the other hand, technology ventures emphasis often engineering or science-based advances, for example in biotechnology, and has the specific technology as their main or only focus demanding

investments of technological assets (Giones & Brem, 2017; Bailetti, 2012). Consistent with others, Beckman et al., (2012) add that technology ventures focus often on technological developments of for example a novel product, activity system, or distribution channel instead of the service or platform brought to customers.

Lastly, it is worth noting that even if all digital ventures share the common idea of bringing digital artifacts into ideas, the ideas are not homogeneous but vary according to the level of technology used and the purposes it is being used for, including foundations from software to hardware and different mixes of them (Von Briel et al, 2018). Parker et al., (2016) exemplify this by discussing how digital artifacts such as mobile apps, and platforms as stores of digital artifacts such as the App Store belong to the same cluster of digital ventures but differ from each other by the pace of production and distribution. The previously mentioned illustrates how digital ventures are widely present in different aspects of our everyday lives.

### 3. Methodology

This chapter begins by representing the method of the systematic literature review used in this study. This is followed by explaining how the method was applied in this research. Last, the section describes in detail how the sample of the academic literature used in this study was gathered.

#### 3.1. Systematic Literature review

As a research method, the systematic literature review (SLR) is chosen with the aim to gather and analyze all existing empirical studies relevant to the research topic. A systematic literature review is a literature review based on a protocol describing in detail the different stages used for selecting the literature, certifying studies, and outlining the results (Boell & Cecez-Kecmanovic, 2015).



The systematic literature review was developed within the medical researchers in the early 1990s with the idea to synthesize and combine numerous previous research results to gain conclusive findings instead of common inconclusive findings of medical treatments in that time period (Boell and Cecez-Kecmanovic, 2015). Later, the use of SLR was adopted by other industries and polished up to be adaptable to the needs of for example social sciences or information technologies for emphasizing the rigor of the search process, which differs from the need of the medical sector to focus on the comprehensiveness of the scope. In the view outside of the medical focus, rigor describes the process of identification of the literature and the search actions that defines the quality of the review, whereas in the medical field the definition of rigor is used for stating the overall completeness of the coverage like the inclusiveness of “grey literature” and randomized controlled trials (Boell & Cecez-Kecmanovic, 2015).

By using the Systematic literature review (SLR) the research adopts a replicable, scientific, and transparent process of gathering an in-depth analysis of the literature (Costa et al., 2016). Through this, the study seeks to present the current stage of a research topic and suggestions for future research. Noteworthy, the formalities of conducting SLRs reduces the risk of adopting the researcher’s own creativity, interpretations, or judgments of the topic that might impact the study (Frank a& Hatak, 2014; Staples & Niazi, 2007).

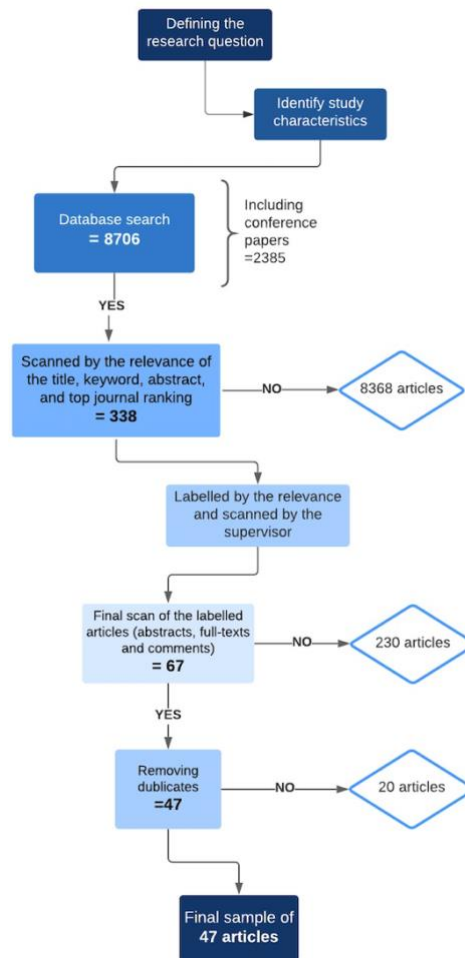
Systematic literature reviews differ from traditional literature reviews by their reproducible way of proceeding and reducing bias. Whereas traditional literature review tends to base on partial analysis sometimes leading to inaccurate findings, systematic literature review describes what has been done through examining all sources relevant to the topic.

Boell and Cecez-Kecmanovic (2015) discuss a five-step approach in the proceeding of the SLR method in Information Systems literature. By following these steps, a systematic literature review is conducted with clearly defined study characteristics, with a rigorous and systematic search of the literature, and with a critical analysis of the results. The approach is represented as the following:

1. Define the study characteristics that specify the research question, sources, search terms, search strategy, and the inclusion and exclusion criteria.
2. Search for literature
3. Choose the sample of literature
4. Summarize evidence
5. Share the results

### 3.2. Study plan

The flow chart below presents the process of the Systematic Literature Review in this study, which will be represented in detail in this chapter.



The process started with defining the research question and identifying the study characteristics. Next, a database search with the chosen search terms was done resulting in 8706 articles. Followed, the articles were scanned by the relevance of the title, keywords, abstract, and belonging to a top

journal, which resulted in 338 articles. The sample of the 338 articles that were perceived as the most relevant ones from the large sample was marked by the relevance of each article and scanned by the supervisor. After this, the last step of scanning covered the articles marked uncertain by one or both of the scanners, leading to looking at the full texts of the articles, and finally to a sample of 67 articles. By removing duplicates that had been coming along due to misspelled words or other marks, the sample turned into 47 articles. All of these steps are described in more detail in the next sections.

### 3.3. Research goal and research question

As mentioned earlier, a systematic literature review begins with defining a research question that sets the basis for defining the research scope and the search process. The research question lays the basis for the study protocol defining what kind of articles could answer the research questions in focus. The study protocol operates also as a basis for the choice of the search terms, databases, and articles included as relevant for the research (Boell & Cecez-Kecmanovic, 2015). As mentioned earlier, this research is focusing on the phenomenon of digital ventures. Due to the newness of digital ventures, they have not yet been broadly defined and discussed in the academic literature. This research aims to collect, analyze, and conclude what the academic literature knows about digital ventures, their differences to traditional organizations, and to present future insights of digital ventures. With this, the research questions are:

*What is the current state of knowledge on digital ventures as found in the academic literature?*

*&*

*What are the differences between digital ventures and traditional organizations as found in the academic literature?*

### 3.4. Inclusion and exclusion criteria's

Regarding the systematic literature review, Webster and Watson (2002) state that the research scope in focus should be identified and resonated for the reader in a systematic literature review. This includes an explanation of the boundaries and fields focused on. These are explained in this paper as the inclusion and exclusion criteria associated with the search process of academic articles. These are represented and explained in the table below and explained further in the text.

*Table 1: Inclusion and exclusion criteria.*

<b>Inclusion criteria</b>	<b>Exclusion criteria</b>	<b>Reason</b>
<i>Content</i>  Only articles that focus on the phenomenon of digital ventures, digital entrepreneurship, or digital start-ups, in their title, keywords, or abstracts, either with a direct phrase or by referencing it.	All articles not focusing on digital ventures, digital entrepreneurship, or digital start-ups. For example, articles that focus on hard-technology startups or manufacturing.	To gain all relevant information on the topic. References to the topic, such as expressions of Internet ventures were also taken into account.
<i>Language</i>  The article must be written in English.	All other languages.	A common research language. Language qualifications of the researcher.
<i>Time</i>  This research covers only articles published between 2004 - May 2020.	Articles before 2004 and articles published after the research process was taken in place in May.	Digital ventures weren't necessarily the same almost 20 years ago, so as the scope we chose looking deeper into the years after the recovery of the dot.com burst.
<i>Accessibility</i>  Articles that are accessible.	Articles that couldn't successfully be accessed either from CBS library, the database sites, Google Scholar, or by googling.	To be able to access the data.

<i>Form</i>  Only academic articles and conference papers were studied.	Book chapters, notes, magazines, and books were excluded.	To be able to limit the sample to only qualified forms of researches.
<i>Quality</i>  The journal of the published article must be* ranked in either <ul style="list-style-type: none"> <li>• IS basket of Eight</li> <li>• FT 50</li> <li>• AJG journal list</li> </ul> (*With some exceptions of spot searches relevant to the topic).	Articles that are not ranked as top journals.	To ensure the quality of the sample.

As seen in the table, various inclusion and exclusion criteria were identified and taken into consideration in the scope of the sample. First, only articles with the language of English were included in the sample. This approach was adopted in addition to the authors' language qualifications because English is perceived to be the universal research language (Drubin, 2012). Second, the scope of the time period in focus was limited to from 2004 till the start of this research, which took place in May 2020. The scope of years was limited to avoid collecting outdated information since the digital world has been changing rapidly for the years. Consequently, articles from 20 years back would not necessarily represent the topic as perceived today. Moreover, the era of the early Internet start-ups was being convulsed in 2001 by the burst of the dot.com bubble that led many Internet companies to disappear. The year 2004 was chosen based on the event of the dot.com burst in 2001. After the burst, the recovery of the industry, as well as the birth of the current state of digital ventures, took a few years (Williams, 2018). Thereby it can be argued to have been represented from approximately the year 2004.

As for content and quality criteria, only articles focusing on the phenomenon of digital ventures, digital entrepreneurship, and/or digital start-ups in their title, keywords, or abstracts, either with a

direct phrase or by referencing it are included in the sample. This means excluding articles that are found with the same keywords but focus for example on high-tech start-ups or manufacturing, which does not represent the phenomenon of digital ventures as discussed in this research.

Only peer-reviewed academic articles and conference papers were included to ensure including only quality content. The choice of including conference papers of the three biggest conferences, AMCIS, PACIS, and ISCIS, was based on the newness of this topic in academic research, to ensure capturing even everything studied and under the publishing of the topic. Moreover, articles were filtered by the top journals, which in this research was scoped to the IS basket of Eight, Financial Times 50, and AJG journals represented in more detail in a table below. In the AJG journals, only articles rated 4 or 4\* were in our focus. However, searches of cited works and spot searches relevant to the topic might compromise the inclusion criteria of being published in a top-ranked journal but outweighed this criterion with the relevance to the research topic. Lastly, only articles accessible from the CBS library databases, Google Scholar, or Google search were included.

#### 3.4.1. The Search Process

The search process including the choice of databases, the search terms, and the selection of the literature is represented in this part.

#### 3.4.2. Choice of databases

The databases used were selected based on the relevance to the topic of the digital venture. Thereby they were chosen in the field of innovation, IT, entrepreneurship, and management. Six databases were selected, and the keywords were run separately for each database. These databases are, Business Source Complete, Emerald Insight, SpringerLink, ScienceDirect, ACM Digital Library, and AIS ELibrary.

Business Source Complete, Emerald Insight, SpringerLink, and ScienceDirect covers studies in various disciplines among the field of business and management all around the world. As digital ventures are not limited to a certain field, these databases were chosen as a good fit for this study. Moreover, AIS ELibrary and ACM Digital library were chosen since they are acknowledged as the most comprehensive databases in the field of information systems as well as computing and information technology (Aalto University Library, 2020; Association for Information Systems (AIS) eLibrary, 2020). All these databases could be accessed through the CBS library. Additionally, spot searches through Google Scholar and cited works were conducted in order to ensure that all relevant articles were collected, even if outside of the choice of databases.

### 3.4.3. Search terms

The search process was conducted with the search terms ‘Digital venture’, ‘Technology venture’, ‘Digital start-up’, ‘Digital entrepreneurship’, ‘Start-up’, and ‘Digital technology innovation’ as well as their synonyms and abbreviations. The search with these keywords led us to the first sample of a great number of results. Since the words ‘Start-up’ and ‘Digital’ are such commonly-used concepts, the search process of relevant literature required a few more searches and filtering rounds to find relevant articles for the research in question. Some of the search terms, such as “start-ups”, used to ensure that the whole spectrum of the accurate literature is being captured, are such generic words that they give a massive number of results. Thereby, the scope of the samples needed to be limited to the first 500 hits arranged due to the relevance, if the number of results exceeded that. Moreover, the keywords were searched in the title, abstract, and keywords of the articles in all databases allowing the filtering by them. In the lack of some filtering options, the same search was done manually after extracting the results found without a certain filter to an excel sheet.



I am using the term “search term” to represent all the search terms used in this study. This covers the concepts of digital ventures, technology ventures, digital start-ups, start-ups, digital entrepreneurship, and digital technology innovation. The search strings were the following:

- Business source complete:  
*TI “Search term” OR KW “Search term” OR AB “Search term”*
- ScienceDirect  
*Title, abstract, keywords: “Search term”*
- SpringerLink  
*“Search term” in all*
- Emerald Insight  
*title: “Search term” OR (abstract: “Search term”)*  
and due to the lack of keyword filtering option another search was done with *“Search term” in all*
- ACM Digital library  
*[Abstract: “Search term”] AND [Keywords: “Search term”] AND [Publication Title: “Search term”]*
- AIES eLibrary  
*abstract:( “Search term”) OR title:( “Search term”) OR subject:( “Search term”)*

### 3.4.5. Selection of literature

In order to reduce bias, the criteria of top journal rankings were not implemented in the first search criteria’s since the relevance of the articles wanted to be scanned without additional prejudices. Moreover, the results found in the first database search were copied to an excel format, wherefrom the top journals criteria, and the relevance of the articles was looked at manually. This was done in the lack of a convenient filtering option for all of the top journal criteria. The manual scanning of the results from the database searches allowed to consider the relevance of each article and to ensure that highly relevant articles that do not belong to a top journal were not accidentally left out. Additionally, the scanning process did not only cover filtering the results by top journals, but

this scanning process focused also on the title, the summary, and keywords of the first sample of articles. Next, the articles were marked whether they seem relevant to the research or if there were some uncertainties. With some articles, a scan through full text was needed to be able to decide upon the relevance. This is followed by the supervisor doublechecking the relevance of the sample. The purpose of doublechecking the 338 articles was to look at the relevance and the focus of the articles in regards to the key role of digital technology and the key role of ventures or start-ups. This left 62 articles of the sample with some question marks, which needed to be reassessed with a more careful scanning of the full text of the articles to decide whether they're in scope. After an additional reading of the introduction and conclusion of the undecided articles, the scope became as 67 and with the removal of duplicates 47.

The results from the searches from all the databases with the chosen keywords were collected to a reading log in the form of an excel sheet (Appendix 1). Each article is placed on its own row in the reading log. In addition to the reference information of an article, the reading log included columns for the theory or model used in the article, the methodology, findings, and additional notes that may be interested to highlight. This was being done to be able to identify similarities in the articles and to ensure that no information is being left out accidentally due to human errors.

## 4. Analysis and findings

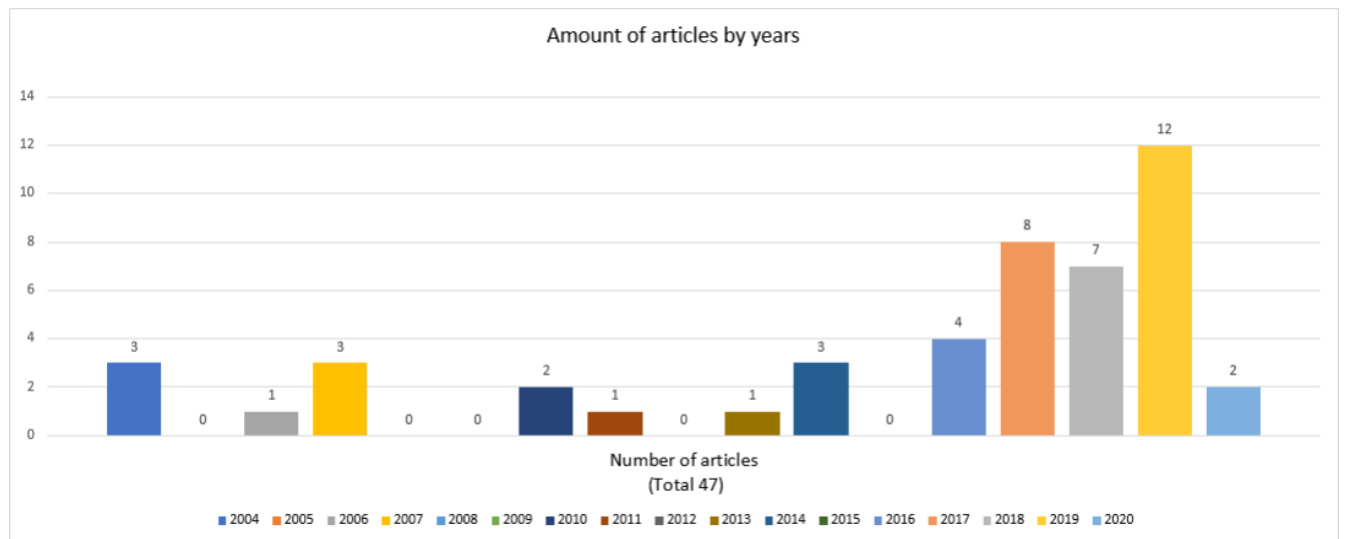
This chapter will represent and analyze the results of this systematic literature review. First, a description of the material gathered, followed by representing the content-based results and an analysis of them.

#### 4.1. Results from the systematic literature review

The final sample of the 47 articles comes from 18 different journals and 4 conference papers as being represented in table 4 below. From the journals, Information Systems Journal and Research Policy each have 5 publications and thereby represent the most published journals among this sample. When including conference papers, the most published papers of the sample belongs to the International Conference on Information Systems (ICIS) papers with 9 publications. The fact that the ICIS papers have been published by far the most demonstrates the originality and newness of this topic.

The articles categorized by the publication year are being represented in Graph 1 below. From the graph, we can see that a majority of the articles have been published during the most recent years. Years 2017 to 2019 alone cover 27 articles, which is approximately 57% of the total sample. The year 2020 has a low number of articles because the sample was gathered during the first half of the year. Before 2017, the number of articles published on the topic varies from zero to a maximum of three.

*Graph 1: The number of articles by years*



The sample of the 47 articles includes 26 articles in the top-ranked journals. The top journals were counted as belonging to either IS basket of Eight or Financial Times 50 (FT50) or having 4 or 4\* in the AJG journal list. It is worth noting that the sample of 47 articles covers 12 conference papers that do not take part in the top journals' rankings. When excluding the conference papers, it can be concluded that approximately 75% of the sample articles have been published in top-ranked journals.

*Table 4: Ranking of top journals among articles*

<b>Journals</b>	<b>Number of publications</b>	<b>IS Basket of Eight</b>	<b>FT 50</b>	<b>AJG journal list</b>
Information Systems Journal	5	X		4*
Research Policy	5		X	4*
Journal of Business Venturing	3		X	4
Journal of Business Ethics	1		X	3
Journal of Product Innovation Management	1			4
MIS Quarterly	1	X	X	4*
International Conference on Information Systems (ICIS)	9			
Journal of Small Business and Enterprise Development	1			2
Journal of Information Technology	1	X		3
Journal of Strategic Information Systems	3	X		3
Journal of Technology Transfer volume	1			
Journal of Management	1		X	4

Information Systems				
Technological Forecasting and Social Change	3			3
Journal of Business Research	2			
International Journal of Research in Marketing	1			4
Organization Science	1		X	4*
International Journal of Entrepreneurial Behavior & Research	1			
Management Science	1		X	4*
Hawaii International Conference on System Sciences	1			
AMCIS	1			
PACIS	1			
Information systems research	2	X	X	4*
<b>Total</b>	<b>47</b>	<b>5</b>	<b>8</b>	<b>3,9</b>

#### 4.2. Content-based results and analysis of the systematic literature review

As previously discussed, this research aims to understand what the current state of knowledge on digital ventures is as represented in the academic literature. Parallel to this, the study tries to answer questions such as how digital ventures differ from traditional organizations, and gather the issues not yet represented wide enough in the existing literature.

In order to capture some general patterns of digital ventures in the literature, the results found were clustered according to the most common keywords and themes found in the articles. The resulting themes were patents, technology design, scaling, financing, relationships and networks, the

liability of newness, and human capital and education. Furthermore, to capture some of the differences between digital ventures and traditional organizations, the study does not only look at the specific features and patterns of digital ventures but also what is stated as the general or traditional way of non-digital businesses as discussed in the academic literature.

To catch the generally used keywords and topics in the sample, an NVivo analysis of the most common words in all of the sample articles was used (Appendix 2). The most common keywords were filtered by whether they are associated with some pattern, feature, or action, which means excluding general words used in accordance to explain other things, like “analysis”, or “number”. Next, these results were doublechecked by searching identical and similar words manually in the reading log created when reading through all the articles in the step of scanning of literature. The use of the different keywords was scanned through in each article and the context of the usage was mapped out from the full texts. Noteworthy, some themes, such as the Lean start-up approach were first notified in this stage when focusing on the context of the keyword of the technology design. Keywords associated with a similar topic were clustered together such as “Funding”, “Fund” and “Financing” or “Relationship” and “Network”. Also, the commonly used words of “users” and “customers” were not identified as their own theme since they seemed to be appearing more as a part of every other theme than explaining something on their own. The categorizations and the most relevant articles connected to them are seen in Table 5 below.

*Table 5: Themes found in the systematic literature review*

Theme	Respective authors
Patents	Wagner and Cockburn (2010) Useche (2014) Mann and Sager (2007) Helmets and Rogers (2009) Giarratana (2004)
Technology design	Bohn and Kundisch (2019) Ojala (2016) Ghezzi (2019) Kuester, Konya-Baumbach, and Schuhmacher (2018) Huang, Henfridsson, Liu, and Newell (2017)

	Kelestyn and Henfridsson & Nandhakumar (2017) Spiegel, Abbassi, Zylka, Schlagwein, Fischbach, Schoder (2016)
Scaling	Tumbas, Berente and vom Brocke (2018) Huang, Henfridsson, Liu, and Newell (2017) Boeker, Howard, Basu, and Sahaym (2019) Kelestyn and Henfridsson & Nandhakumar (2017) Lehmann and Recker (2019) Chang (2004) König, Ungerer, Baltes and Terzidis (2018) Grover and Saeed (2004) Ojala (2016) Spiegel, Abbassi, Zylka, Schlagwein, Fischbach, Schoder (2016) Ghezzi (2019)
Funding, Fund, Financing	Chang (2004) Droege, Strese, and Brettel (2019) Cavallo, Ghezzi, Dell'Era, and Pellizzoni (2019) Spiegel, Abbassi, Zylka, Schlagwein, Fischbach, Schoder (2016) Useche (2014)
Relationship, Network	Chellappa and Saraf (2010) König, Ungerer, Baltes and Terzidis (2018) Kelestyn and Henfridsson (2014) Spiegel, Abbassi, Zylka, Schlagwein, Fischbach, Schoder (2016) Du, Pan, Zhou and Ouyang (2018) Boeker, Howard, Basu and Sahaym (2019) Oppong-Tawiah and Bassellier (2017)
Liability of newness, early, timing	Bohn and Kundisch (2019) Ojala (2016) Oppong-Tawiah and Bassellier (2017) Kelestyn and Henfridsson (2014) Cavallo, Ghezzi, Dell'Era, and Pellizzoni (2019) Shi, Xu, and Green (2014) Chang (2004) Yu (2020)
Human capital, Education, Employee	Heirman and Clarysse (2007) Bandera and Passerini (2018) Ratzinger, Amess, Greenman, Mosey (2018) Recker and Von Briel (2019) Ngoasong, (2018) Batjargal (2007)

Some of the themes discussed are rather general than solely unique for digital ventures, such as relationships and network, financing, the liability of newness, and users and customers. However, the meaning, use, or impact of these in the context of digital ventures differs from the ones with traditional organizations.

The themes found are captured to appear in different stages or “steps” in the ideal venture creation journey. For example, some are related to the venture idea, some to the growth, and some to the steps of maturation. Additionally, there are a few connections between the different themes, which is why they are not explained entirely independently in this study. This is to avoid misunderstanding the overall picture and giving too much weight to some individual themes. Thereby, to make the themes more understandable, the patterns and elements found in the study are divided into different stages of the journey of a digital venture, *the grounds*, *the tactics*, *the activities*, and *the outcomes*. Even so, it should be noted that these stages are only representing the steps of an ideal process, not the only possible process for ventures.

The themes found in Table 5 are now sub-themes, for which the different venture journey stages constitute umbrella themes. Some of these sub-themes found in Table 5 are analyzed under the same bigger umbrella theme, like for example networks are discussed as part of *the grounds*, which is also focusing on both the phenomenon of the liability of newness and the founder’s educational background and risk tolerance. This chapter represents the overview of digital ventures gathered in previous academic research and answers the research questions:

*What is the current state of knowledge on digital ventures as found in the academic literature?*

&

*What are the differences between digital ventures and traditional organizations as found in the academic literature?*



This analysis leads the reader through the journey of a digital venture starting from the grounds for further decisions, actions, and the creation of the tactics of a digital venture and ending with the reactions caused by the successful journey. The chapter begins by outlining the grounds, followed by explaining the tactics formulated. Next, the actions taken by the digital ventures are being represented, and lastly, the reactions caused by the actions are being discussed. All the sections start by first representing the main findings, then explaining the general view necessary to know of the topic, followed by a more detailed analysis of how the theme is adapted and seen in the context of digital ventures.

#### 4.2.1. The Grounds

First, I discuss the underlying motives and driving forces for the actions of new businesses and digital ventures as represented in the literature review. This helps us to understand how digital ventures make decisions and choose their course of action. In short, this section explains *why digital ventures do what they do*. Furthermore, this section explains how the grounds and the motivations may differ from those of traditional organizations.

This chapter discusses how authors acknowledge that most of the new businesses face the issues of the liability of newness, which is discussed as being constructed of resource constraints and uncertainty. The liability of newness, or more specifically the actions of getting rid of it, can be stated as a driving force of new venture actions leading to higher growth possibilities (Shi, Xu, and Green, 2014). However, as a distinctive characteristic digital venture do not usually require as many material investments as traditional organizations, whereas the social capital in the form of networks, including both private ones and formal ones such as alliances, become more significant for the founder team of a digital venture (Butler et al., 2020, Chang, 2004, and Spiegel et al., 2016). Lastly, the final part of this chapter represents the level of educational background and the level

of risk tolerance to impact new venture creation for both traditional organizations and digital ventures.

The main articles addressing this topic are:

Shi, Xu, and Green (2014)	SOFTWARE STARTUP GROWTH: THE ROLE OF DYNAMIC CAPABILITIES, IT INNOVATION AND CUSTOMER INVOLVEMENT
Chang (2004)	Venture capital financing, strategic alliances, and the initial public offerings of Internet startups
Oppong-Tawiah and Bassellier (2017)	Digital Innovation, Platform Orientation and the Performance of IT Startups
Yu (2020)	How Do Accelerators Impact the Performance of High-Technology Ventures?
Wang and Nandhakumar, (2017)	Strategic Swaying: How Startups Grow Digital Platforms
Kuester et al., (2018)	Get the show on the road: Go-to-market strategies for e-innovations of start-ups
Kelestyn and Henfridsson (2014)	Everyday Digital Entrepreneurship: The Inception, Shifts, and Scaling of Future Shaping Practices
Droege et al., (2019)	Investors' Digital Myopia - The Information Value of Being Digital
Spiegel et al., (2016)	Business model development, founders' social capital and the success of early stage internet start-ups: a mixed-method study
Konya-Baumbach et al., (2019)	Making a first impression as a start-up: Strategies to overcome low initial trust perceptions in digital innovation adoption
Ratzinger et al., (2018)	The impact of digital start-up founders' higher education on reaching equity investment milestones
Bandera and Passerini (2018)	Personality Traits and the Digital Entrepreneur: A New Breed or Same Actor?

#### 4.2.1.1. The liability of newness

Various studies recognize uncertainty and resource constraints as the main elements of the liability of newness. Oppong-Tawiah and Bassellier (2017) outline how new businesses and ventures struggle with the paradox of balancing between being new in the market with trying to adapt to the environment, and on the other hand with being more interesting and different than the competitors. These patterns together lead to a non-linear start-up process and higher levels of risks for partners and resource holders. Moreover, Shi, Xu, and Green (2014) couple the core concepts

of resource constraints and uncertainty by stating that the uncertainty faced by new ventures is often based on the lack of internal and external resources that cause missing functionalities and capabilities in the unpredictable market environment. Overcoming these two elements is one of the driving forces of new venture decision-making in their early steps (Shi, Xu, & Green, 2014).

Resource constraints are represented as one of the two core elements of the liability of newness. The concept is characterized to include things such as the lack of technical and marketing capabilities, knowledge of the market needs, financing, as well as poor management. All of these bundled together leads to a higher likelihood of a failure (Oppong-Tawiah & Bassellier, 2017). New businesses are rarely known to have any market position, financial resources, or technological advantages, positioning them at “*The bottom of a market*” (Wang and Nandhakumar, 2017). Based on the lack of various resources needed, ventures tend to make their early-stage strategic decisions based on limited data and information that will on its side affect future outcomes and decision-making (Yu, 2020). Accordingly, the founder team is often the only resource of a start-up in the beginning. Thereby, acquiring employees, supplies, customers, and business partners are critical for the start-up to define the assets, resources, and competencies to build the value model (Ojala, 2016).

Uncertainty is the second core element of liability of newness. Uncertainty of the product and the market in question is impacting negatively the actions to attract resources because it makes the stakeholders such as the investors, potential staff members, suppliers, and customers second guess their willingness to align with the new venture (Chang, 2004). Uncertainty in the context of liability of newness is described by Oppong-Tawiah and Bassellier (2017) as a “*vicious cycle relationship*” with the market and the technology uncertainty both affecting and depending on each other, meaning that uncertainty in one of them is lowering the positive reputation and trust of the other. Thus, new ventures are interested in operating and taking actions to constantly gain more information that may help them to reduce the uncertainty, instead of aiming all actions on boosting the revenue growth. The increasing amount of comprehensive information reducing uncertainty in

any of the major business departments will have an economic impact on venture performance (Yu, 2020).

As earlier mentioned, the actions of reducing the liability of newness are one of the driving forces of the new venture. According to Kuester et al., (2018), new ventures can do this by reducing uncertainty and asymmetries, which is done by building favorable trust perceptions and convincing resource networks (Kuester et al., 2018). Moreover, networking and signaling are widely used by new businesses as a way of gaining acceptance, status benefits, and legitimacy from different key individuals and groups (Chang, 2004). Conforming the previous, Spiegel et al., (2016) and Ojala (2016) discuss that a wide network and relationships operate as providers of resources, information, and legitimacy for early ventures. Several authors describe that the positive impact of relationships includes things such as gaining feedback from your business model, getting to know better your partners and customers, attaining financing through networks, and obtaining access to resources needed. All of these actions are argued to help the venture to successfully develop the business model (Kelestyn and Henfridsson 2014; Chang, 2004; Cavallo et al., 2019). Furthermore, overcoming trustworthiness among one stakeholder or resource makes it easier to get the rest of the resources and partners needed convinced and consequently grow out the liability of newness (Spiegel et al., 2016; Boeker et al., 2019; Chang 2004).

In case there are no networks to be easily attained, Droege (2019) argues that the liability of newness can also be reduced by signaling quality and trustworthiness on the company website or other platforms. These websites and platforms can be used to for example sharing voluntarily information on the positive shareholder value of the start-up, such as intangible assets base or earnings-per-share ratio. Additionally, Kuester et al., (2018) argue that social media platforms can be used as signaling for gaining the trust of potential users through recommendations and to provide high-quality support.

#### 4.2.1.2. Liability of newness and digital ventures

Even though the liability of newness described above is faced by all ventures, some marginal differences could be identified between digital ventures and traditional organizations. The main difference is the high impact of networks and social capital on the success of a digital venture. Considering that the internet sector is known for a high grade of technological and market uncertainty and requires fewer material resources than many other sectors, the role of networks, relationships and alliances play particular importance as resources for digital ventures (Butler et al., 2020 & Chang 2004). The networks attained helps digital ventures in addition to gaining legitimacy, also to attract resources for material, partners, and financing. Conforming, Spiegel et al., (2016) indicate that there is a strong positive connection between the founder's social capital and the success of a young digital start-up.

Digital ventures tend to take advantage of the reputational and resource benefits of relationships and strategic alliances on a high scale. Strategic alliances are defined as long-term agreements with two or more firms to carry out certain transactions for mutual gain (Zoogah et al., 2015). According to Chang (2004), forming strategic alliances and aligning with for example search engines, security devices, or other well-known online or offline firms in the industry such as Amazon, eBay, or Starbucks is often done by novel digital ventures to signal trustworthiness for potential customers. The trustworthiness is being signaled by including partner logos that customers know from previously to own marketing and communications or through combining a trustable security or delivery system to the initial business idea and its operations. Moreover, the increased media visibility gained from co-operating with different business partners can help the venture to expand globally (Chang, 2004).

Strategic alliances are also used in order to gain knowledge flows, social resources, commercial resources, and technical resources accessible quicker than what could be possible individually. By having these additional resources available, the venture can improve its performance and reduce

the liability of newness (Chang, 2004; Useche, 2014). Additionally to the improvements of performance, the literature shows that alliances affect the success of digital start-ups positively through increasing network externalities that help to scale more quickly and by impacting the time to IPO and the amount of money collected in that (Chang, 2004). Noteworthy, even if strategic alliances are discussed to be important for new digital ventures, Spiegel et al., (2016) state that social networks from previous career history are the most critical network resource for new ventures since they often provide resources and advice for social transactions instead of financial expenses.

Newly founded digital ventures use networks and relationships also as resource assets for gaining network externalities that are highly present in the internet sector. The role of network externalities and the importance of them for digital ventures can be exemplified with the internet shopping portal eBay. eBay is an electronic marketplace serving both a platform for customers to buy numerous products and sellers to trade a variety of goods (eBay, 2020). Due to the nature of the marketplace, the value gets higher the more people participate and the more alternatives there are. This is based on that the more people participate, the higher the quality of the products on the auction site gets, and the more customers want to join, leading possibly to more partners wanting to join (Chang, 2004).

Also, the other elements of the liability of newness, uncertainty, is highly present with the creation of digital ventures. Developing and making the right technology design choices are unique and crucial for digital ventures as it lays the foundation for the digital business in question (Bohn and Kundisch, 2019). Therefore, the uncertainty of the creation process of a well-functioning technology design plays a unique role in digital ventures. The authors discuss how choosing the right technology design is challenging for first-time entrepreneurs as a result of their little experience of decision-making, their few resources gotten, and the lack of time in the fast-phased industry (Bohn & Kundisch, 2019). Additionally, uncertainty can be characterized by high levels of risks and complexity, which can be identified in digital ventures in their nature of acting to often

trigger a company's organization logics and the use of the existing IT infrastructure with the new digital new goods. These actions of change are commonly being done while simultaneously making sure that digital venture is competitive in the market and not only satisfy technology standards at the market in the entry, making the venture and its operating environment unpredictable (Oppong-Tawiah & Bassellier, 2017).

The uncertainty around the right product-market fit can be reduced in different ways. According to Konya-Baumbach et al., (2019) uncertainty can be reduced with customer reviews, comprehensive communication, and managing the data privacy of the customers. The results of the study of the customer reviews covered both the effect of the number of customer reviews as well as the tone of the reviews. Interestingly, the results revealed that positive customer ratings work as a signal of trustworthiness, whereas the number of reviews shown to the customer didn't seem to weigh as much. Consequently, in order to get the maximum effect of signaling trustworthiness with the use of customer reviews, companies should highlight some specific positive quotas from the customer reviews instead of focusing on the number of ratings to signal trustworthiness in the most effective way. Regarding communication, the authors discuss that additionally to direct communication, companies should focus on communicating things that increase trust among customers and indirectly affect their loyalty for the product or service. Furthermore, the study shows positive inputs of start-ups that do not sell the data collected but finance their model in other ways.

#### 4.2.1.3. Risk tolerance and educational background for all new ventures

In addition to the liability of newness, the literature showed other underlying factors that may impact the motives and actions of new ventures. The literature discussed some personal traits and experience of the founder team, such as the level of risk tolerance and anxiety, and educational background as factors impacting the growth of a venture.

University students are noted to have the urge to create economic or social value from technological or scientific perceptions and therefore to be linked to an entrepreneurial mindset. The benefits of educational background are being explained by the know-how gained that can be used to influence the venture operations and to capture new viable possibilities for the business (Ratzinger et al., 2018). Moreover, previous research describes the impact of education on ventures by stating that higher education is helping the venture to gain financing and to grow the company towards successful IPOs and exits (Ratzinger et al., 2018; Toniolo et al., 2020; Batjargal, 2007). Furthermore, Ratzinger et al., (2018) add that the type of education matters, stating that founder teams with either doctoral-level education or undergraduate education with a major in arts and humanities are more probable to gain investment and exit.

When it comes to digital ventures, Ratzinger et al., (2018) explain that technical education is beneficial for securing financing. However, the benefits of education are declining with higher levels of education. The beneficial know-how gained from education can be explained for example as understanding the service opportunities through the knowledge of the service industry, technological capabilities or technology integrations, and understanding the local sector operating (Ngoasong, 2018). Additionally, Batjargal (2007) discusses that 10/17 from the previous studies have shown positive impacts of education on entrepreneurship. Nevertheless, he states that the studies have not noted the possible indirect connections between a founder's human capital and firm performance.

As interestingly, the founders of digital ventures are studied to be confident, tolerant for risk, and able to turn anxiety into positive outcomes, which is impacting their success of growth (Bandera & Passerini, 2018). The authors found statistically significant results that traditional entrepreneurs focus threefold more on future perspectives than what digital entrepreneurs do, which is corresponding negatively with the success of the firm. While digital ventures are focusing less on the future, they do it with better consciousness of the risks. In their dynamic environment, the risks digital ventures face is affecting their future actions and decisions. Understanding the risks



associated with all the perspectives can explain why the focus on the future is not as important as the present for them. Furthermore, the study discusses the amount of anxiety faced by the founder and relieves that anxiety is perceived correlating negatively with the firm performance of traditional organizations, but positively and strongly with digital ventures. This is explained by considering that anxiety influences positively digital ventures' abilities to find solutions to succeed and that digital ventures are used to taking risks through which they have learned to turn the anxiety into productivity. One of the digital entrepreneurs in the article by Bandera & Passerini (2018) described this as *"You have to have an incredible tolerance for risk. You have to almost ignore the risk. You're not thinking about car payments. You can't be naive, but you can't be trapped by the fear of failure. Some other things are absolutely not under your control."* Moreover, the research states that there is not yet comprehensive research on the differences between digital entrepreneurs and traditional ones and on policies and ecosystems reflecting on these differences (Bandera & Passerini, 2018).

#### 4.2.2. The Tactics

Followed by outlining the possible drivers for new venture actions, the following part discusses the tactics utilized by digital ventures. These tactics are used to create growth, attract financing, and ultimately, generate profits. This section will help the reader to understand *what are digital ventures trying to do, and how does it differ from traditional organizations?*

The findings show that digital and non-digital ventures have different priorities in their strategies to create value (König et al., 2019). The literature review outlines that traditional organizations tend to first gain financing for the business idea, secondly aim to attract customers, and lastly start scaling the business after the basic foundations are already in place. Contradictory, digital ventures start their value creation process by first scaling a large user base, then gaining customers, and

lastly attracting financing. In other words, gaining users is a pre-condition for digital ventures to gain customers.

The main articles addressing this topic are:

Ojala (2016)	Business models and opportunity creation: How IT entrepreneurs create and develop business models under uncertainty
König et al., (2019)	Different patterns in the evolution of digital and non-digital ventures' business models
Spiegel et al., (2016)	Business model development, founders' social capital and the success of early stage internet start-ups: a mixed-method study
Ghezzi (2019)	Digital startups and the adoption and implementation of Lean Startup Approaches: Effectuation, Bricolage and Opportunity Creation in practice
Tumbas et al., (2017)	Digital Capabilities for Buffering Tensions of Structure, Space, and Time during Entrepreneurial Growth
Bohn and Kundisch, (2019)	All Things Considered? – Technology Design Decision-making Characteristics in Digital Startups
Grover and Saeed, (2004)	Strategic orientation and performance of internet-based businesses
Kelestyn et al., (2017)	Scaling the User Base of Digital Ventures Through Generative Pattern Replication: The Case of Ridesharing.
Huang et al.,(2017)	GROWING ON STEROIDS: RAPIDLY SCALING THE USER BASE OF DIGITAL VENTURES THROUGH DIGITAL INNOVATION
Chang (2004)	Venture capital financing, strategic alliances, and the initial public offerings of Internet startups
Oppong-Taiwah and Bassellier (2017)	Digital Innovation, Platform Orientation and the Performance of IT Startups
Boeker et al., (2018)	Interpersonal relationships, digital technologies, and innovation in entrepreneurial ventures

#### 4.2.2.1. Traditional value creation tactics

Well-planned business models guiding the venture process are in the fundamentals of non-digital businesses. The business model as a concept is described as “*The design of organizational structures to enact a commercial opportunity*” (George & Bock, 2011). In other words, it is a model that defines the mechanism of generating revenue streams (Ojala, 2016). The concept of a business model is formulated from the market-based views and strategic positioning, having

aspects of resources, knowledge, and dynamic capabilities in the core of it. All these elements are used to explain why some firms perform better than others, which can be analyzed with competitive advantages such as the strategic market position, resources available, and the ability to use the resources. Accordingly, business models are trying to capture underlying opportunities and find the match with company supply with customer demand. This is called the *product-market fit* and it is crucial for every business model (Spiegel et al., 2016).

Non-digital ventures conduct substantial research prior to setting up their business and require financial investments in their first steps of business creation (König et al., 2019). For gaining support and investments for the business, a business plan with details of the business model is needed to succeed in attracting the right sources. Furthermore, financial activities are needed for traditional organizations before their market entry, which is resonated by the material investments needed to be made in order to grow the business and set up a product or service to the market (König et al., 2019). To conclude, getting the fundamentals for the business in the right place before growing the business, and having a fixed business model is important for traditional organizations.

Spiegel et al., (2016) describe three shared elements of business models: the *value architecture* covering resources and competencies, the *value network* describing relationships with customers or stakeholders, and the *value finance* outlining things such as the costing and the pricing. These elements are developing around the product or service in question and adapting to their needs, making the business models more dynamic. Moreover, the author discusses that the goal of the combination of these is to find the best value propositions available, and they through that increase the performance of a business model.

All of these value-focused elements of business models can be found both in traditional organizations and digital ventures. However, as distinctive to digital ventures, traditional organizations lay focus in the beginning on the value architecture whereas digital ventures

emphasize first the value network. The value network for traditional organizations is obtained parallel in the process of gaining other value elements.

#### 4.2.2.2. Value creation in digital ventures

The value creation strategies are distinctive for the internet sector and the businesses operating in the industry, such as digital ventures. Therefore, a strict business plan that is working for traditional organizations is not always the key to the success of a digital venture (Ghezzi, 2019). In fact, digital ventures create value through scaling first a large user base, which is a prerequisite for gaining paying customers and other resources. These scaling activities are of significant importance for digital ventures in order to flourish in the dynamic and quickly changing habitat (Huang et al., 2017). Whereas traditional organizations try to create standardization with their value creation, digital ventures strive for generalization. These scaling activities convenient for digital ventures due to their technological features that are enabling fast-phased scaling, which helps to gain a foothold in the competitive market (Huang et al., 2017; Kelestyn et al., 2017).

Hampel et al., (2020) and Ghezzi (2019) discuss how the Business planning paradigm was one of the previously used models for new venture creation, containing a clear throughout the planned design for a venture, investment in advance, and acting strictly according to the plan. Yet, this approach has been questioned in an increasing manner within competitive and dynamic industries, such as the internet sector (Ghezzi, 2019). The operating environment of digital ventures is identified with high uncertainty as part of the liability of newness, on-going technology developments, and lean and fast scaling (Tumbas et al., 2017). Thereby, in the beginning, fixed strategic planning is not central for digital ventures and does not necessarily bring any benefits for the success of the venture (König et al., 2019; Bohn & Kundisch, 2019).

The technological advantages of digital ventures create a convenient environment for scaling. König et al., (2019) discusses how the nature of having software and data in the fundamentals of the business and having the capabilities for high scalability with a rapid phase makes digital ventures unique. Due to the technological advantages, these businesses have great possibilities for testing and inspecting the potential users' and customers' interests, which can be used to build a product-market fit within the process. Also, the architectural and modular layers of digital ventures make flexible configurations and customizations possible cost-efficiently for the venture.

The technological elements of digital technology generate advantageous circumstances to reproduce digital content, which helps scale rapidly a large user base. Digital content such as pictures, sound, and social media profiles can move across different media as long as a specific standard (such as TCP or IP) is followed. This is argued to have negligible marginal costs and makes digital content relatively inexpensive to scale. Furthermore, these activities require barely any investments in the production systems or supply chain processes, since the existing digital infrastructures can be used for the new venture (Huang et al., 2017).

The value proposition of digital ventures is argued to base on accomplishing new levels of operational excellence, supplier integration, and productivity (Grover & Saeed, 2004). Whereas economics of scale has been conventionally in traditional organizations reached with standardization, the flexibility of digital technology and digital content has changed the focus to generativity and a large user base (Huang et al., 2017). Scaling is strategically necessary for digital ventures, although not particularly to reach standardization or economies of scale on the production side but focusing on the demand side of economies of scale regarding the users and the customers (Kelestyn et al., 2017).

A reason for digital ventures to scale a large user base quickly is the network effects achieved from scaling. When reaching a critical number of users, the value of the platform for further users increases significantly (Huang et al., 2017). This can be exemplified with the same example as

represented in the chapter on the liability of newness – The more customers, the better quality of the content in for example online auction sites, which simultaneously leads to better conditions for other actors on the platform, like the sellers. Also, the platform gains popularity with better content (Chang, 2004). Reaching the critical number of users does not happen overnight, but the wait can be followed by extreme growth, as with Uber or Airbnb. Accordingly, network effects help to achieve and sustain the growth of the venture (Huang et al., 2017; Kelestyn et al., 2017).

Because of the competitive environment, the ventures are operating in, getting a foothold rapidly in the market by scaling is pivotal for digital ventures. Digital ventures are in direct competition with various actors aiming for a similar goal in the market or the field with possibly even overlapping technologies (Huang et al., 2017). Several authors discuss the value of the speed as a medium for locking out competitors, or in other words to accomplish the idea of the “winner-takes-all” in a certain market (Huang et al., 2017; Kelestyn et al., 2017). Supporting, Oppong-Tawiah and Bassellier (2017) discuss that the lack of speed, scale, scope, or information is decreasing a digital venture’s chances to survive and compete within the digital platform strategies.

Digital ventures strive to scale not only on the local markets quickly but also across different markets. Rapid scaling can be said to be an act of implementing a generic solution for a new market with small adaptations specified for a certain market in question (Kelestyn et al., 2017). Scaling for specific markets can be done cost-efficiently with the flexible characteristics of technology as well as by using open-source development tools (Shi et al., 2014). Once a successful concept for the digital business has been created, it can be reproduced in different markets with personalization for local markets to gain global market domination, as for example Uber and Airbnb succeeded in achieving (Kelestyn et al., 2017). As another example of the results of scaling rapidly and gaining a foothold in different markets, Google reached quickly a scale of users that competitors could achieve only after decades (Huang et al., 2017).

As discussed, the value creation of digital ventures starts with attracting and scaling a large user base. Several authors describe that scaling a large user base is the key and the first step for a digital venture, which is followed by gaining a large customer base from the users, and only after that the focus is on attracting financing (Cavallo et al., 2019; Huang et al., 2017; Kelestyn et al., 2017). Instead of focusing on attracting a balanced value network, digital ventures find it more important to create a demonstration of the product or service in question for the customers as fast as possible.

This order in the process of the tactics can be resonated with the usage of the digital product or service for bringing legitimacy, a foothold on the market, and trustworthiness, which on its side attracts paying customers for the venture (Huang et al., 2017; Cavallo et al., 2019; Kelestyn and Henfridsson, 2017). Supporting, Huang et al., (2017) argue that a large customer base is a precondition for a successful digital venture, and a large customer base makes the venture commercially successful. Furthermore, a well-functioning digital start-up attracts financing more easily, which allows it to grow further (König et al., 2019).

According to Huang et al., (2017), there are three mechanisms to be used to succeed with rapid scaling in digital ventures: data-driven operation, instant release, and swift transformation. Data-driven operation is described as the process of analyzing massive amounts of data to detect opportunities and risks. In the case company of the study, the data-driven operation was used to gain knowledge of the customer to observe new user segments, spot growth and decline rates, usage behavior, cash flow, and system flow. As the second mechanism, the instant release is described as the possibility to rapidly implement new functionalities, updates, and systems into the existing digital venture by using a process of launching, trialing, and modifications. This is a preferable functionality in order to keep the company on top of the trends and its users interested. The last mechanism is called the swift transformation, which delineates the ability to transform the digital technology in the core of the venture for business functionalities or ideas of value creation that might be developed with time after the first design.

These three mechanisms discussed by Huang et al., (2017) consider how declining numbers in growth can be a sign of changing the core focus instead of seeing it as the end of the digital venture. Through these three mechanisms, it is possible to inspect how data can be used as beneficial for the venture, and how important it is, in addition, to growing the user base to create as called “stickiness” among the customers to make sure they stay loyal and interested.

Consistent with the arguments of Huang et al., (2017) some authors discuss pivoting and technology design as fundamental things for attracting users. Kelestyn et al., (2017) state that putting effort into finding an outstanding design instead of trying to figure out ways of reducing production costs is the key to success in scaling the idea further. Also, the authors discuss how several trials and errors are necessarily faced in the process of formulating and choosing the technology and business design. The authors argue that this done is in order to gain a deeper understanding of the pattern that works to scale through reproducing, and thereby being able to reproduce the idea of the digital venture idea to various markets. Furthermore, as discussed earlier in the paper, since digital ventures are usually designed in the beginning with incomprehensive information, the key for high user satisfaction and successful scaling is involving customers and redesigning and improving the technology design to match with the customers’ ideas (Huang et al., 2017; Shi et al., 2014; Arvidsson & Mønsted, 2018).

Moreover, digital ventures can succeed with scaling by gaining advantage from visibility through marketing, speed, lean start-up methods, high-level customer service, and speed (Huang et al., 2017; Ghezzi 2019; Kuester et al., 2018). According to Boeker et al., (2019) online platforms can offer a way of delivering personal customer services and taking advantage of economies of scale with lower costs than what it could be done in the offline site, exemplified by the case of HiChina, which has gained a competitive place in the market with its customer service and brand reputation. HiChina has been able to reach this by using automated intelligent hosting platforms and by reducing costs by renting workspaces based on the need to avoid investments in physical facilities. Also, as discussed previously in the context of liability of newness, an effective way of attracting



customers is highlighting positive customer recommendations to signal trustworthiness and quality of the venture (Konya-Baumbach et al., 2019).

Interestingly, a study shows that the management team of a successful digital venture has usually the skills to build, test, and supply digital products or services. Within these skills, revenues can be created with fewer resources from the very beginning. This can also partly resonate why digital ventures do not find rapidly attracting financial investments as a prerequisite for starting a business in the same grade as non-digital ventures usually do. Besides, the order of the value growth process of a digital venture having financing as the last stage is argued to have an explanation in the dot.com burst, and how investors want to have tested and therefore more reliable business models before they are willing to invest their money in it (König et al., 2019).

#### 4.2.3. The Activities

The analysis has now explained why digital ventures do what they do and what are their main strategies for generating value. Next, the tools and actions needed to successfully implement the tactics are being explained as represented in the literature review. This section starts with explaining the Lean Start-up Approach that can be applied for all new ventures, with then going more detailed in explaining the technology design of digital ventures connected to this approach. To conclude, this part will explain *how do digital ventures do what they do*.

The technology design of a digital venture has a significant impact on the functionality, performance, and resilience of the company. Therefore, it has both economic and technological impacts. Due to the notable impact of the choice of the technology design on the business of a digital venture, it can be declared that the design alternatives for digital ventures should be flexible to ease overcoming uncertainties and changes, to be able to collect customer feedback and to be adaptable for iterative product development (Bohn & Kundisch, 2019). Thus, these elements are

covered by the Lean Start-up Approach. Therefore, it can be concluded that the successful choice of the right technology design should be processed within this flexible and adaptable approach explained in more detail in this chapter. Nonetheless, the Lean start-up approach is not excluding traditional organizations from using it, but it is more commonly used with the dynamic and changing environment of digital ventures (Blank, 2013).

The main articles addressing this topic are:

Ghezzi, (2019)	Digital startups and the adoption and implementation of Lean Startup Approaches: Effectuation, Bricolage and Opportunity Creation in practice
Tumbas et al., (2017)	Digital Capabilities for Buffering Tensions of Structure, Space, and Time during Entrepreneurial Growth
Spiegel et al., (2016)	Business model development, founders' social capital and the success of early stage internet start-ups: a mixed-method study
Bohn and Kundisch (2019)	All Things Considered? – Technology Design Decision-making Characteristics in Digital Startups
Huang et al., (2017)	GROWING ON STEROIDS: RAPIDLY SCALING THE USER BASE OF DIGITAL VENTURES THROUGH DIGITAL INNOVATION
Heirman and Clarysse (2007)	Which Tangible and Intangible Assets Matter for Innovation Speed in Start-Ups?
Kelestyn et al., (2017)	Scaling the User Base of Digital Ventures Through Generative Pattern Replication: The Case of Ridesharing
Shi, Xu and Green (2014)	SOFTWARE STARTUP GROWTH: THE ROLE OF DYNAMIC CAPABILITIES, IT INNOVATION AND CUSTOMER INVOLVEMENT
Ojala (2016)	Business models and opportunity creation: How IT entrepreneurs create and develop business models under uncertainty

#### 4.2.3.1. The Lean Start-up Approach

The systematic literature review reveals that many of the elements of the Lean Start-up Approach (LSAs) are often identified and used in the connection of the development of a digital venture, even if the elements are not always directly identified as connected to the concept of the lean start-up approach. Nevertheless, the lean start-up model is applicable for all ventures, even if it has been originally made for the intangible development process of digital start-ups (Blank, 2013).

As discussed earlier, Hampel et al., (2020) review how the Business Planning Paradigm with a clear plan for a venture has been one of the previously used models for new venture creation. Yet, this approach has been questioned in an increasing manner within competitive and dynamic industries, such as the internet sector (Ghezzi, 2019). Furthermore, Ghezzi (2019) recons that before creating business plans in the rapidly changing industries, LSA experiments should be created and used as input for more information. Tumbas et al., (2017) support this by stating that growth is rarely a linear process but requires different laps and steps back and forth, indicating that the business model of digital ventures shouldn't be too detailed in the first steps. This is also supported in earlier chapters discussing how new businesses are creating new products and services under high uncertainty and with the aim of high growth driven by innovations.

The concept of the lean start-up approach evolves tightly around the five key elements: *Incomplete knowledge and hypothesis*, *Pivoting* describing a fundamental change of direction or plan, *Iterations* denoting the act of repeating a process, *The Minimum Viable Product (MVP)* representing the first version of a product with basic features created to gather feedback from customers in the early development, and *customer feedback collection*. LSAs are used to understand who the target customers are and what they want and need, and to detect early adopters and trial users in order to gain knowledge through their feedback (Ghezzi, 2019).

The practice of a Lean Start-up Approach starts with formulating a hypothesis of a business idea, followed by linking the hypothesis of the idea to a business model designed. After these, a Minimum Viable Product (MVP) is being created to test the actions and the business model. A target group needs to be identified in order to test the MVP, which allows running tests with various iterations in order to decide if the idea can start to flourish or if it needs to be pivoted (Ghezzi, 2019). Spiegel et al., (2016) support these statements of the process of LSAs by discussing how the process of finding a feasible value proposition through testing prototypes is a repeated and iterative process that affects the success of a start-up. Moreover, Ghezzi (2019) reviews that some

ventures implement LSAs with a bit misleading intention and argues that some entrepreneurs may mistake the use of MVPs as market research, even if the focus is on gaining knowledge of customers natural behavior and the environment and the process of where the customers are thinking of making a purchase, instead of solely researching the willingness to pay.

#### 4.2.3.2. Technology design

Digital ventures are founded on innovative products based on a suitable technology solution. Bohn and Kundisch (2019) describe the choice of the technology design as being “*The best solutions to the problem at hand, given its context*”. Also, it is described further as a supporter of building and formulating the products and services of the digital venture (Bohn and Kundisch, 2019). Technology design choices need to be made to be able to create innovative digital products and services in mind. One of the early key decisions for a digital venture to be made is to choose the suitable technology design, including detailed technologies, programming languages, modules, and frameworks, which acts as a basis for the further architecture, interfaces, and interaction between different components (Tumbas et al., 2017). Successful design is created by matching the capabilities of the users, the tasks performed, and the demands required by the systems (Rogers and Fisk, 2010).

Various authors in the literature collected, discuss the technical design as a critical element in the core of digital ventures. Bohn and Kundisch (2019) state that technology choices have a significant effect on the opportunities opening for digital startups to gain a viable position, grow, and gain visibility. More detailed, they argue that the technology design is central for digital ventures as it requires a lot of resources, defines the product or service structure, and interacts with all other objects of the venture because the technology design needs to be reconsidered whenever other decisions are being revised. In line with that, Tumbas et al., (2017) explain how the choice of the technology design outlines and limits the space used for creating and produces dependencies that

cannot be ignored. Moreover, as discussed earlier, gaining legitimacy and trustworthiness among customers plays an important role in new ventures. Kuester et al., (2018) outlined in interviews made in their research how the design quality was perceived as a medium to build trust quickly for example on websites, and explains how customers judge websites, and platforms quickly based on the design they see. Thereby, a well-thought technology design usability and outlook can help to attract more customers. Consequently, the authors conclude that technology decisions within digital startups play a remarkable role for both the entrepreneurs but also for the investors and other stakeholders connected to the venture (Tumbas et al., 2017).

The design choices to choose from are numerous, and all the alternatives are equipped with their own capabilities and qualities, which makes it hard for the entrepreneur to pick the right one within the time restrictions in the fast phased industry (Tumbas et al., 2017). As part of the impact of the liability of newness previously discussed, the article discusses further how due to the uncertain market development and technological advances connected to the environment of digital startups, the choice of the right technology design and flexibility of the design is of significant importance. Similarly, Bohn and Kundisch (2019) and Heirman and Clarysse (2007) reviews how the technology design plays an important role, but also how challenging it is for a first-time entrepreneur in an uncertain market, with only a little experience, innovation speed characterized to internet ventures, and limited resources to execute the right decisions for the technology design.

Complications regarding technology design decisions are usually caused by an incomplete understanding of customer needs, and the lack of knowledge of how to build an exact solution and how customers would adapt to the solution (Tumbas et al., 2017). Additionally, Bohn and Kundisch (2019) discuss that the challenges or problems of the technology design become significant for digital ventures since they usually waste valuable resources as well as complicates other fields, which can be for example complications in the development and marketing of the venture. Moreover, to reduce the negative effects of the challenges of the technology design, the authors discuss that the possible technical issues that can occur should be identified as part of the

technology design decision, especially those that are likely to take place before the first revenue is being created.

#### 4.2.3.3. Lean start-up approach in technology design

As previously stated, the lean start-up approach is especially valuable in rapidly changing and competitive environments, matching with the sector of digital ventures (Hampel et al., 2020). The features of LSAs are often mentioned and commonly used in digital ventures (Huang et al., 2017). Furthermore, Bohn and Kundisch (2019) outline that the lean thinking is highly present in the decision-making of a digital ventures' technology design. Various authors discuss how the design requirements of digital ventures evolve around the ability to bring the first product to the market, the rapid speed, and the collection of customer feedback (Heirman & Clarysse, 2017; Huang et al., 2017; Ghezzi 2019; Lehmann & Recker, 2019).

The first design decisions made by new digital ventures are based on the idea and hypothesis on what the customers would like to have and what would be viable. Yet, this is only a hypothesis and needs to be tested and evaluated in order to succeed (Ghezzi, 2019). As digital entrepreneurs usually need to make complex decisions quickly, they generally focus on intuition instead of the ends (Huang et al., 2017). As part of the liability of newness discussed in the chapter of the grounds, new ventures are designing their core digital technology in the beginning without knowing entirely the whole design. This is one of the main reasons why the traits of the lean start-up model that allows continuous testing of new ideas, customer feedback collection, and changes along the development journey, have become so commonly used by digital entrepreneurs (Huang et al., 2017; Hampel et al., 2020). This is consistent with Bandera et al., (2018) discussing how digital entrepreneurs do not focus as much on the future as entrepreneurs of a traditional organization does, because of the existing risks they want to be well-aware of. Consequently, the

process of formulating the technology design will most likely face changes and adaptations along its journey.

The involvement of customers from the beginning of the venture creation process is beneficial for a digital venture. Heirman and Clarysse (2007) clarifies that the involvement of customers in the early steps of the product development and from that forward decreases the likelihood of the costly and time-consuming redesign process. Consistent with the other authors, Shi, Xu, and Green (2014) discuss how close connection with customers, such as the collection of customer feedback is increasing the efficiency in product development. The authors state that even if past examples can be used as learning examples, customer feedback gives more valuable insights to improve what is in the creation process. In line with this, Ojala (2016) concludes that the collection of customer feedback is a part of the trial-and-error process of the lean start-up approach.

One unique feature of digital ventures concerning the lean start-up approach is the inexpensive possibilities to scale digital technology. Kelestyn et al., (2017) explain that once the first design is being made, the cost of reproducing becomes negligible, which can be discussed to lower the barriers for further iterations. Additionally, the features of digital technology such as the modular and layered architecture consisting of content, service, network, and device layer allow customization and flexible configurations of the opportunities discovered (Lehmann & Recker 2019; Kelestyn et al., 2017). In regards to digital ventures and the LSAs, Huang et al., (2017) add that instant release, as described in the chapter the tactics as the rapid implementation of new functionalities or systems, can be used as a mechanism of digital ventures, since negligible marginal costs drive rapid scaling while reducing the time needed to implement an idea into the market.

Interestingly, Ghezzi (2019) discuss further how digital entrepreneurs succeed to combine two of the competitive theories of “opportunities as dichotomous”, which covers the idea of needing to have decision-tools handling the risk such as a business plan, and the perspectives of the creation

theory where entrepreneurs base their ideas on the outcome's iterations and processes. He states that digital entrepreneurs combine these two perspectives by first using the LSAs to gain data and knowledge and to discover the opportunities available. After this, they merge the data in a structured business plan to uncover scaling possibilities, market penetration, and company building. Lastly, they will adopt a business model that is in line with customer demand, a product-market fit.

#### 4.2.4. The Outcomes

So far, the findings have led us through the process of digital ventures from the underlying motives to the strategies for value creation and the actions to be taken. The next part will present the outcomes of a successful digital venture journey and therefore this chapter is focusing on the aspects of financing and their impacts. Starting from a general to a more specific view, with first explaining the meaning of financing and IPOs for all ventures and then the meaning for digital ventures. This part will answer the question, *what do digital ventures use the successful process for?*

Financing and IPOs have a significant role as resources and for signaling legitimacy for both traditional organizations and digital ventures, even if relevant at different phases at the venture journey. Furthermore, financing is not only seen as a resource for digital ventures, but also as a measurement of success for digital ventures that commonly struggle with performing their success in traditional measurement like sales numbers. Coupled with this, some authors argue that digital ventures do strategic patenting to impact positively on the results of the IPO.

The main articles addressing this topic are:

Chang (2004)	Venture capital financing, strategic alliances, and the initial public offerings of Internet startups
Droege et al., (2019)	Investors' Digital Myopia - The Information Value of Being Digital



Spiegel et al., (2016)	Business model development, founders' social capital and the success of early stage internet start-ups: a mixed-method study
Useche (2014)	Are patents signals for the IPO market? An EU–US comparison for the software industry
Wagner and Cockburn (2010)	Patents and the Survival of Internet-Related IPOs
Mann and Sager (2007)	Patents, venture capital, and software start-ups
Helmers and Rogers, (2011)	Does patenting help high-tech start-ups?

#### 4.2.4.1. Financing

Financing is one of the core assets impacting an early-stage start-ups performance and growth, in a similar manner as relationships and alliances. Additionally, to providing key resources such as cash or complimentary resources, financing offers legitimacy and trustworthiness for other business partners and resource holders. According to the literature, the absence of financial resources is one of the most limiting factors for the growth of newly founded startups, which makes its role significant (Chang, 2004; Cavallo et al., 2019). Moreover, McDonald and Gao (2019) represented a quote of an industry observer “*The money is out there. The challenge is convincing this segment that it’s actually possible to beat the market with smart fund management [...]*”.

IPOs are coupled with the value that new ventures can gain from financing. Chang (2004) describes an IPO as the action of making a privately-owned company into a publicly owned one. Droege et al., (2019) add that IPOs provide substantial financial resources in the form of shares offered. Furthermore, Droege et al., (2019) state that new ventures usually lack financial resources and therefore cannot acquire all the resources needed before going to IPO, which makes the financing and additional money collected at IPOs as such a crucial part of new venture success.

Patenting is used as an intellectual property protection mechanism both by traditional organizations and digital ventures to ensure revenue streams for the innovative company itself. In short, the main purpose of patents is to give the innovators an exclusive right to profit from their

ideas and with that encourage the formation of new firms (Helmets & Rogers, 2011). According to Mann and Sager (2007) patents can also benefit firms through attracting financing, and by helping to utilize internal research value development investments. Consequently, patenting gives a competitive advantage for a firm among the vast number of firms seeking the same benefits. However, even if the initial idea of patents is appreciable, a small number of patents protect the prestigious and successful innovations, while many patents remain mostly as a cost for the patentee (Helmets & Rogers, 2011).

#### 4.2.4.2. Financing in digital ventures

For digital ventures, financing is not only a way of signaling legitimacy or one of the key resources but also a status of success. Spiegel et al., (2016) state that attracting funding is besides a way of signaling legitimacy, trustworthiness, and reducing uncertainty, also a measurement of a successful digital venture.

Various authors in the literature use IPO as a status or a measure for the early operation of Internet startups since other performance measures such as financial gains or sales are not necessarily available for young ventures. Young start-ups as not being publicly traded companies are not even required to publish company data, whereby the data of the revenues and growth rates are not seen as representative for the start-up's real value (Spiegel et al., 2016). Furthermore, due to the beforehand investments in technology, PR, and marketing, there might be a long delay in getting correct representations of traditional financial measurements for new internet start-ups. For internet startups, IPO raises capital, builds personal gains, and signals that the company is ready to grow more (Spiegel et al., 2016; Chang, 2004).

An early-stage internet start-up is described as successful when securing a "second round" or as called "Series A funding", which is a significant investment from a venture capitalist to boost the

growth of a new and growing venture. As noteworthy, 60% of early-stage internet start-ups fail to secure Series A funding, which makes achieving it an even stronger signal of legitimacy (Spiegel et al., 2016). The previous section of the liability of newness discusses how relationships and networks are the key resources need for gaining among other things financing. Thereby social capital is discussed to be beneficial for digital ventures in order to gain Series A funding. Moreover, the paper discusses that working on an initial idea is seen as the early stage of the start-up, and that receiving a series A funding is seen as the end of a start-up and as the beginning of a new era or as the end of the start-up process (Spiegel et al., 2016). These results go in line with the various authors discussing in the chapter of “Value creation of digital venture” how digital ventures are interested to attract financing only as of the last stage of the value creation process (König et al., 2019; Huang et al., 2017; Kelestyn et al., 2017).

Signaling is an important mechanism to convince investors of the business model in question. A study by Useche (2014) discusses how there is an increasing number of risk-averse investors who are willing to select young, unprofitable firms with complex business models if they have the potential for high growth. However, the firms need to find a way to convince the investors that they are worthy of their financing, which can be done with different ways of signaling legitimacy and reducing asymmetries and uncertainty (Useche, 2014).

IPOs can be impacted through signaling effects gained from the reputation of having venture capital firms or strategic alliances aligned with a start-up. The alignment with venture capital firms has positive reputation spillovers having a positive effect on the IPO. This is being illustrated in the study by showing that with venture capital firms having an average rate of success of 30%, an IPO had a 2.12 times higher IPO rate than startups being financed by venture capital firms with a success rate of only a third of that (Chang, 2004). As for another, networks in the role of strategic alliances are helping to reach IPOs faster by bringing higher levels of performance and scalability. Strategic alliances can be for example in the form of marketing agreements, supply agreements, and R&D contracts (Chang, 2004). Furthermore, the study by Chang (2004) shows that digital

ventures accompanied with venture financing or alliances tend to go to IPO quicker than others since, in addition to the direct financial benefits gained from the partners, ventures benefit indirectly by being able to hire, keep and pay the best employees helping the company in its journey. Moreover, also the reputation and the amount of the alliance partners impacts positively on the digital start-up's IPO rate, which Chang (2004) argues by demonstrating that with the addition of one strategic alliance, the IPO rate of a digital start-up increases by 1.17 times.

Also, accelerators are helpful for digital start-up's chances for funding and exit decisions. Accelerators are defined as financial organizations investing in start-ups to help new ventures to grow within their fixed-time program. Accelerators provide start-ups education, co-working spaces, mentoring, and industry expert, and help digital start-ups through informing about the quality and reducing uncertainty so that resources are focused on the ideas that actually have the potential to succeed instead of ones that are doomed to fail (Yu, 2020; Hathaway, 2016). Therefore, accelerators create beneficial signaling effects and generate valuable knowledge for the new start-ups. The signaling effects and knowledge is generated by accelerators through supporting early start-ups with educating, mentoring, and financing them for a fixed time period, usually a few months. Consequently, with the help of accelerators, funding and investment decisions are easier to make by potential investors (Yu, 2020).

As for intellectual protection rights and appropriability instruments, software firms might in addition to patents use copyright, trademark laws, trade secrets, or lead times (Useche, 2014). However, patents are most represented in the literature review and discussed to allow innovators to gain revenues from their innovations with the help of competitive advantage gained from the exclusive rights to the innovation the patenting offers (Helmerts & Rogers, 2011; Wagner & Cockburn, 2010).

Digital ventures are discussed in the literature to gain advantages from patents through their signaling power and the prestige gained from them (Helmerts & Rogers, 2011). In line with this,

Wagner and Cockburn (2010) state that patents are more than just a measurement of economic impact, but they are also closely connected to the fundamental economic processes of invention and entrepreneurship, to signals of quality to funders, and protection for imitation and basis for commercial transaction in the knowledge market. Moreover, Useche (2014) argues that patents can be used as a medium to improve the reputation of a firm and to find valuable resources, clients, and partners. With the help of these signals, digital ventures can reduce the uncertainty faced with new ventures and convince investors to partner with them.

As remarkable, Useche (2014) suggests that digital ventures might use strategic patenting as a signaling mechanism. A study by the author shows that there is a strong positive correlation between the number of patent applications and IPO performance, which may declare that digital ventures might use patents as signals for investors in order to achieve a better IPO performance. According to Useche (2014), the signaling power of patents is used to reduce asymmetries in different markets. The study argues that since patents are seen as signals of a firm's performance to IPO investors, companies tend to add patent applications prior to IPO in order to increase the amount of money that can be collected at the IPO. In compliance with the results of Useche (2014), Wagner and Cockburn (2010) exemplify a positive and strong connection of patenting to the survival chances of a software venture. Their research studies the direct economic impact of the performance of firms obtaining patents, such as the growth and survival of the firm, instead of focusing on the indirect measurements of profitability traditionally used, such as the firm's value of the stock exchange. The study argues that firms with at least one patent application have approximately 30 percent lower chances to exit with low success.

The value of this type of signaling is dependent on the degree of firms using these kinds of signals, as well as the cost of obtaining them, which is defining the specialty of the signal. These actions for patents are affected by how "applicant-friendly" the patent system is, since a more complicated system for the applier may increase the status of patents as signals and the value for IPO investors. Contrary, when the patent system is easier for the applicant or the direct and the indirect costs are

low, it can be seen as encouraging for the applicants to file patents before the IPO event is motivated by the possibility of collecting more money (Useche, 2014).

The costs of patenting bring down the positive effects gained from patenting. Wagner and Cockburn (2010) explain that patents for pure business methods do not have a remarkable effect on a company's survival, because the economic value for the patentee is low due to the high and time requiring costs of patenting. Furthermore, the authors discuss the high costs for the managerial team to include the cost of drafting the application, fees for failing, and examination, renewal fees, and the cost of enforcement.

According to Useche (2014), some geographical differences are present in the actions of patenting. The author states that usually, venture-backed companies go public with filing one or more patent applications both in the US and Europe. However, according to the author strategic patenting is more usual among US software companies, even if patents are used widely as signals for reputation and legitimacy in Europe. The difference between the US and Europe of the willingness to file multiple patent applications prior to going to the public is explained by the institutional differences of patent systems in different continents and the non-homogenous financial markets that have been gaining an increasing level of importance (Useche, 2014).

Noteworthy, even though patenting is argued to have a positive impact on the venture survival and IPOs among growing start-ups, Mann and Sager (2007) argue that only a few software ventures held patents in their study. This can be explained by the motivation offered by Helmers and Rogers (2011) stating that if the protection of the patent is weak, the venture might face a bigger obstacle of exposing the innovation for imitation than having it unpatented.

## 5. Discussion

This chapter will discuss and evaluate further the findings of this systematic literature review and how studies of this topic could be further improved in the future. This discussion will review how the research problem can be understood with this study and what do these results mean.

### 5.1. Results

The results of this study are providing new insights into the knowledge of digital ventures, as well as their similarities and differences with traditional organizations. In addition, for providing theoretical and managerial implications, these findings are laying an important basis for future research, as the statistics of the sample of the systematic literature review illustrated the lack of previous literature on the topic.

The findings show that digital ventures as novel types of start-ups or other business ventures share some common features with traditional organizations, but also have their unique elements and marginal differences apart from non-digital ventures. However, even if digital ventures and traditional organizations share some similarities in the themes discussed, the gradual differences for digital ventures in the themes and patterns found are the ones challenging the fundamentals of traditional business models and strategies. These disrupting features are related to risk tolerance, actions aimed to reduce the uncertainty and resource constraints, value creation tactics of scaling a large user base, developing the business with the lean start-up approach, and signaling for successful IPOs. These themes and features found on digital ventures are represented as different stages of an ideal digital venture's journey. These stages are categorized as the grounds, the tactics, the activities, and the outcomes. Even though representing the findings as clustered to different stages is functioning well, it should be noted that the stages were not mentioned in the articles but

formulated from the interpretations of the results of when these themes appear in the growth journey.

The results and the analysis shed light on shared goals of the use of the central features and themes found on digital ventures, which is to make things more efficient, faster, flexible, and easily available. Supporting this, the same goal can be detected among the popular digital ventures, such as in the business operation of Uber disrupting the taxi industry, which is basing on efficient, fast, flexible, and easily available business operation. By acknowledging this, it is easier to understand what these new disruptive digital ventures like Uber are based on and where they can be expected to be found in the future.

Additionally, to represent the common themes found, the analysis shows that some of the themes have overlapping elements or impact each other. One of these overlapping themes is the liability of newness, which is appearing in different forms among the different stages of the ideal journey of a digital venture. Thereby, this theme becomes even more valuable for people working or aiming to work in the sector. In the tactics of the new venture, the liability of newness appears as the importance of signaling legitimacy and trustworthiness for users, customers, and partners, which formulates the tactics chosen to take. In the stage of the activities, the liability of newness is found in the aims to develop the business and the technology design in the best possible way to attract and benefit the users, the customers, and the business partners. This is to overcome the uncertainty associated with the internet sector through a well-functioning and trustworthy platform and technology. Furthermore, the resource constraints faced by new ventures are part of the reason for the popularity of the lean start-up approach that is allowing flexible changes along the journey. Lastly, the liability of newness is discussed to impact the importance of financing and IPOs, which are both seen as advantageous for the digital venture in the form of resources gained and uncertainty reduced. As connected to financing, networks as resources and ways of signaling play an important role in order to gain legitimacy and make better outcomes from the financing activities.



In addition to the liability of newness, overlaps can also interestingly be found in the scaling process and the chapter of the activities, which adapts elements from each other. The scaling activities are discussed to highly benefit from the ability to collect data from customers and trends, adjust the business according to the user needs, and to change the technology design to serve new changed needs if necessary. Thereby, the technology design formulated with the lean start-up approach is crucial in successful scaling activities. On the other side, the aim with the technology design and the lean start-up approach is discussed mostly to be creating the best possible way of scaling, since that is the most efficient way to grow and benefit the digital venture.

Even if not exactly overlapping, also the aspects of financing are impacted from the very beginning of the journey. The uncertainty, resource constraints, know-how, and personality traits build the foundation for financing on the grounds. Next, the tactics formulated place the actions of gaining financing as the last step, which on its side impacts why financing is seen as a measurement of success. Last, the lean start-up approach in the stage of the activities is characterized as a low-cost method for flexible development, shifting the role of financing more towards a status than a resource crucially needed. Recognizing these overlaps is valuable for further understanding of these ventures and for outlining deeper the impact of each stage.

Besides outlining the unique features and themes of digital ventures, the findings show that digital ventures and traditional organizations share similarities in some of the themes represented, like the liability of newness, or the value found of financing and IPOs. Based on the knowledge of the gradual similarities, it is possible to discuss further that the categories of digital ventures and traditional organizations may be getting more integrated within the development of the environment and the features of these businesses. Digital ventures are already aligning a lot with traditional organizations for different purposes, such as visibility, availability, or wider functionality. This is represented in the results as aligning for example with search engines or security companies. Therefrom, traditional organizations are getting more familiar with the

technological advantages, features, and platforms, which may encourage them for developing a more digital-based business model. In the future, traditional organizations can be likely to adopt digital features and services at an increasing rate in their business models, which can move traditional businesses one step closer to digital ventures with possibly mixing the best sides of both of the business models.

## 5.2. Implications

This study is among the early researches outlining the current state of digital ventures through the method of a systematic literature review. Therefore, this research provides valuable insights for the knowledge on the topic and a basis for future research. The results presented are contributing to a clearer understanding of the function and characteristics of these new digital business forms embedded in the different aspects of our everyday lives. Also, based on this systematic literature review done, further studies can focus on expanding the knowledge of the topic to unexplored research areas and issues around the linkages between the themes found.

The results found are important in order to understand how digital technology is used in these new businesses, what is done differently in digital ventures compared to traditional organizations, and how the best parts of digital ventures could be combined with traditional organizations in the future. These matters are important to recognize for maintaining a competitive advantage in the future businesses that are aiming to be attractive for the new generations grown among the new and dynamic environment of having digital start-ups embedded in everything.

The knowledge provided by this study can be used as a manual for individuals interested in founding a digital venture, individuals interested to implement digital strategies to previously offline only operating businesses, or investors wanting to understand the different patterns and norms of these two kinds of businesses.

For business management, it is essential to understand that even if some patterns of traditional organizations and digital ventures can at the first glance seem quite similar for both, they shouldn't be applied in a completely similar manner or similar importance. For business managers working with digital ventures, controlling the liability of newness faced by the new venture through signaling, customer reviews, broad networks, and marketing activities, is something that should be in the focus to achieve the status of a competitive digital business. Parallel to this, looking for the right technology design for the venture should be started early with the help of the Lean Start-up Approach since it usually needs a few rounds of taking steps back and forth to figure it out. As for the tactics it should be noted that instead of focusing on the sales numbers, it is more vital to focus on attracting a large user base in the very beginning since a large user base is a sign of a succeeding digital platform and lays the foundation for further growth.

The findings provide a valuable understanding of some successful tactics for all types of businesses. To begin, the study outlines that the actions of signaling reputation in order to attract more customers is best achieved with a positive quota of a customer review, instead of statistical ratings like 4/5 (Konya-Baumbach et al., 2019). This can be adopted with low efforts by any business. Moreover, the analysis discusses three methods for succeeding in rapid scaling for users and customers: data-driven operation, instant release, and swift transformation. These three methods can be seen in addition to discussing scaling activities, to also encourage businesses to take advantage of data analysis of the customers and the trends, to flexibility regarding the changing demand of the users and the customers, and to be willing to renew the business constantly in the changing market environment (Huang et al., 2017).

Other researchers can find value in this paper as a basis for further research topics. Now when the main themes of digital ventures have been outlined from the most appearing words in the sample of the most relevant academic articles, researchers can focus on studying some of these aspects

deeper or their connections. Furthermore, researchers can combine this information on digital ventures on other research topics whenever useful.

For society as a whole, this paper illustrates that digital ventures are not a temporary trend that will fade away, but more of a new way of creating a society equipped with personalized products and services that are easily available whenever needed. As an example, Uber has been operating now for approximately 10 years (Hartmans & Leskin, 2019), exemplifying that these ventures are not disappearing from the market even if possibly facing some obstacles along the journey. This paper is helping to recognize that these new disruptive digital businesses have become to stay. Thereby, the focus should be on formulating the society, the right regulations, and data security rules applicable to these new business models. Today's society is already having everything connected, even if looking at traditional organizations. Individual data can be used to get online loans, to do online shopping, and to access different servers, which makes the negative impacts of possible data breaches greater. Having data and operations online at an increasing level is also growing the risk of data breaches. However, the more people understand the features and themes of digital ventures, their place in society, and their differences from traditional organizations, the more it will help to prevent data breaches through accurate use and attention to the elements of these digital ventures.

The paper uses the specific features and patterns associated with digital ventures to lay out the current state of the digital ventures and the differences they have to traditional organizations. If the management and other individuals involved in digital ventures recognize and have these general and specific topics in their minds, the risks and uncertainties related to digital ventures will be reduced. Even if the ideal journey of digital ventures wouldn't be adopted as a whole, this will provide valuable information to understand different actions and motivations in the competitive industry in question. Moreover, to recognize this dynamic and flexible environment is beneficial for anyone who is attempting to work with digital ventures.

### 5.3. Limitations and future research

This section will discuss suggestions for future research as it represents the limitations of this research. This study aims to capture the current state of knowledge on digital ventures and the differences with traditional organizations as represented in the academic literature. As the study seeks to give an overview of the current state of digital ventures and combines available information from different industries and years, it should be noted that the overview gathered might differ from some individual companies operating in their unique conditions. Nevertheless, the findings are suggested as general principles of digital ventures.

In order to answer the research question, a systematic literature review was conducted. Despite perceiving the systematic literature as the best method for this study, it should be noted that all methods and studies have their own limitations. The systematic literature review starts with defining the study characteristics, in other words scoping the study. This is necessary to be able to choose the search terms and to define the inclusion and exclusion criteria focusing on the topic in question. However, it can also be seen as a limitation since the search words chosen in the beginning with the discovery done by then are affecting all the further stages of the study. Assuming that the study characteristics include all the relevant literature available for the topic, there is still a risk that some aspects might become over-emphasized, and that some aspects are not emphasized wide enough. Yet, this paper has acknowledged this and thereby taken six different search words for describing digital ventures and uses six different databases for searching the articles. Some of the search words used to ensure that the whole spectrum of the accurate literature is being captured are such generic words, like for example “start-ups” giving a massive number of results that the scope of the samples needed to be limited to the first 500 hits arranged due to the relevance. This is not theoretically analyzing the vast amount of literature in its wholeness but was necessary for the scope of this research. Nevertheless, spot searches were included in the search of the literature to ensure that all relevant articles will be covered in the sample. Moreover, worth noticing is that the literature collected did not focus on traditional organizations on the same scale

as digital ventures, which is likely to have an impact on the deeper knowledge gained from traditional organizations.

The student's own opinions and human errors might have on a low scale impacted the process of choosing the sample of most relevant articles since the stages of selecting the sample included a lot of manual work. However, this was acknowledged and additional double-checks of central keywords and scanning processes took place. Also, the study limited the research language of the articles to English based on the language qualifications of the author. For future research additional articles with other languages could be included to reach an even wider scope of studies and to possibly detect some geographical differences.

While the research outlines the current state of digital ventures and discusses how they differ from traditional organizations as represented in academic literature, for future research it would be interesting to include case studies or interviews to exemplify these results in society. The insights gathered provide valuable information on the elements and patterns of digital ventures and their differences from other traditionally known organizations. However, further research is needed on the specific aspects and their connections to the whole journey of the digital venture to understand deeper the elements and patterns outlined in this study. Also, it would be interesting to study whether the effects and the connections of these themes differ among them since this study perceives the different stages of digital ventures as equally important. Moreover, some of the themes seem to be quite dependent on each other and have natural linkages, such as scaling activities and the development of technology design, or the acts of reducing the liability of newness by signaling and signaling to gain a large user base. Thereby, future studies could examine how systematically the founder teams are aware of the impacts of one action on another or do they act more based on intuition and the present situation.

As another aspect, it would be interesting to study the businesses that social media influencers and celebrities launch through their social media such as Instagram, and how that is comparable for

digital ventures in the aspects such as scaling a large user base first and then gaining a large base of customers for commercial purposes.

## 6. Conclusion

Digital ventures are shaping business and the whole world we live in, one industry at a time. These dynamic organizations enter an industry and force it to evolve. Existing companies either adapt or get left behind. Despite having so much impact on the business world, we currently know relatively little about digital ventures. How do they operate? How are they different from “traditional” organizations? Prior studies focusing on digital ventures or digital entrepreneurship discuss only specific aspects or issues, instead of providing an overall picture of the phenomenon. This study uses systematic literature review method to answer these fundamental questions through analyzing what research has so far found out about digital ventures.

The findings of this study are based on 47 academic articles and conference papers. The results outline several shared themes of both new traditional organizations and new digital ventures that can be clustered in different stages of an ideal journey of a digital venture, the grounds, the tactics, the activities, and the outcomes. The shared themes of these two types of businesses are the liability of newness, the impact of the educational background and level of risk tolerance, the lean start-up approach, and the reputational meaning of financial partners and IPOs in addition to the financial resources provided by them. However, digital ventures have their unique elements throughout the stages that differ from traditional organizations. These differences are represented in the next section.

First, like all new ventures, in the beginning, digital ventures struggle with resource constraints and uncertainty and aim their actions on a large scale to overcome them. Nevertheless, the results highlight the importance of networks and customer reviews for digital ventures to overcoming

these. Second, digital ventures start their process of value creation commonly by gaining a large user base that next on will help in gaining a large customer base. Only after this, the focus turns to attract financing, which is usually the first step in the value creation of traditional organizations. Furthermore, to enable the value creation process, digital ventures need to focus on developing the optimal technology design as its being in the fundamentals of the whole business model. This is usually best achieved with the lean start-up approach allowing flexible changes and the involvement of customers. Last, when digital ventures have gotten both the user base as well as the customer base growing in a good phase, the focus turns on the effects of financing and IPOs. Reaching this stage is perceived as a status of a successful venture growth, whereby digital ventures may even start strategically patent as a signal prior to the IPO to increase the impacts of it. To conclude, the components in the value creation processes move in opposite ways in digital ventures and traditional organizations. The findings from the overview of the literature are in line with the argument of König et al. (2019) stating that there are differences in the maturing process of the ventures.

Business leaders and other stakeholders should note that the knowledge and perceptions of traditional organizations cannot be straightly copied to digital ventures, but they need to be adapted, measured, and analyzed with different aspects in focus. Entrepreneurs aiming to start a digital venture should notice that some things that are taken for granted in traditional organizations, such as starting the process with attracting financial resources to cover material investments, is not necessarily the best way to succeed with digital ventures. By doing so, the research has brought us one step forward in studying and understanding the phenomenon of digital ventures and can be used as a foundation for future research on the topic. The findings offer valuable information on digital ventures, the environment they operate in, and their differences from traditional organizations for anyone involved in the industry.



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# Appendix

## Appendix 1. A snapshot of the reading log used for the sample of articles.

Master's Thesis Reading Log									
Date	Article	Author	Year	Journal	Focus area	Research Question	Qualitative questions	Method	Theory/Model
13.7.2020	Efficient patterns in the evolution of digital and non-digital startups: business models	Christina, Ungerer, Gubli, Babin, Ott	2018	Technological Forecasting & Social Change	Lean startups, business model innovation, digital and non-digital startups, business models	Q: Specifically, what digital patterns in the evolution of digital and non-digital startups can be identified that provide insights on their performance?	Qualitative	multi-dimensional analysis research 242 on-site	Considering product management work in networks, we used a multi-dimensional analysis research 242 on-site
14.7.2020	Vertical capital financing, strategic alliances, and the initial public offering of internet startups	Sam, Ju, Chang	2018	Journal of Business Venturing	19 (2004) 717-741, JBC, Internet start-ups	The study examines the financial structure, venture capital financing and initial public offering of internet startups, and the role of strategic alliances in their performance.	Qualitative	we utilized a multi-dimensional analysis research 242 on-site	Considering product management work in networks, we used a multi-dimensional analysis research 242 on-site
14.7.2020	Strategic orientation and performance of internet-based businesses	Mark, Gower, Chrysanthos Angel, Sapsed	2008	Information Systems Journal	strategic growth, e-commerce, internet-based businesses, average orientation	The study examines the financial structure, venture capital financing and initial public offering of internet startups, and the role of strategic alliances in their performance.	Qualitative	we utilized a multi-dimensional analysis research 242 on-site	Considering product management work in networks, we used a multi-dimensional analysis research 242 on-site
15.7.2020	The impact of technological turbulence on the performance of internet-based businesses	Jennifer, Hitt, Philip, Reardon	2008	Journal of Business Ethics	effect of technological turbulence, internet-based businesses, average orientation	In this paper, we focus on the relationship between technological turbulence and the performance of internet-based businesses.	Qualitative	we utilized a multi-dimensional analysis research 242 on-site	Considering product management work in networks, we used a multi-dimensional analysis research 242 on-site
15.7.2020	Strategic orientation and performance of internet-based businesses	Mark, Gower, Chrysanthos Angel, Sapsed	2008	Information Systems Journal	strategic growth, e-commerce, internet-based businesses, average orientation	The study examines the financial structure, venture capital financing and initial public offering of internet startups, and the role of strategic alliances in their performance.	Qualitative	we utilized a multi-dimensional analysis research 242 on-site	Considering product management work in networks, we used a multi-dimensional analysis research 242 on-site

## Appendix 2. The relevance of the themes used defined by NVivo

Unsaved Query

Text Search Criteria

Search in: **Files and Externals** Selected Items ▼ Items in Selected Folders ▼

Search for: technology design

Special

Finding matches:

☐ Exact match only (e.g. "talk")

☒ Include stemmed words (e.g. "talking")

Run Query Save Results... Save Query...

Summary Reference Word Tree

File Name	In Folder	References	Coverage
All Things Considered~...	Files	491	2.67%
Offerings that are "Ever...	Files	135	0.77%
The Trajectories of Digit...	Files	133	1.59%
The Innovation Mechani...	Files	130	0.83%
Interpersonal relationshi...	Files	120	0.81%
The birth of a new indus...	Files	107	1.02%
Digital Capabilities for B...	Files	104	0.80%
Business models and op...	Files	103	0.78%
Social Networks, Fundin...	Files	90	0.61%
A grounded theory stud...	Files	85	0.73%
Generating innovation p...	Files	84	0.56%
GROWING ON STEROID...	Files	74	0.72%
Digital Innovation Platfor...	Files	68	0.77%
Pivoting Isn't Enough~...	Files	64	0.24%
Get the show on the roa...	Files	58	0.29%
Not all digital venture id...	Files	57	0.29%
Digital Innovation and In...	Files	56	0.41%
From a marketplace of e...	Files	56	0.39%
The Impact of Technolo...	Files	56	0.46%
Digital Entrepreneurship...	Files	51	0.61%
Digital startups and the...	Files	51	0.25%
Which Tangible and Inta...	Files	51	0.57%
Different patterns in the...	Files	49	0.44%

Unsaved Query

Text Search Criteria

Run QuerySave Results...Save Query...

Search in:Files and ExternalsSelected ItemsItems in Selected Folders

Search for:social capitalSpecial

Finding matches:

Exact match only (e.g. "talk")

Include stemmed words (e.g. "talking")

SummaryReferenceWord Tree

File Name	In Folder	References	Coverage
Business Model Develop...	Files	227	0.84%
Social Networks, Fundin...	Files	121	0.49%
Fostering digital entrepr...	Files	116	0.52%
Internet entrepreneurshi...	Files	103	0.60%
Venture capital financin...	Files	96	0.64%
The impact of digital sta...	Files	94	0.64%
Relational and institutio...	Files	93	0.48%
Alliances, Rivalry, and Fi...	Files	70	0.24%
Pivoting Isn't Enough~...	Files	64	0.15%
A grounded theory stud...	Files	54	0.27%
Digital startups and the...	Files	36	0.12%
Patents, venture capital,...	Files	35	0.20%
Interpersonal relationshi...	Files	31	0.12%
The Impact of Technolo...	Files	29	0.15%
Investors' Digital Myopia...	Files	28	0.28%
Patents and the survival...	Files	26	0.13%
Strategic Swaying_ How...	Files	25	0.21%
The Innovation Mechani...	Files	23	0.08%
Different patterns in the...	Files	22	0.13%
Digital entrepreneurship...	Files	22	0.12%
From a marketplace of e...	Files	21	0.10%
How Do Accelerators Im...	Files	21	0.07%
Not all digital venture id...	Files	18	0.06%

Unsaved Query

Text Search Criteria

Run QuerySave Results...Save Query...

Search in:Files and ExternalsSelected ItemsItems in Selected Folders

Search for:IPOSpecial

Finding matches:

Exact match only (e.g. "talk")

Include stemmed words (e.g. "talking")

SummaryReferenceWord Tree

File Name	In Folder	References	Coverage
Are patents signals for t...	Files	242	0.52%
Venture capital financin...	Files	145	0.44%
Patents and the survival...	Files	62	0.12%
Investors' Digital Myopia...	Files	41	0.17%
Interpersonal relationshi...	Files	8	0.01%
Patents, venture capital,...	Files	6	0.01%
Does patenting help hig...	Files	5	0.01%
Internet entrepreneurshi...	Files	3	0.01%
Digital Capabilities for B...	Files	1	0.01%
Digital startups and the...	Files	1	0.01%
Fostering digital entrepr...	Files	1	0.01%
On the costs of digital e...	Files	1	0.01%
Pivoting Isn't Enough~...	Files	1	0.01%

84

Unsaved Query

Text Search Criteria

Search in: Files and Externals Selected Items Items in Selected Folders

Search for: ALLIANCE

Special

Finding matches:  
☐ Exact match only (e.g. "talk")  
☒ Include stemmed words (e.g. "talking")

Summary Reference Word Tree

File Name	In Folder	References	Coverage
Alliances, Rivalry, and Fi...	Files	250	1.19%
Venture capital financin...	Files	98	0.82%
The birth of a new indus...	Files	43	0.32%
Interpersonal relationshi...	Files	22	0.12%
Which Tangible and Inta...	Files	5	0.05%
Are patents signals for t...	Files	3	0.02%
Internet entrepreneurshi...	Files	3	0.02%
Pivoting Isn't Enough~...	Files	2	0.01%
Business Model Develop...	Files	1	0.01%
Digital entrepreneurship...	Files	1	0.01%
Fostering digital entrepr...	Files	1	0.01%
Get the show on the roa...	Files	1	0.01%
Making a first impressio...	Files	1	0.01%
Strategic orientation an...	Files	1	0.01%
The impact of digital sta...	Files	1	0.01%

Unsaved Query

Text Search Criteria

Search in: Files and Externals Selected Items Items in Selected Folders

Search for: ACCELERATOR

Special

Finding matches:  
☐ Exact match only (e.g. "talk")  
☒ Include stemmed words (e.g. "talking")

Summary Reference Word Tree

File Name	In Folder	References	Coverage
How Do Accelerators Im...	Files	546	3.22%
From a marketplace of e...	Files	21	0.20%
Digital Innovation Platfor...	Files	5	0.07%
Digital startups and the...	Files	5	0.03%
Fostering digital entrepr...	Files	3	0.02%
Which Tangible and Inta...	Files	3	0.04%
A grounded theory stud...	Files	2	0.02%
Interpersonal relationshi...	Files	2	0.01%
Not all digital venture id...	Files	2	0.01%
Business Model Develop...	Files	1	0.01%
Digital Entrepreneurship...	Files	1	0.01%
Everyday Digital Entrepr...	Files	1	0.02%
Get the show on the roa...	Files	1	0.01%
Investors' Digital Myopia...	Files	1	0.01%
Personality Traits and th...	Files	1	0.02%
the art of pivot	Files	1	0.01%
The Innovation Mechani...	Files	1	0.01%

Unsaved Query

Text Search Criteria

Files and ExternalsSelected ItemsItems in Selected Folders

Search for:NEWNESS

Special

Finding matches:

Exact match only (e.g. "talk")

Include stemmed words (e.g. "talking")

Run QuerySave Results...Save Query...

SummaryReferenceWord Tree

File Name	In Folder	References	Coverage
the art of pivot	Files	166	0.20%
Pivoting Isn't Enough~...	Files	159	0.18%
Fostering digital entrepr...	Files	150	0.29%
Interpersonal relationshi...	Files	136	0.25%
Social Networks, Fundin...	Files	99	0.20%
The Impact of Technolo...	Files	73	0.17%
Offerings that are "Ever...	Files	70	0.14%
The Innovation Mechani...	Files	68	0.12%
Digital Innovation and In...	Files	65	0.14%
Business cycles and sta...	Files	62	0.10%
Not all digital venture id...	Files	61	0.10%
The birth of a new indus...	Files	60	0.15%
On the costs of digital e...	Files	59	0.11%
Generating innovation p...	Files	54	0.11%
Digital Entrepreneurship...	Files	51	0.17%
Get the show on the roa...	Files	50	0.11%
Digital Innovation Platfor...	Files	49	0.21%
GROWING ON STEROID...	Files	44	0.13%
SOFTWARE STARTUP G...	Files	44	0.19%
The Trajectories of Digit...	Files	44	0.14%
Which Tangible and Inta...	Files	44	0.14%
A grounded theory stud...	Files	39	0.09%
Business models and op...	Files	35	0.08%

Unsaved Query

Text Search Criteria

Files and ExternalsSelected ItemsItems in Selected Folders

Search for:EARLY

Special

Finding matches:

Exact match only (e.g. "talk")

Include stemmed words (e.g. "talking")

Run QuerySave Results...Save Query...

SummaryReferenceWord Tree

File Name	In Folder	References	Coverage
Business Model Develop...	Files	64	0.19%
Different patterns in the...	Files	20	0.09%
Digital startups and the...	Files	17	0.05%
Venture capital financin...	Files	16	0.08%
Pivoting Isn't Enough~...	Files	15	0.03%
Patents, venture capital,...	Files	14	0.06%
Fostering digital entrepr...	Files	13	0.04%
Not all digital venture id...	Files	13	0.03%
the art of pivot	Files	13	0.03%
Which Tangible and Inta...	Files	10	0.05%
Business models and op...	Files	8	0.03%
Offerings that are "Ever...	Files	8	0.03%
Social Networks, Fundin...	Files	8	0.03%
How Do Accelerators Im...	Files	7	0.02%
Get the show on the roa...	Files	6	0.02%
Strategic Swaying... How...	Files	6	0.03%
The Impact of Technolo...	Files	6	0.02%
Digital Capabilities for B...	Files	5	0.02%
Generating innovation p...	Files	5	0.02%
All Things Considered~...	Files	4	0.01%
Digital Innovation Platfor...	Files	4	0.02%
Making a first impressio...	Files	4	0.01%
Scaling the User Base o...	Files	4	0.02%

86

Unsaved Query

▼ Text Search Criteria

Search in: Files and Externals Selected Items Items in Selected Folders

Search for: SCALE

Special

Finding matches:  
☐ Exact match only (e.g. "talk")  
☒ Include stemmed words (e.g. "talking")

Run Query Save Results... Save Query...

Summary Reference Word Tree

File Name	In Folder	References	Coverage
Scaling the User Base o...	Files	91	0.68%
GROWING ON STEROID...	Files	78	0.53%
Business cycles and sta...	Files	66	0.18%
Generating innovation p...	Files	27	0.10%
On the costs of digital e...	Files	27	0.09%
Everyday Digital Entrepr...	Files	18	0.23%
Fostering digital entrepr...	Files	18	0.07%
Strategic orientation an...	Files	15	0.07%
Digital startups and the...	Files	14	0.04%
Digital Capabilities for B...	Files	8	0.04%
The birth of a new indus...	Files	8	0.03%
Not all digital venture id...	Files	7	0.02%
the art of pivot	Files	6	0.01%
Venture capital financin...	Files	6	0.03%
Business Model Develop...	Files	5	0.02%
Making a first impressio...	Files	5	0.02%
Offerings that are "Ever...	Files	5	0.02%
Digital Innovation and In...	Files	4	0.02%
Investors' Digital Myopia...	Files	4	0.03%
Pivoting Isn't Enough~...	Files	4	0.01%
Relational and institutio...	Files	4	0.02%
The impact of digital sta...	Files	4	0.02%
The Impact of Technolo...	Files	4	0.01%

Unsaved Query

▼ Text Search Criteria

Search in: Files and Externals Selected Items Items in Selected Folders

Search for: FUND

Special

Finding matches:  
☐ Exact match only (e.g. "talk")  
☒ Include stemmed words (e.g. "talking")

Run Query Save Results... Save Query...

Summary Reference Word Tree

File Name	In Folder	References	Coverage
How Do Accelerators Im...	Files	159	0.57%
Fostering digital entrepr...	Files	111	0.40%
Social Networks, Fundin...	Files	71	0.32%
Business Model Develop...	Files	45	0.18%
The impact of digital sta...	Files	33	0.21%
Venture capital financin...	Files	27	0.16%
The Innovation Mechani...	Files	26	0.08%
Pivoting Isn't Enough~...	Files	25	0.05%
Interpersonal relationshi...	Files	21	0.09%
Digital entrepreneurship...	Files	16	0.07%
Generating innovation p...	Files	15	0.06%
From a marketplace of e...	Files	14	0.07%
Digital startups and the...	Files	13	0.04%
Patents, venture capital...	Files	10	0.05%
Are patents signals for t...	Files	7	0.03%
Patents and the survival...	Files	6	0.02%
Strategic orientation an...	Files	4	0.02%
A grounded theory stud...	Files	3	0.01%
Different patterns in the...	Files	3	0.02%
Digital Capabilities for B...	Files	2	0.01%
Offerings that are "Ever...	Files	2	0.01%
Business models and op...	Files	1	0.01%

87

Unsaved Query

▼ Text Search Criteria

Run Query

Save Results...

Save Query...

Search in: Files and Externals Selected Items Items in Selected Folders

Search for: PATENT

Special

Finding matches:  
☐ Exact match only (e.g. "talk")  
☒ Include stemmed words (e.g. "talking")

Summary Reference Word Tree

File Name	In Folder	References	Coverage
Patents, venture capital,...	Files	395	2.32%
Are patents signals for t...	Files	335	1.59%
Patents and the survival...	Files	332	1.49%
Does patenting help hig...	Files	313	1.71%
Interpersonal relationshi...	Files	67	0.27%
The birth of a new indus...	Files	64	0.35%
Different patterns in the...	Files	36	0.23%
Social Networks, Fundin...	Files	16	0.07%
Business cycles and sta...	Files	13	0.04%
A grounded theory stud...	Files	6	0.04%
Venture capital financin...	Files	2	0.01%
Alliances, Rivalry, and Fi...	Files	1	0.01%
Business Model Develop...	Files	1	0.01%
From a marketplace of e...	Files	1	0.01%
How Do Accelerators Im...	Files	1	0.01%
The Innovation Mechani...	Files	1	0.01%
Which Tangible and Inta...	Files	1	0.01%

Unsaved Query

▼ Text Search Criteria

Run Query

Save Results...

Save Query...

Search in: Files and Externals Selected Items Items in Selected Folders

Search for: NETWORK

Special

Finding matches:  
☐ Exact match only (e.g. "talk")  
☒ Include stemmed words (e.g. "talking")

Summary Reference Word Tree

File Name	In Folder	References	Coverage
Alliances, Rivalry, and Fi...	Files	171	0.68%
Business Model Develop...	Files	135	0.60%
Internet entrepreneurship...	Files	127	0.84%
Social Networks, Fundin...	Files	104	0.52%
Relational and institutio...	Files	84	0.53%
Business models and op...	Files	66	0.35%
The birth of a new indus...	Files	44	0.26%
Strategic Swaying_ How...	Files	42	0.27%
Different patterns in the...	Files	38	0.25%
A grounded theory stud...	Files	31	0.18%
Interpersonal relationshi...	Files	27	0.13%
Pivoting Isn't Enough~...	Files	26	0.08%
Digital entrepreneurship...	Files	21	0.14%
From a marketplace of e...	Files	20	0.12%
Scaling the User Base o...	Files	19	0.16%
How Do Accelerators Im...	Files	16	0.06%
The Innovation Mechani...	Files	16	0.08%
Venture capital financin...	Files	15	0.11%
Digital Innovation Platfor...	Files	13	0.11%
Fostering digital entrepr...	Files	12	0.06%
GROWING ON STEROID...	Files	12	0.09%
Offerings that are "Ever...	Files	8	0.04%
Everyday Digital Entrepr...	Files	7	0.10%

88



Unsaved Query

Text Search Criteria

Search in: **Files and Externals** Selected Items Items in Selected Folders

Search for: HUMAN CAPITAL

Special

Finding matches:

☐ Exact match only (e.g. "talk")

☒ Include stemmed words (e.g. "talking")

Summary Reference Word Tree

File Name	In Folder	References	Coverage
The impact of digital sta...	Files	69	0.81%
Internet entrepreneursh...	Files	20	0.21%
Business Model Develop...	Files	13	0.09%
Fostering digital entrep...	Files	6	0.05%
Digital entrepreneurship...	Files	5	0.05%
A grounded theory stud...	Files	4	0.04%
Does patenting help hig...	Files	4	0.04%
Not all digital venture id...	Files	3	0.02%
The Trajectories of Digit...	Files	3	0.04%
Patents and the survival...	Files	2	0.02%
Social Networks, Fundin...	Files	2	0.02%
Digital Innovation Platfor...	Files	1	0.01%
Investors' Digital Myopia...	Files	1	0.02%
Making a first impressio...	Files	1	0.01%
Relational and institutio...	Files	1	0.01%
The birth of a new indus...	Files	1	0.01%

Unsaved Query

Text Search Criteria

Search in: **Files and Externals** Selected Items Items in Selected Folders

Search for: education

Special

Finding matches:

☐ Exact match only (e.g. "talk")

☒ Include stemmed words (e.g. "talking")

Summary Reference Word Tree

File Name	In Folder	References	Coverage
The impact of digital sta...	Files	141	1.25%
Reading log	Files	29	0.10%
Digital entrepreneurship...	Files	22	0.17%
Get the show on the roa...	Files	15	0.09%
Business cycles and sta...	Files	11	0.05%
Internet entrepreneursh...	Files	10	0.08%
The Innovation Mechani...	Files	10	0.05%
A grounded theory stud...	Files	9	0.06%
Business Model Develop...	Files	7	0.04%
From a marketplace of e...	Files	7	0.05%
Generating innovation p...	Files	5	0.03%
How Do Accelerators Im...	Files	5	0.03%
Digital Innovation and In...	Files	4	0.03%
Social Networks, Fundin...	Files	4	0.02%
Everyday Digital Entrepr...	Files	3	0.05%
Different patterns in the...	Files	2	0.02%
Personality Traits and th...	Files	2	0.02%
Relational and institutio...	Files	2	0.01%
All Things Considered~...	Files	1	0.01%
Business models and op...	Files	1	0.01%
Interpersonal relationsh...	Files	1	0.01%
Offerings that are "Ever...	Files	1	0.01%