THE RISE OF OUTSOURCING

Outsourcing business services help startups to survive

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1. Introduction

This thesis addresses the impact of outsourcing business services on the survival rate of Dutch startups. Startups play an important role in job creation and contribute significantly to the economy (Kane, 2010). Of all added value in the Netherlands, 60 percent can be attributed to small and medium-sized enterprises (EZK, 2018a). Despite their added value, startups often face many difficulties. In 2018, only 61 percent of startups in the Netherlands survived the first five years (KvK, 2019). The survival rate is lower for new and small companies compared to established companies. This is conceptualized in previous studies as the liability of newness and the liability of smallness (Bøllingtoft, 2012, OECD, 2002). The liability of newness states that a younger company is more at risk compared to an old company because younger companies have a lower level of legitimacy and are unable to compete effectively with established companies. The liability of smallness refers to the higher risk for smaller organizations compared to substantially larger organizations due to limited resources and capabilities (Brüderl and Schüssler, 1990; Freeman, Carroll and Hannan, 1983). In practice, these two liabilities manifest themselves in three bottlenecks: lack of capital, lack of knowledge, and lack of time (Govindarajan et al., 2019).

Lack of capital, knowledge, and time are intertwined bottlenecks of startups. First, time is mentioned as the "most valuable and scarcest resource of all" (Zachary et al., 2015, p. 1402). From decisions about resource allocation to time-to-market and growth activities to management of daily routine, lack of time and time pressure play a key role in new enterprises (Lévesque and Stephan, 2020). Because entrepreneurs have to spend time addressing daily recurring crises, they spend less time on growing the business. An example of a recurring crisis could be dealing with suppliers about miscommunication in shipments. An example of an activity for business growth could be identifying a new group of customers to target. The trade-off between 'firefighting' daily activities and development-oriented activities forms a bottleneck for the entrepreneur. The entrepreneur can spend time on the exploitation of opportunities and pursue future growth or choose to invest time in the improvement of internal processes and decrease the number of recurring crises (Yoo, Corbett and Roels, 2016). Second, research demonstrates that the lack of capital of a startup causes a lack of knowledge (Bruhn et al., 2018; Govindarajan et al., 2019). Startups are less able to invest in intangible goods such as IT, brands, and human resources which are crucial for achieving a competitive advantage. They have a lack of entrepreneurial skills to implement changes and formulate a mission and vision. In case the entrepreneurs have the knowledge, they struggle to finance the knowledge (Edvardsson and Teitsdóttir, 2015; NCvO, 2019).

Firms that use business services can reduce these bottlenecks. Business services fill the gap of knowledge in a firm and increase the time for an entrepreneur to focus on the core business (Kox, 2002). Firms outsource business services to obtain knowledge that is not available internally. This allows firms to keep up with the increased competitiveness in the market. The increase of knowledge in technology,

human resources, and managerial competencies strengthens the competitive advantage. Managerial competencies create efficient and effective learning processes and deploy the right resources for technological and industrial know-how. Through outsourcing business services, the entrepreneur has more time to focus on the core business and build on the competitive advantage (Huggins, 2011; Kox, 2002). The growth of knowledge-intensive business services is widely recognized as the key to the innovation of small and medium-sized enterprises (SMEs) (Den Hertog, 2000; Kox, 2002).

Larger firms outsource business services to a greater extent than smaller firms. Older firms also outsource business services to a greater extent compared to younger firms (Rutten, 2014). This is in line with the two liabilities. The decision to outsource is caused by the costs of it. The capital required for outsourcing business services is usually expensive for a startup (Fielden and Hunt, 2011; Lamontagne and Thirion, 2000). Startups struggle to attract skills and capital because investing in new technologies and knowledge is expensive. For example, the costs of illness and layoffs of skilled employees are relatively higher for a startup, because a larger company can spread this risk over the entire organization. While the costs of outsourcing business services are expensive for a startup, startups do require more business expertise than established firms that already gained their fair state of legitimacy. Especially startups benefit from knowledge inputs to enhance their performance (Rutten, 2014).

The tradability of business services increased due to digitalization (Baker, 2015). Digitalization entails the sociotechnical phenomena and processes of adopting technologies in organizational and societal contexts (Legner et al., 2017; Rachinger et al., 2018). Since the 1990s, business services produce the largest share of employment growth in the European Union (Kox and Rubalcaba, 2007). The corona crisis of 2020 accelerated this shift even more because people were suddenly forced to work online. Firms had to provide their employees with digital systems to carry out their work at the home office. The use of digital media ensured a continuation of the work because the provision of business services is becoming less dependent on the place where the service is consumed (Blum and Neumärker, 2020). Digitalization made these exchanges over distance possible with detailed interacting and coordinated IT systems. Digitalization brought outsourcing within reach of businesses, including startups. This was caused by a decrease in the costs of transferring knowledge over distance. For example, the travel expenses to a business partner are cut out. Besides, there is no need to rent an office space for meetings with the business partner if the meetings are online. It is cheaper to outsource business services digitally instead of face-to-face because a physical presence is not required (Miles, 2005). While outsourced business services were initially expensive, the reduction in costs means that the services are now also within reach of startups (Nagy, 2013).

How digitalization enhances the outsourcing of business services also depends on the type of service. Digitalization disproportionately stimulates the outsourcing of non-core business services compared to core business services (Kox, 2002). Non-core business services are activities that are related to support business processes and are not essential to a firm's success. Because conduction of non-core business services tends to go with less firm specific knowledge compared to core activities external,

business partners are better able to perform the former type of activities than the latter. (Haki and Forte, 2010). Core business services are activities that are essential to a firm's success. They contribute to a competitive advantage. External partners are not as familiar with the core business as owners of the company. Therefore, core business services are less likely to be outsourced because they relate to primary business processes. A deeper understanding of the core business is required to perform these services (Lepak and Snell, 1998).

Progressive digitalization tends to accelerate the outsourcing of non-core business activities. This is because as a result of digitalization, the way knowledge is created, maintained, and transferred, also changed. This process is called codification (Kox, 2002; Miles, 2005, Morgan, 2004). Knowledge is reduced to an accessible digital form of information. Therefore, it becomes easier for companies to outsource non-core business services because these services require less knowledge about firms' primary business processes (Morgan, 2004). IT systems ensure an easy transfer of knowledge. Thus, it is cheaper to outsource digitally than face-to-face which causes an increase in the outsourcing of digital non-core business services.

The goal of this research is to gain insight into the extent to which digitalization alleviates bottlenecks of startups through gaining knowledge and saving time and money by outsourcing non-core business services. Although some attempts have been made to address the issue of the supply perspective of the service provision (Evans and Volery, 2001), the needs of the entrepreneur have received limited attention in the literature. "There exists a dearth of such research and there is a subsequent gap in the knowledge base regarding SME owner-managers and successful business assistance interaction their perspective." (Lewis et al., 2007, p. 552). Understanding the contribution of digitalization to the outsourcing of non-core business services is important not only for academic literature but would be useful information to startups as well. As a great deal of added value and job opportunities are generated by startups, it is important to understand how startups could increase their survival rate (EZK, 2018a). The research question to achieve the goal is: "*To what extent does digitalization of business services contribute to alleviating liabilities of startups through stimulating outsourcing of an increasing number of non-core business services thus creating more space for the entrepreneur to focus on core business activities?"* The first part of this research question contains the digitalization of business services as the independent variable. The second part of this research question focuses on outsourcing, (non) core business services, and liabilities of startups as the dependent variable.

To answer the research question, important literature on the liabilities of startups, digitalization, outsourcing, and (non-) core business services will be discussed in the next chapter. This chapter focuses on the potential benefits of digitalization to outsourcing and the contribution of outsourcing (non-core) business services. Chapter three elaborates on the quantitative research design and operationalization used. After collecting data, results will be analyzed, and important findings will be discussed in chapter four. This analysis leads to a discussion with the main conclusions, interpretation, implications, and directions for further research to increase the survival rate of startups.

2. Theory

2.1 Introduction

This chapter provides theoretical knowledge about the influence of digitalization on the outsourcing of non-core business services. First, the liabilities of newness and smallness are described, and more in detail: the bottlenecks of capital, knowledge, and time of startups. Second, digitalization, outsourcing, and the influence on bottlenecks are discussed, followed by hypothesis one. Next, core and non-core business services and their differences regarding knowledge are described. Besides, the influence of outsourcing non-core business services on bottlenecks is explained. The effect of digitalization on this relation is taken into account. This ultimately results in hypotheses two and three, after which the conceptual model is presented.

2.2 Bottlenecks of startups

2.2.1 Liabilities of newness and smallness

In 1965, Arthur Stinchcombe introduced the 'liability of newness' presupposing a higher risk for younger organizations compared to adolescent firms (Stinchcombe, 1965). Freeman's article cited more than 2,000 times via Google Scholar, supported this liability of newness (Freeman, 1983). In the analysis of three dissimilar organizational populations, death rates at the early stages are much higher than those in later years (Freeman, 1983). While Stinchcombe (1965) claims the liability of newness is universally applicable, Hannan and Freeman assume different organizational populations and therefore a different organizational evolution (1977, 1989). Although the liability of newness is supported, the strength of age-dependency differs per organization on death by either dissolution or by absorption through a merger (Freeman, 1983). Stinchcombe wrote his hypothesis on newborn firms more than 50 years ago. Even though, research from the last two decades illustrates that the hypothesis is still widely accepted within academic circles and contributes to knowledge about startups (Cafferata, Gianpaolo, and Poggesi, 2009). In organizational mortality literature, the liability of newness is systematically cited as a cause for newborn mortality (Abatecola, Cafferata, and Pogessi, 2012).

Stinchcombe provides four reasons for newborn mortality. First, new organizations have to learn new services and roles at some cost. They lack the learning experience. Second, these new roles have to be invented, while at the same time, resources are limited. The third and fourth reasons for newborn mortality rely heavily on the lack of trust within a stable core structure. The third reason is the lack of an informal communication structure in the organization. Interactions in the organization are new, but to enhance collective action, trust has to be developed within the organization. As time passes, organizational capabilities improve due to an increase in trust. The fourth shortcoming is an established external network of clients, supporters, and customers. In the beginning, the firm must rely on the cooperation of strangers. Startups lack a track record which makes it harder to convince stakeholders to

invest in the firm (Guercini and Milanesi, 2016). Therefore, the relations of trust are more precarious than in older organizations.

To develop trust and a stable social structure, time is needed (Brüderl and Schüssler, 1990; Stinchcombe, 1965). Established organizations with stable core structures and routines lower the mortality rates because routines are established in the organization. Startups still have to establish relationships with various stakeholders and therefore are more at risk than older organizations. Consequently, younger organizations have a lower level of legitimacy and are unable to effectively compete with established organizations (Hannan and Freeman, 1977; Stinchcombe, 1965).

As an extension of the liability of newness, Freeman was one of the firsts to find empirical evidence for the liability of smallness (Freeman, 1983). He found that the effect of size can reduce the effect of age. Measuring the effects of age and size on the failure rate of firms has difficulties, as it is known that most new firms tend to be small at the start of the life cycle (Freeman, 1983). The liability of smallness assumes a higher risk for smaller organizations compared to larger firms due to a shortage of resources (Brüderl and Schüssler, 1990; Freeman, 1983; Halliday, Powell, and Granfors, 1987). After the introduction of the concept by Freeman, Aldrich and Auster defined the 'liability of smallness' concept more in detail (Aldrich and Auster, 1986). They specified that size is measured in either the amount of financial capital or the number of employees at the time of the foundation (Aldrich and Auster, 1986). Small firms usually do not have large amounts of capital. The lack of capital is caused by a shortage of creditors' strong financial support due to a weak social support system. Smaller firms have difficulty meeting the high costs of interest rate payments, overhead costs, and governmental regulations. Large firms can spread those costs over the entire organization. A considerable amount of capital increases the chance of a firm to survive in critical times because they have reserves on which they can rely. Lastly, sizable organizations have a better position in attracting new employees, because they are well-known and have more to offer to new workers. Smaller organizations have limited market presence and limited market power and cannot attract skilled labor in the same way (Abatecola, Cafferata, and Pogessi, 2012; Guercini and Milanesi, 2016).

The liabilities of newness and smallness explains underlying bottlenecks that cause lower chances of survival for a startup. The bottlenecks are interconnected. If a bottleneck exists, it has an impact on the entire survival process of the startup (Garnsey and Hefferman, 2005). For example, if a lack of capital exists, the entrepreneur has to perform all services by himself or herself. The entrepreneur spends time on non-core business services at the expense of developing a competitive advantage. Less time is spent on coordination and planning of core activities of the company. Output and productivity decline and the time-to-market increases which increases production errors (Dencker, Gruber and Shah, 2009).

2.2.2 Criticism of liabilities

The liabilities have been criticized in academic literature, with the foremost critical point being the measurement of the concepts. Since new organizations tend to be small, the effects of newness on failure rates are moderated by the effects of size. Distinguishing age from size is difficult because both are often found to be collinear (Wholey and Brittain, 1986). However, to understand the separate effects of age and size, one should research them isolated. When researchers measure both the liability of newness and the liability of smallness separately, the former is mostly stronger (Halliday, Powell, and Grandfors, 1987).

Wholey and Brittain state that the effect of size on failure rates is researched, but does not clarify why largeness reduces these same death rates. It appears that largeness and old age do not guarantee survival. Larger firms are less likely to fail, but the chance they will survive is not a hundred percent (Carroll, 1983). It is known that largeness provides a survival advantage. Nevertheless, which factors are the major contributors to low mortality rates is not yet determined (Abatecola, Cafferata, and Pogessi, 2012; Wholey and Brittain, 1986).

Another criticism that Wholey and Brittain expressed is understanding of 'the organizational death' concept by which failure rates are measured (Wholey and Brittain, 1986). New organizations could fail and stop to exist, but they could also merge into or be acquired by another organization. Freeman, Carroll, and Hannan substantiate this claim by demonstrating differences in patterns of organizational mortality caused by different conceptualizations of organizational death (1983). Death by disbanding can imply the factual closure of a failed firm, dividing firms into different parts or leaving a particular market. These variations might affect observed patterns of death as provided in the research of Freeman et al. (1983). A flaw that demonstrates another methodological shortcoming in research on liabilities is based on the specific time the liabilities are measured. Size is often measured at the beginning of the organizational life cycle and thus measures the initial size of an organization (Freeman, Carroll and Hannan, 1983). At that time, the organization is still unstable and learning capacities that can vitiate the age effect are neglected (Halliday, Powell and Granfors, 1987). When growth is taken into account, it can affect measurements of size over at least five years. This argument calls for longitudinal research to measure the effect of learning on size.

The liability of adolescence is a variation on the liability of newness. The liability of newness was introduced as a central point in organizational ecology in the 1960s. Next, the liability of smallness found support around the 1980s. Later, the liability of adolescence was first introduced by the end of the 1980s (Fichman and Levinthal, 1988). It raises a shift in the relationship between mortality rates and the age of newborn firms because some researchers call the assumption of a continuous decline of risk into question (Carroll and Huo, 1988, Singh, House and Tucker, 1986). While Stinchcombe's assumes a monotonic decline of failure rates, some cases demonstrated a non-monotonic inverted U-shape pattern (Fichman and Levinthal, 1988). One of the first researchers to empirically support this are Brüderl and Schüssler (1990). Solely liability of newness is not a useful representation of mortality rates they argue,

because organizations live on a stock of initial resources. The liability of adolescence assumes a low hazard rate at the beginning of the life cycle whereafter it declines. Newly established firms start with an initial stock of assets which reduces the risk of early selection pressures. This initial buffering period is described as the 'honeymoon' stage whose duration may vary depending on the amount of these assets (Brüderl and Schüssler, 1990; Fichman and Levinthal, 1991). While the liability of newness assumes a high risk in the first phase, the risk of failure within the liability of adolescence is quite low during the honeymoon phase. It then increases for a period, called adolescence. It is important to realize the liability of adolescence is gaining increasing support in academic circles. Although this criticism exists, the breadth of this thesis allows for an analysis of the newness and smallness of the firm and not of the initial capital of the company.

2.3 Technological development of business services

Digitalization formed a major trend in changing society and business (Parviainen et al., 2017). It describes the sociotechnical phenomena and processes of adopting those technologies in organizational and societal contexts (Legner et al., 2017; Rachinger et al., 2018). From digitalization rose the need for various new professions that facilitate the use of these new technologies (Toivonen, 2004). A part of this change is the increase in the outsourcing of business services. Outsourcing digital business services is a broad concept. First, outsourcing is the provision of services by an external provider, outsides the boundaries of the firm (Manning, Massini, and Lewin, 2008). Second, the digital part entails the connection with technology, centering on the production and the transfer of knowledge on technology (Miles et al., 1995). Third, business services are the provision of services rather than producing goods and rather to other firms than to private consumers (Kox, 2002).

Such business services can be handled internally by employees or they can be completed by external service providers. The decision of outsourcing depends on different aspects, such as costs and quality considerations (Kox, 2002). Solely outsourcing of low skilled services has shifted to a knowledge intensification of the outsourced services in several waves (Kox, 2002). The first wave of outsourcing in the early 1980s focused on low- or medium-skilled services such as transport, cleaning, catering, maintenance of buildings and equipment, and insurances. The second wave, from the mid- the 1980s onwards, outsourced standard services that were usually handled internally. This entails services like security, research and development, standard administration work, bookkeeping, recruitment for temporary standard jobs, technical testing, and specialist computer consulting. The third wave, beginning from the 1990s onwards, also included the outsourcing of specialized in-house services (Kox, 2002). These were more management services that were closely related to the core business of the company. This involved services such as market research, advertisement, legal advice, recruitment for management jobs, management services, and technical consultancy. Moreover, after 2000, digital conversations became a more standard form of communication (Kox, 2002; Legner et al., 2017). The

outsourcing of specialized-in-house services increased because it became easier to access these services digitally (Edvardsson and Teitsdóttir, 2015).

Digitalization caused this shift towards the outsourcing of core business services. It changed space-time relations in two ways. First, the provision of business services is becoming less dependent on the place where the service is consumed. IT made these exchanges over distance possible with detailed interaction and coordination (tradability). As a consequence, the costs of communication of knowledge over distance sunk. Second, the ways information and knowledge are created, maintained, and transferred, changed (codification) (Kox, 2002; Miles, 2005). For example, while a profession such as an independent financial advisor with an office on location is in decline, traditional firms needed to rethink their business models and began offering online financial advice (Berger & Frey, 2016). In short, the demand for outsourcing business services as well as the demand for outsourcing core business services increased. A case study on Finish startups confirms the rise of digitalization and core business services. Interviewees mentioned new technology, new processes, and new customers and markets as the top sources of business model innovation (Still et al., 2017). They identified new technology as the number one source of business model innovation. It has an increased role in the expansion of knowledge-intensive business services (KIBS). As knowledge is one of the most important goods of KIBS companies, technology positively influences the output of KIBS through speed up operational processes and reduces costs in the recording, processing, storing, and distributing of knowledge (codification) (Nagy, 2013).

H1: *Due to the ongoing digitalization of business services, more recently founded firms outsource business services to a significantly greater extent compared to earlier founded firms in their first five years.*

Especially the first five years are critical for the survival of a startup because a startup experiences several risky phases (Leach and Melicher, 2011). A company either does not survive or relies on income from family and friends and reserves in the start-up and survival stage. However, during the rapid-growth stage, income must have been generated to survive in the long term. Therefore, researchers usually use the first five years as a measurement for the survival rate of businesses (Cabrera et al., 2002; Grant et al., 2019; KvK, 2019).

The advantages of outsourcing digital business services start with a reduction in costs. Working online cuts the costs for an employer, because one does not need office space, facilities, or personal insurances (EZK, 2018a). Because startups usually experience a lack of capital in their first five years, a reduction in costs creates the ability for startups to obtain knowledge and skilled labor. As a result of increased competitiveness, firms require business services to obtain knowledge that is not available internally (Kox, 2002). The increase of knowledge in technology, human resources, and managerial

competencies strengthens the competitive advantage. Managerial knowledge creates efficient and effective learning processes and deploys the right resources for technological and industrial know-how.

As described in the section on liabilities, startups face several bottlenecks. Outsourcing non-core business services buy the entrepreneur time to focus on the core business. A higher focus on management allows the entrepreneur to set up a business plan and decreases the space for production errors and can lead to a shorter time-to-market. Additionally, a startup has a lack of trust in its market. With an increase in time, trust in the market and from external investors can be gained. The decrease of these bottlenecks can have a positive effect on income. The income provides capital to invest in the firm to reduce the bottlenecks. Outsourcing of business services provides the entrepreneur with time to develop a competitive advantage to diminish bottlenecks. All in all, outsourcing of business services reduces the bottlenecks of capital, knowledge, and time of startups by bringing knowledge into the company at a lower cost and creating the ability for the startup to focus on the competitive advantage.

H2: *Due to the ongoing digitalization of business services, more recently founded firms outsource business services to a significantly greater extent compared to earlier founded firms and by extension experience fewer bottlenecks in their first five years.*

2.4 Codification

2.4.1 Knowledge

The general relationship between digitalization and outsourcing business services has been hypothesized in the previous section. Outsourcing of business services however not solely depends on progressive digitalization, but also on the kind of knowledge that is at stake. It is essential to understand the concept of knowledge first before explaining different outsourced business services.

Knowledge is widely recognized as a key to competitive advantage (Nonaka, 1994). People nowadays live in a knowledge society and the rapid pace of innovation requires to create, maintain, and transfer knowledge at a higher level than ever. The shift in the process of knowledge requires a reconceptualization of the way society typically have dealt with knowledge. While the meaning of knowledge can be philosophical, the basic definition is 'justified true belief' (Nonaka, 1994). Nonaka et al. (2000) described knowledge as dynamic because it is created in social interactions amongst individuals and organizations. Knowledge is context-specific, as it depends on a particular time and space. Without being put into a context, it is just information and not knowledge. This definition emphasizes the human dimension of knowledge. Information becomes knowledge when it is interpreted by individuals in a context based on the beliefs of individuals (Nonaka et al., 2000).

After the explanation of the concept of knowledge, several distinctions in kinds of knowledge can be made. Knowledge is transferred through ties. A common distinction regarding knowledge transfer is the difference between strong and weak ties. It discusses the knowledge transfer within

knowledge networks (Augier and Thanning Vendelo, 1999). Other authors distinguished different kinds of knowledge based on their economic relevance (Lundvall and Johnson, 1994). They differentiate knowledge on 'know-what', 'know-why', 'know-how', and 'know-who'. 'Know-what' is knowledge about facts and can be easily communicated. The definition of 'know-how' refers to skills that are rooted in experience-based learning that is related to tacit knowledge (Lundvall and Johnson, 1994). The last example provides an important distinction between tacit and codified knowledge that will be used throughout this thesis and will be discussed in detail in the next section.

2.4.2 Codification

Digitalization accelerates the codification of knowledge and changes the balance between codified and tacit knowledge (Morgan, 2004). Tacit knowledge is context-dependent knowledge communicated through personal interaction in a shared context (Morgan, 2004). Codified knowledge is standardized and can be easily transferred over a distance without losing much of its value (Morgan, 2004). This codification replaced tacit knowledge with codified knowledge to make knowledge transferable for digital service provision. To transfer tacit knowledge, business services have to be executed face-to-face, while some services can be codified and handled by digital service provision. Services that were previously expensive due to the face-to-face provision, can become affordable for startups by codified digital service provision (Nagy, 2013). The interaction between codified and tacit knowledge (knowledge conversion) is essential for knowledge creation. The competitive advantage is gained if codified and tacit knowledge interact which results in expanding both forms of knowledge in both quality and quantity (Nonaka et al., 2000). Codified knowledge is needed for effective communication in written texts, while tacit knowledge requires interaction to actualize products or services through interaction and practice (Nonaka et al., 2000).

The digital proximity of business services can substitute for physical proximity in a standard transaction, but not in the transferring of complex, ambiguous, and tacit knowledge (Morgan, 2004). Business services that require high levels of interaction and tacit knowledge exchange may not be the ideal object for digitalization (Desrochers, 2001; Miles, 2005). Tacit knowledge activities such as creatives processes cannot be easily automated (Huggins, 2011). Transferring knowledge online may cause a loss of knowledge, but only when it entails tacit knowledge that requires face-to-face communication.

2.4.3 Outsourcing non-core business services

Codified and tacit knowledge can be linked respectively to non-core and core business services. Non-core business services are activities that are not essential to a firm's success and are therefore easily outsourced (Lepak and Snell, 1998). They generally have a low value and can be seen as supportive services. These services can be linked to codified knowledge because the services require limited

knowledge of the core business to fulfill them. Services that are standardized across firms may be expensive for internal deployment and therefore have a higher likelihood of outsourcing (Lepak and Snell, 1998).

Codified or explicit knowledge is standardized and can be easily transferred over a distance without losing much of its value (Morgan, 2004). It is based on facts, highly codified, and easy to acquire. The exchange of knowledge is done via documents, written reports, guidelines, manuals, e-mails, and self-explanatory software (Hansen, 2002). This kind of knowledge can be easily transmitted to a large number of people in written form with the help of a digital environment (Augier and Thanning Vendelo, 1999; Nonaka et al., 2000). It requires less connection between people exchanging information because the knowledge is codified and thus can be easily communicated. Because codified knowledge is associated with an easy transfer, it is closely linked to non-core business services, because it does not require high knowledge of the core business of an organization to be transmitted. With an extensive IT infrastructure to store and transfer this codified knowledge, one can reuse the knowledge many times (Hansen, Nohira and Tierney, 1999). Services can also be provided digitally. Digitalization makes it cheaper to outsource non-core business services because face-to-face communication is no longer required for the transfer of codified knowledge. Digitalization contributes to the outsourcing of non-core business services because startups have cheaper and easier access to non-core business services (Miles, 2005).

2.4.4 Outsourcing core business services

Core business services can be linked to tacit knowledge. Core business services are activities that are essential to a firm's success (Lepak and Snell, 1998). They contribute to a competitive advantage. To execute these services properly, inside information about the company's primary business processes and personal interaction is needed. These knowledge transfers are linked to tacit knowledge. When a service contains tacit knowledge, an entrepreneur may prefer internal support. Tacit knowledge is context-dependent knowledge communicated through personal interaction in a shared context (Morgan, 2004). In contrast to codified knowledge, the disadvantage of tacit knowledge is difficult communication. Tacit knowledge is acquired by sharing experiences, observation, and imitation. It is rooted in action, procedures, commitment, value, and emotions. Although many definitions of tacit knowledge exist, Polanyi captured the essence in the phrase "we know more than we can tell" (Polanyi, 1966). It is the unsaid knowledge that flourishes in a non-verbal form. Tacit knowledge is an important resource in gaining a competitive advantage because tacit capabilities and skills are the core competence of a firm. They are person-embodied and context-dependent. The creation of firm differences depends on the development of novel and tacit knowledge (Augier and Thanning Vendelo, 1999).

Tacit knowledge has a social and spatial significance. Social significance expresses itself in tacit capabilities as team skills and organizational routines. Language, meaning, identity, and direct

communication are essential elements to understand each other. In other words, a shared language enhances knowledge exchange. Spatial significance refers to the linkage of tacit knowledge to a location, access to direct physical interaction. This requires physical proximity. Because tacit knowledge is the opposite of codified knowledge, it cannot be easily transferred in a de-personalized manner. Tacit knowledge is harder to transfer than codified knowledge because one has to articulate knowledge and acquire it through experiences. Face-to-face interaction ensures richness in knowledge transfer. A strong connection between the two parties that exchange information makes it more likely that they understand each other because they share the same context and beliefs.

Interactive learning transfers the knowledge in that shared context. Because tacit knowledge is know-how that is acquired through interactive learning, it cannot be learned by solely communicating verbally, but is acquired through experience (Howells, 1996). The learning process in tacit knowledge exchange comes from direct experience, face-to-face communication, and the use of non-verbal communication (Morgan, 2004). As we saw in the definition of knowledge provided by Nonaka (2000), information becomes knowledge when it is interpreted by individuals and their context. Adding context and value through human interaction defines tacit knowledge. The knowledge is mainly exchanged in an unwritten form. A moderate investment in IT is needed to connect the experts (Hansen, Nohira, and Tierney, 1999, Scheepers, Venkitachalam, and Gibbs, 2004).

Although face-to-face communication is essential for the transfer of tacit knowledge, advancing ICT systems enhance the exchange of tacit knowledge in a digital way (Lepak and Snell, 1998). Core business services are commonly executed internally instead of being outsourced. While firms are more likely to internally perform core business services, codification may cause an increase in the outsourcing of core business services. The tacit knowledge of these services becoming codified more easily. Digitalization ensures low-cost outsourcing of core business services because IT transfers certain types of tacit knowledge as well. But core business services are likely to be retained internally because physical presence is essential for the knowledge exchange. Physical proximity cannot typically be replaced by digital proximity. The social depth of tacit knowledge is the nuance in body language and face-to-face communication that might not be noticed in digital communication. This social depth is lost when the knowledge is exchanged online. The quality of knowledge exchange in complex transactions is higher with face-to-face interaction compared to digital interaction because non-verbal exchanges are included (Morgan, 2004). In summary: codification facilitates outsourcing core business services, but when a business service contains tacit knowledge, it may decrease the quality of the business service when it is being outsourced.

Besides the requirement of physical presence for the performance of core business services, some services can require both tacit as codified knowledge to be performed. Outsourced business services are ranged on a scale from non-core business to core business services. It is crucial to realize this is not a binary scale with a choice between a service being either core or non-core. Tacit and codified knowledge can be intertwined. Despite losing value when transferring tacit knowledge online, tacit and

codified knowledge should not be seen as mutually exclusive. They can co-exist (Morgan, 2004). Knowledge can be tacit without the possibility to become codified. Johnson et al. argue that human and organizational competencies cannot be fully transformed into codes (2002). At the same time, it is possible to transform aspects of them into codified knowledge. The differentiation between outsourcing non-core business and core business services is not a choice between one or the other. Some tacit services can be codified, but require interactive learning for a useful knowledge transfer. For example, one can learn running by reading a technique instruction with logical statements, but one cannot make explicit use of the actual skills and competencies of the human cognitive capabilities such as pattern recognition when trained by Usain Bolt (Johnson et al., 2002). As codified knowledge is linked to non-core business services and tacit knowledge to core business services, it is important to look critically at the exclusion of outsourcing some services. Business services partially related to core business and partially to non-core business can be outsourced with extra thought to a solid transfer of knowledge.

2.4.5 Digitalization an non-core business services

In short, the liability of smallness is caused by a shortage of (financial) resources of startups. Startups often do not have the capital to outsource business services. Digitalization altered this problem. Codification made it easier and cheaper to outsource. Digitalization created a shift from outsourcing face-to-face business services to outsourcing digital business services (Morgan, 2004). Physical proximity is no longer needed in every form of knowledge transfer because the tacit knowledge has become codified. Startups now can find new, profitable ways to obtain a competitive advantage by outsourcing business services online instead of face-to-face (Nagy, 2013). Not only codification affected outsourcing, the degree to which business services are related to the core business also affects the degree of outsourcing. Because non-core business services require less knowledge about primary business processes, it is easier to outsource these services. The degree of the ongoing digitalization of business services increases the amount of outsourcing digital business services. The greater the extent to which business services are related to the non-core business of the company, the greater the extent to which these services are being outsourced. Firms spending time on non-core business services, may have less time for their core business activities. The greater the extent to which business services are related to the non-core business of the company, the greater the extent to which these services are being outsourced. The outsourcing of non-core business services is easier than the outsourcing of core business services. As described in the previous section, outsourcing core business services requires knowledge of the primary business processes. Therefore, it is easier to outsource services that are not highly related to the core business of the company, so-called non-core business services.

H3: *Due to digitalization smoothing the transferability of non-core business services to a greater extent compared to core business services, more recently founded firms outsource relatively more non-core business services than core business services compared to earlier founded firms in their first five years.*

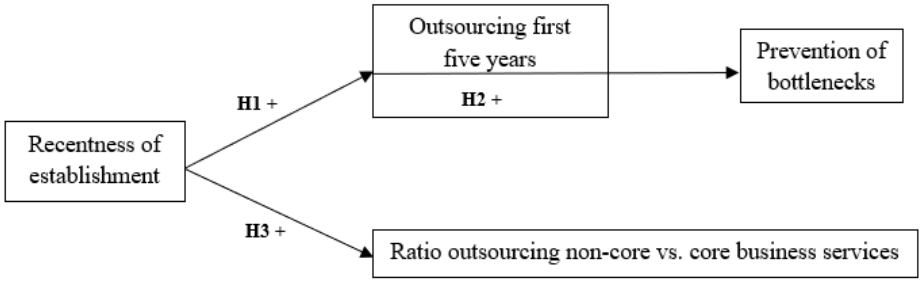

Figure 1: the conceptual model

Figure 1 illustrates the three hypotheses in a conceptual model. Hypothesis one contains recentness of establishment as the independent variable and outsourcing the first five years as the dependent variable. The more recently a firm is established, the more it outsources business services in the first five years. Hypothesis two contains recentness of establishment as the independent variable and prevention of bottlenecks as the dependent variable. The more recently a firm is established, the fewer bottlenecks it will experience in the first five years. This effect is mediated by outsourcing in the first five years: the greater the extent to which a company outsources business services, the greater the extent to which bottlenecks will be prevented in the first five years. Hypothesis three contains recentness of establishment as the independent variable and outsourcing non-core business services as the dependent variable. The more recently a company is founded, the greater the extent it outsources non-core business services (relative to outsourcing core business services).

3. Methodology

3.1 Introduction

This chapter outlines the specific method used in this thesis. First, the research method will be presented and the research unit will be addressed. Next, the most important concepts are operationalized which is followed by an explanation of validity and reliability. Afterward, the method of analysis will be explained where after the chapter concludes with the consideration of the research ethics.

3.2 Research method

The purpose of this research was to provide insight into the extent to which outsourcing business services increases the survival rate of startups. From a large set of data, some conclusions can be drawn about the extent to which outsourcing business services increases startups' survival rate (Vennix, 2009). The expected relationships need statistical proof (Vennix, 2009). Therefore, a quantitative study was chosen as it contributes to testing hypotheses developed in the previous chapter.

A survey was used to collect the data (see Appendix). A survey is a sample taken from a population. The results of the survey can be generalized to make a statement about them (Vennix, 2009). A survey was chosen because this research contains three specific hypotheses that should be tested with a survey. Additionally, information from several indicators was collected from a large set of data (Field, 2013).

3.3 Research unit

The research units were Dutch companies and the data sources for this research were the entrepreneurs or founders of those companies. In this case, a great number of startups were included in the analysis, which increased the generalizability of this thesis. The sample chosen was a minimum of 50 Dutch companies. A list of 1000 companies founded in 2005 and founded in 2015 was randomly generated from the Chambers of Commerce in the Netherlands. This list of companies received an e-mail with an invitation to the survey. Because the recentness of the establishment of the company is the independent variable, companies were selected on that variable. This allowed for the research to compare earlier founded firms within their first five years. The survey was conducted through an online written questionnaire.

3.4 Operationalization

To test the hypotheses, concepts were operationalized. The operationalization table consists of all the variables and can be found in Table 1. See the Appendix for the corresponding survey questions.

Type	Name	Indicator	Min. value	Max. value	Measurement level	Question
Independent	RoE	Recentness of establishment	-	2020	Interval	2
Mediator	Outsourcing	Distribution of outsourcing versus insourcing	0	100	Ordinal	7
Dependent	Ratio outsourcing non-core versus core business services	Contribution to revenue	1	5	Ordinal	8
Dependent	Prevention of bottlenecks	Experience of the degree of bottlenecks	1	5	Ordinal	9
Control	Size at start (E0yr)	Number of employees at the foundation	1	-	Ratio	4
	Size after five years (E5yr)	Number of employees after five years	1	-	Ratio	5
	Sector	SBI code of sector	1	3	Nominal	6

Table 1: operationalization table

3.4.1 Independent and mediator variable

The recentness of establishment is the independent variable. This is operationalized as the year the company is founded.

Outsourcing is used as an independent and mediator variable (see Figure 1). Outsourcing is the phenomenon in which business services that are previously handled internally, are contracted to external companies (Morgan, 2004). The respondents were asked to which degree twelve business services are outsourced or dealt with in-house. These twelve business services are derived from the Dutch Central Statistical Office. The twelve business services are 1) legal services 2) financial and fiscal services 3) organizational and economic services 4) technical design, 5) web design and lay-out house-style 6) development software and apps, programming and building websites 7) data processing and web hosting 8) other software services 9) promotion and advertisement 10) market and opinion research 11) research and development 12) recruitment and selection employees (AdviseurMakelaar, 2008; CBS, 2020).

3.4.3 Dependent variables

Prevention of bottlenecks is the dependent variable. Bottlenecks that a startup can encounter were derived from the liabilities of newness and smallness. The entrepreneurs were asked to what extent they experienced bottlenecks on the six items. The six items are 1) preparation of a business plan 2) suitable network 3) market knowledge 4) obtain finance 5), time-to-market 6) production errors (AdviseurMakelaar, 2008; Vaessen, 2005).

Outsourcing non-core business services is the dependent variable in hypothesis three. Non-core business was measured by contribution to the revenue. As described in the theoretical section, the type of knowledge transfer is closely linked to the (non-)core business. As differentiation between non-core and core business services is determined by contribution to the competitive advantage, non-core business was measured by the contribution of the service to the revenue. The respondents were asked to what

extent the twelve services (mentioned in the previous paragraph) contribute to the revenue. On the one hand, when a service contributes much to the revenue of the company, it will be closely linked to the core business of the company. On the other hand, when a service does not contribute much to the revenue of the company, it will be closely linked to the non-core business of the company.

3.4.4 Control variables

The control variables were the firm size and firm industry. Firm size was taken into account in this research because it is a characteristic that can be of great influence on a firm's performance (Abatecola, Cafferata, and Pogessi, 2012). Additionally, larger firms usually tend to have more financial resources, which provides the chance to outsource business services (Eriotis et al., 2007). A detailed explanation of liabilities linked to large firms was discussed in the theoretical chapter. Firm size was measured by the number of employees at the start and the number of employees after five years (Horvath and Szerb, 2018).

The industry of the firm was also taken into account as a control variable because a heavily physical core business will have less common grounds with digital outsourcing of business services. The industry of the firm was measured by a SBI code, a code that classifies industries in the Netherlands (Kox, 2002).

3.5 Validity and reliability

Proper research should be valid and reliable. Validity is about measure what you want to measure (Hair, 2014). Questions of the survey with indicators from the operationalization table measured the conceptual definition. Internal validity was assured by deriving indicators from the theoretical definition presented in the existing literature. Measurement scale of the variables recentness of establishment, outsourcing the first five years, and control variables firm size and industry were already provided in the existing literature. The measurement scale of the core business was operationalized without an existing scale. This needs to be kept in mind when interpreting the final research results.

External validity is the degree to which the results are generalizable towards the population (Vennix, 2009). The companies are randomly selected through a mailing list of the Chambers of Commerce which implies that the results might be representative for Dutch companies. However, the results might be less generalizable to a larger population, because the response rate of the survey is low (only 3 percent). Because the survey was sent out to Dutch companies only, the external validity of the research is limited to companies in the Netherlands and one should realize that it cannot be easily generalized towards foreign companies. Furthermore, one should keep in mind that certain types of companies might be more eager to complete the survey. This refers to companies that are service-oriented and therefore spend more time on their working day on the computer. Therefore, certain sectors might be overrepresented. The general statistics in the univariate analysis illustrated support for this

assumption. To improve the response of the research and thereby increase the external validity, two reminders were sent to the respondents and personal connections to entrepreneurs of the researcher were used to include more respondents in the survey.

Reliability is about the question if replication of the research leads to the same results (Hair, 2014). Before conducting the research, the method was described in detail. During the research, steps were logged to ensure replication has the same outcome. Reliability is measured by Cronbach's alpha (Field, 2014). When conducting quantitative research, a Cronbach's alpha of .7 is mostly used. This implies the reliability of the analysis. The variables outsourcing and non-core business each exist out of twelve indicators and bottlenecks consists out of six items. The research checked for higher reliability if certain items of the variables were deleted. Measurements are taken if Cronbach's alpha is scored under the .7.

3.6 Method of analysis

To analyze the data, the program SPSS statistics was used. The conceptual model was split up into three different analyses that belong to three hypotheses. The first hypothesis was tested using a simple regression method because the relationship between variables must be predicted. A simple regression method tests what the effect of an independent variable is on the dependent variable (Hair, 2014). Before the regression methods were executed, the four basic assumptions of regression analysis were tested to guarantee a reliable regression analysis. The second hypothesis was tested in SPSS using the method PROCESS by Andrew F. Hayes. The process method is a path analysis modeling tool that can be used to estimating the effect in mediator models (Hayes, 2017). It estimates the direct and indirect pathways from the independent to the dependent variable. The effect of the recentness of establishment on the prevention of bottlenecks mediated by outsourcing the first five years was tested. The regression coefficient was interpreted to answer the hypotheses. If the regression coefficient was significant, it indicates the change in the dependent variable for one unit change in the independent variable (Hair, 2014). Hypothesis three compares the means to measure the differences in outsourcing non-core business services between older and younger companies.

3.7 Research ethics

To conduct research accurately and according to academic standards, the following remarks were made about research ethics. All data used in this research was treated confidentially because the information provided by the respondents was only published in this thesis and not shared with others. During and after the time of the research, it was stored on university disks which only the researcher could access. Additionally, the results of the survey were handled anonymously to guarantee the privacy of the companies. Businesses were not be named in this thesis and the names were not used in the entire process. Participants of the research were briefed about all of the aforementioned ethics and aim of the

research at the beginning of the survey and had the freedom to withdraw from the research at any time (Smith, 2003). Additionally, the participants were offered the possibility to ask the research questions or make remarks about the research. Lastly, the researcher was aware of her own possible biases. For this reason, chapters of the thesis were criticized by the supervisor and the design has changed multiple times to ensure the quality and integrity of the research.

4. Analysis

4.1 Introduction

The purpose of this chapter is to report the results from the SPSS analysis to test the hypotheses. First, response and missing values are discussed. Second, the construction of the variables is presented. Next, the univariate, bivariate, and multivariate analysis are described where after the most important results will be summarized.

4.2 Response

Altogether, 90 respondents filled out the survey. 27 of those answers were empty and 18 answers were incomplete and were deleted from the research. A total of 45 valid responses was checked. The outliers were checked and deleted from the research. Not applicable options are indicated as missing values. When doing the missing value analysis, Little's MCAR test demonstrated a *p* higher than .05, which indicates the missing's as completely at random. Two indicators of the variable outsourcing (outsourcing technical services and outsourcing marketing) had more than 10 percent missing values and were deleted from the research. The remaining variables all had missing values under ten percent. These missing values were replaced using mean substitution. Although the mean substation has the disadvantages of altering the variance and distribution, replacement by mean is the ideal single value to substitute with. It provides all cases with complete information (Hair et al., 2014). Of the 45 valid responses, 87% were male. 49 percent of the entrepreneurs were 50 or older, 37 percent were between 30 and 50 years old and 14 percent of the entrepreneurs were 30 years or younger.

4.3 Variable construction

The moderator variable non-core business consisted of twelve indicators. The respondents answered to what extent a service relates to the core business. The conceptual model theorizes the opposite: to what extent a service relates to the non-core business. Therefore, the items of the core business variable were reversed. The higher the score, the more the service relates to the non-core business. This is in line with the conceptual model. The items of variable non-core business were first tested on reliability with Cronbach's alpha. The twelve items demonstrated a score of .697 on the scale variable. According to Field (2009), the alpha should be higher than .7 to be reliable. Additionally, the corrected item-total correlation should be higher than .3 to guarantee correlation with the overall scale. Therefore, the items' non-core business recruitment, non-core business promotion, and non-core business marketing were deleted because the corrected item-total correlation was less than .3. After the deletion, the Cronbach's alpha had a score of .755 which is considered reliable. In the end, the scale variable non-core business consisted of nine items. The nine items that remained after deletion in the reliability analysis, were added up and divided by nine to construct the scale variable non-core business.

The dependent variable outsourcing consisted of twelve indicators. The scale of outsourcing had a Cronbach's alpha of .722. After the deletion of seven items with the corrected item-total correlation that was less than .3, five indicators were left. This resulted in a Cronbach's alpha of .850. In the end, the scale variable outsourcing the first five years consisted of five items. The five items that remained after deletion in the reliability analysis, were added up and divided by five to construct the scale variable outsourcing first five years.

The dependent variable bottlenecks consisted of six items. The scale of bottlenecks had a Cronbach's alpha of .655. As mentioned before, a score beneath .7 is considered low for reliability. Therefore, two items with a corrected item-total correlation less than .3 were deleted and this led to an acceptable alpha of .754. After deletion, the scale variable bottlenecks consisted of four items. The four items that remained after deletion in the reliability analysis, were added up and divided by four to construct the scale variable outsourcing first five years. For the multivariate analysis, the scale variable bottlenecks was reversed, translated into 'prevention of bottlenecks'. This is done to assure that the assumed relations have the same direction.

The variable the recentness of establishment was divided into two categories: businesses established before 2010 and businesses established after 2010. In the univariate analysis, this is referred to as younger and older companies.

The dependent variable of hypothesis three, ratio outsourcing non-core business services versus core business services is constructed using two variables. Outsourcing the first five years and non-core business services are combined. First, companies that outsource more than 50 percent of their services are considered to outsource business services. Second, a service relates to the non-core business if it scores higher than 2.5 (on a scale from one to five) on contribution to revenue on the reversed scale. Combined, the ratio non-core business services versus core business services was measured by calculating the amount of companies who link services to the non-core of the percentage of companies that outsource. The percentage of companies that outsource can be found in Table 9.

4.4 Univariate analysis

Businesses were divided into three categories, based on their core activity (see Table 2). None of the companies is active in the industry, 18% of the companies represent the trade sector and 82% are involved in the service sector. More than a quarter of the entrepreneurs was in advisory, research, or other specialists' business services.

Frequencies sector		
	Frequency	**Percent**
Industry	0	0
Trade	8	17.8
Service	37	82.2
Total	45	100

Table 2: frequencies sector

Table 3 illustrates the statistics of the variables used in the research. Some interesting figures came up in the presented statistics. Half of the businesses were founded before 2010 and the other half after 2010 ('RoE' stands for the recentness of establishment: 'RoE1' is the group established before 2010 and 'RoE2' is the group established after 2010). Therefore, the respondents are divided into those two groups. The first group, firms established before 2010, had a mean of 21.9 years of existence. The second group, firms founded after 2010, had a mean of 5.6 years of existence. 86 percent of the firms had between one and five employees at the start. This percentage fell to 44 percent of the businesses after five years. This demonstrated a growth in the size of the surveyed companies.

The variable non-core business had an average of 2.4. This means that the company labeled the degree of non-core business services with an average of 2.4 on a scale of five. This is the mean of all tasks combined. When the averages of these tasks are examined separately, it is striking that research and development are most often classified as relating to the non-core business (see Table 4). Software development is least linked to the non-core business. This conversely implies that entrepreneurs out of the precoded business activities consider software development as a major core-activity in terms of value-added for their revenue. This could be explained by an overrepresentation of ICT companies among the respondents. This is not the case, as only 4.4 percent of the total number of respondents represents the ICT business.

The scale variable outsourcing had an average of 53.8. This means that the company indicated that 53.8% of their services were outsourced. When comparing the means of outsourcing between sectors, the mean of the trading sector (56.3) was slightly higher than the service sector (53.2). Companies in the trading sector outsource a bit more than service-based companies. This could be explained by the lack of knowledge trading companies have about performing services compared to service-based companies. When analyzing the mean scores of the services separately, it is interesting that promotion and advertisement services are most often outsourced. Data processing and web hosting are the least outsourced. Besides, the difference between the mean scores of younger and older companies have been measured. Companies founded more than ten years ago demonstrate a higher average (57.6) on outsourcing services than companies founded after 2010 (49.8). Older companies outsource business services to a greater extent compared to younger companies.

The scale variable bottlenecks had an average of 2.069. When analyzing the mean scores separately, the differences between bottlenecks were no more than 0.1 points. This indicates the bottlenecks are all equally present. Not one bottleneck is prevailing.

High values of skewness and kurtosis demonstrated a non-normal distribution of certain variables. The variable gender had a high skewness and kurtosis, but this is a nominal variable therefore it should not be transformed. The number of employees at the foundation (E0yr) and the number of employees after five years (E5yr) both had skewness and kurtosis higher than 2 and were logarithmically transformed which led to a lower skewness and kurtosis level. Other forms of transformation did not produce a lower kurtosis for the variable number of employees at the foundation (E0yr).

Variable statistics								
	RoE	**RoE1**	**RoE2**	**E0yr**	**E5yr**	**Outsourcing**	**Non-core**	**Bottleneck**
N	45	23	22	43	43	45	41	45
Mean	13.93	21.913	5.591	.396	.937	53.789	2.431	2.069
SD	10.165	8.112	2.218	.443	.589	27.531	1.027	.736
Skewness	.848	.599	.112	1.794	1.122	-.194	-.160	.743
Kurtosis	-.302	-.795	-.608	3.493	1.840	-.958	.214	.190
Minimum	2	12	2	0	0	0	0	1
Maximum	39	39	10	1.9	2.9	100	4.67	3.75

Table 3: variable statistics

Variable statistics non-core scale (1=min; 5=max)								
	Financial	**Organizational**	**Technical**	**Web design**	**Development software**	**Data processing**	**Other tasks**	**Research**
N	42	43	42	42	42	42	41	42
Mean	2.833	2.372	2.286	2.238	1.929	2.333	2.707	3.024
SD	1.780	1.346	1.967	1.559	1.629	1.857	1.901	1.660
Skewness	-.445	-.175	.246	.313	.405	.012	-.268	-.342
Kurtosis	-1.081	-.952	-1.533	-1.052	-1.094	-1.524	-1.468	-1.052
Minimum	0	0	0	0	0	0	0	0
Maximum	5	5	5	5	5	5	5	5

Table 4: variable statistics non-core business

More than half of the entrepreneurs experienced little or no bottleneck in obtaining financing, creating a suitable network, or gaining market knowledge (Table 5). Especially obtaining financing seems to create less of a bottleneck for entrepreneurs: 53% experienced barely or no bottleneck with it. Entrepreneurs experienced time-to-market as the largest bottleneck: 28.9% of the entrepreneurs experienced it to be a large or extra-large bottleneck. Second in a row are production errors, followed by forming a business plan.

Frequencies bottlenecks						
	1	**2**	**3**	**4**	**5**	**Total**
Business plan						
Percent	40	8.9	35.6	13.3	2.2	100
Cumulative Percent	40	48.9	84.4	97.8	100	
Suitable network						
Percent	37.8	35.6	15.6	8.9	2.2	100
Cumulative Percent	37.8	73.3	88.9	97.8	100	
Market Knowledge						
Percent	31.1	37.8	24.4	4.4	2.2	100
Cumulative Percent	31.1	68.9	93.3	97.8	100	
Obtain finance						
Percent	53.3	24.5	11.1	8.9	2.2	100
Cumulative Percent	53.3	77.8	88.9	97.8	100	
Time-to-market						
Percent	28.9	8.9	33.3	17.8	11.1	100
Cumulative Percent	28.9	37.8	71.1	88.9	100	
Production errors						
Percent	26.7	20.1	27.8	15.6	8.9	100
Cumulative Percent	26.7	46.8	75.6	91.1	100	

Table 5: frequencies bottlenecks

4.5 Bivariate analysis

To test the correlation between variables, a bivariate analysis was conducted. This section demonstrates the correlation between variables (Table 6), the correlation between items and variables (Table 7), and the correlation between items (Table 8). Table 6 illustrates the correlations between the variables. The first observation demonstrated no significant relationships between the variables except for the number of employees at the start and the number of employees after five years with $r = .557$. This is logically explained since time is coherent with the growth of companies. A company has time to develop and grow the business. Notable is that the recentness of establishment demonstrated no significant relation with either the variable outsourcing or bottlenecks.

The two cohorts of the recentness of establishment were checked for correlation with the different items of outsourcing. The assumption is that recently founded firms in their early years outsourced business services to a greater extent than earlier founded firms did in their initial years, because of the effects of digitalization described in the theory section. None of these correlations appears to be significant. Therefore, it cannot be concluded that younger firms, compared to older firms, outsource to a significantly greater extent in their first five years.

Pearson correlation per variable							
	1	2	3	4	5	6	7
1. RoE	1	.092	-.156	-.061	-.094	-.165	-.107
2. Outsourcing		1	.150	.269	-.248	-.163	-.049
3. Non-core			1	.088	-.027	.092	.161
4. Bottleneck				1	-.182	-.129	.112
5. E0yr					1	.557*	-.191
6. E5yr						1	.111
7. Sector							1

*p < .05
**p < .01

Table 6: Pearson correlation per variable

The theory assumes that companies who outsource to a greater extent, experience fewer bottlenecks compared to companies that outsource less. Contrary to general expectations, outsourcing in general does not correlate significantly with bottlenecks in general in the early life stage (Table 6). However, the picture is ambiguous. Significant correlations exist between the items of outsourcing and bottlenecks. The results are demonstrated in the seven steps below (Table 7 and 8). The first two steps demonstrate non-significant correlations, steps three, four, and five demonstrate significant positive correlations, and step six and seven demonstrate significant negative correlations.

First, certain outsourced business services do not correlate positively or negatively with one or more bottlenecks at all. This applies to the outsourcing of legal tasks, promotion and advertisement services, research and development, and recruitment and selection.

Second, certain specific bottlenecks do not correlate positively or negatively with one or more outsourced business services at all. This applies to the bottlenecks of a suitable network and market knowledge.

Third, outsourcing in general does correlate positively to two specific bottlenecks. This applies to outsourcing with the bottleneck time-to-market (r = .350 and p <.05) the bottleneck production errors (r = .345 and p <.05). The greater the extent to which a company outsources, the greater the extent to which it experiences bottlenecks in time-to-market and production errors.

Fourth, bottlenecks in general do correlate positively to two specific outsourced business services. This applies to outsourcing data processing tasks (r = .333 and p <.05) and outsourcing other tasks (r = .343 and p <.05). The greater the extent to which data processing and other tasks are outsourced, the greater the extent to which companies experience bottlenecks in their first five years.

Fifth, certain specific outsourced business services correlate positively with certain bottlenecks. This applies to five cases. Outsourcing financial tasks correlates with the bottleneck financial support (r = .326 and p < .05). This could indicate that companies who experience financial problems appeal to external financial support in to greater degree. Outsourcing data processing correlates to time-to-market (r = .323 and p <.05) and production errors (r = .427 and p <.01). Outsourcing other tasks correlates to time-to-market (r = .372 and p <.05) and production errors (r = .369 and p <.05). A possible explanation for these correlations could be high transaction costs. Data processing and other activities are not linked to the core business in the first place but they could include company-specific conditions and knowledge. Non-core business services also can contain tacit knowledge which makes it harder to outsource these services.

Sixth, outsourcing in general does correlate negatively to one specific bottleneck: financial support (r = -.333 and p <.05). The greater the extent to which a company outsources, the less it causes bottlenecks in obtaining financial support.

Seventh, certain specific outsourced business services correlate significantly negatively with bottlenecks. This applies to three cases. Outsourcing organizational task correlates to the bottleneck of preparation of a business plan (r = -.412 and p < .01). Companies that outsource organizational tasks experience fewer bottlenecks in forming a business plan. This helps to set up a stable core structure, gain credibility from stakeholders, and gives access to external resources. Outsourcing web design correlates to the bottleneck of financial support (r = -.363 and p <.05). Outsourcing software correlates to the bottleneck of financial support (r = -.342 and p <.05). Software development is most linked to the core business of the company and web design to a lesser degree. It could be argued that when entrepreneurs experience fewer bottlenecks in obtaining financial support, they perform web design and software development services to a greater extent by themselves.

Concluding, when comparing the variables, no significant relationships exist, but specific items of outsourcing may correlate (although weak or moderate) with certain items of bottlenecks. An interesting finding is that certain outsourced services prevent bottlenecks, while other outsourced services can cause an increase in the number of bottlenecks.

Pearson correlation of items with scale variables							
	1	**2**	**3**	**4**	**5**	**6**	**7**
1. Outsourcing	1	.778**	.738**	.269	-.333*	.350*	.345*
2. Outsourcing data processing		1	.693**	.333*	-.294	.323*	.427*
3. Outsourcing other tasks			1	.343*	-.175	.372*	.369*
4. Bottleneck				1	.210	.794**	.800**
5. Bottleneck financial support					1	.218	-.009
6. Bottleneck time-to-market						1	.657**
7. Bottleneck production errors							1

Table 7: significant Pearson correlation of items of variables outsourcing and bottlenecks

Pearson correlation per item																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. OS*: legal tasks**	1	.409**	-.095	.223	.190	.306*	.321*	-.038	-.008	-.181	.148	-.013	.113	-.115	.129	.151
2. OS: financial tasks		1	.181	-.068	-.183	-.185	-.011	-.009	.181	-.133	-.009	.156	.260	.326*	.195	0.95
3. OS: organizational tasks			1	.051	-.036	-.132	-.120	.191	.477**	.386**	-.412**	-.168	-.022	-.039	-.016	-.107
4. OS: web design				1	.809**	.503**	.404**	.648**	-.098	.158	-.200	.019	-.042	-.363*	.253	.290
5. OS: software and apps					1	.557**	.502**	.524**	-.101	.089	-.015	-.002	.040	-.342*	.209	.221
6. OS: data processing						1	.693*	.313*	-.275	-.067	.084	.217	.064	-.294	.323*	.427**
7. OS: other tasks							1	.320*	-.023	.104	.157	.175	.146	-.175	.372*	.369*
8. OS: promotion								1	.011	.267	-.282	.078	-.013	-.115	.240	-.40
9. OS: research									1	.339*	-.001	.108	-.012	.083	.032	-.107
10. OS: recruitment										1	-.159	-.065	-.263	-.222	-.117	-.160
11. BN**: business plan**											1	.185	-.142	.254	.003	-.010
12. BN: network												1	.375*	.162	.448**	.411**
13. BN: market knowledge													1	.253	.331*	.413**
14. BN: financial support														1	.218	-.009
15. BN: time-to-market															1	.657**
16. BN: production errors																1

*p < .05
**p < .01
***Outsourcing
****Bottleneck

Table 8: Pearson correlation per item of outsourcing and bottlenecks

Furthermore, the theory assumes that companies outsource non-core business services to a greater extent compared to core business services (see theory section 2.4.4). No significant relationship exists between the variable outsourcing and the items of non-core business or the items of outsourcing and the variable of non-core business. But eight significant relations exist between specific outsourcing items and specific non-core business items. However, significant relations are not linked to the same service. For example, outsourcing legal services significantly correlates with the degree of non-core business of promotion (r = -.303 and p < .05). Surprisingly, outsourcing juridical services has no significant

correlation with the corresponding service: the degree of non-core business of juridical services. No significant relations were found between the items of outsourcing and their corresponding item on the degree of non-core business. This means that it cannot be confirmed that the greater extent to which business services are outsourced, the greater the extent to which they belong to the non-core business.

4.6 Multivariate analysis

4.6.1 Testing assumptions

When conducting a regression analysis, basic assumptions should be tested first. The four assumptions are normality, linearity, homoscedasticity, and multicollinearity (Field, 2013). After the assumptions are described, the results of the hypotheses are provided.

Normality relates to normal distribution (Field, 2013). When standardized residuals were compared with the normal distribution, almost all variables were normally distributed. The recentness of establishment, non-core business, outsourcing, and bottlenecks were normally distributed. The residual line closely followed the diagonal line of the plot.

Linearity means the relationship between the independent variable and the dependent variables is linear. The dependent variable has a constant unit change for a constant unit change of the independent variable (Field, 2013). A scatterplot with the dependent and independent variable of each of the relations was done to assess the linearity. Several of the tested relationships were not entirely centered around a straight line. It is important to be aware that limited linearity will influence the strength and nature of relationships.

Homoscedasticity entails the same variance of the residuals of the independent variable on the dependent variable (Field, 2013). Although the scatterplot demonstrated no funnel, a few deviant points seemed to occur. When those outliers were analyzed, no extreme anomalies seemed to disturb the analysis. The scatterplot did not demonstrate a deviant pattern and the remaining values seemed to spread over the plot.

Multicollinearity is the close linear relationship between two or more variables (Field, 2013). Because this conceptual model had only one independent variable, multicollinearity was less of an issue. Multicollinearity mostly happens with relations between independent variables. Having said that, the Pearson correlation demonstrated no correlations higher than .7 which indicated no multicollinearity.

4.6.2 Hypotheses

Hypothesis 1: *Due to the ongoing digitalization of business services, more recently founded firms outsource business services to a significantly greater extent compared to earlier founded firms in their first five years.* The bivariate section demonstrated an absence of a significant correlation between the two cohorts of the recentness of establishment and the items of outsourcing. An independent samples test was performed to compare the outsourcing levels in the first five years for the more recently founded

and less recently founded firms. The assumption of homogenity of variances was tested and satisfied via Levene's F test, F(43) = .446, p = .508. The independent samples t-test was associated with a non-significant effect, t(43) = .952, p = .346. Thus, the more recently founded firms could not be associated with an increase in outsourcing compared to the less recently founded firms according to the independent samples test. In addition, it was measured what percentage of older versus younger companies outsource a large part (more than 50 percent) of their services (see Table 9). Companies founded before 2010 outsource 65.2% of their services, while companies founded after 2010 outsource 59.1% of their services. Companies founded before 2010 outsource more than companies founded after 2010. According to these results, hypothesis 1 could not be supported.

Means hypothesis 1	
	Outsourcing more than 50% of the total amount of services
Companies founded before 2010	65.2%
Companies founded after 2010	59.1%
Average	62.2%

Table 9: *outsourcing before 2010 versus after 2010*

When comparing companies established before 2006 and after 2014 instead of before and after 2010, the results account for companies that are founded between 2005 and 2010 and 2010 and 2015. According to these results (Table 10), younger companies seem to outsource more (80%) compared to older companies (66.7%).

Means hypothesis 1	
	Outsourcing more than 50% of the total amount of services
Companies founded before 2006	66.7%
Companies founded after 2014	80%
Average	73.3%

Table 10: outsourcing before 2006 versus after 2014

Table 11 and figure 2 illustrate the results of hypothesis 2: *Due to the ongoing digitalization of business services, more recently founded firms outsource business services to a significantly greater extent compared to earlier founded firms and by extension experience fewer bottlenecks in their first five years.* Before the results were reported, the explained variance of the model was assessed. R^2 measures the amount of variance in the dependent variable explained by the model (Field, 2013). The explained variance of the model is 11.4 percent, which is considered very weak. Hypothesis two was measured with outsourcing the first five years as the mediator variable: the relationship between the recentness of establishment and prevention of bottlenecks can be explained by outsourcing. First, the relation between the recentness of establishment and outsourcing the first five years is measured by using outsourcing the first five years as the dependent variable. The coefficient of this relation was b = .207, but not significant. Second, the relation between recentness of establishment and prevention of bottlenecks as a dependent variable with outsourcing the first five years as the mediator variable was measured. Both the direct (b = .003) and indirect (b = -.002) effect of the recentness of establishment on the prevention of bottlenecks were not significant. The recentness of establishment had low, but not

a significant direct effect on the prevention of bottlenecks. The recentness of establishment did not have a significant effect on the prevention of bottlenecks when mediated by outsourcing. Therefore, hypothesis 2 was not supported.

	Regression analysis	
	Outsourcing first five years	**Prevention of bottlenecks**
	b (SE)	**b (SE)**
	Model 1	Model 2
Control variable		
Size at start	-14.724 (9.379)	.189 (.261)
Predictor variables		
Recentness of establishment	.207 (.448)	.003 (.012)
Outsourcing first five years	-	-.008 (.004)
Model information		
F-score	1.420	1.665
R^2	.066	.114
N	43	43
Explanation:	*p < .1, **p < .05, ***p < .01	

Table 11: hypothesis 2: effect of the recentness of establishment on the prevention of bottlenecks mediated by outsourcing the first five years

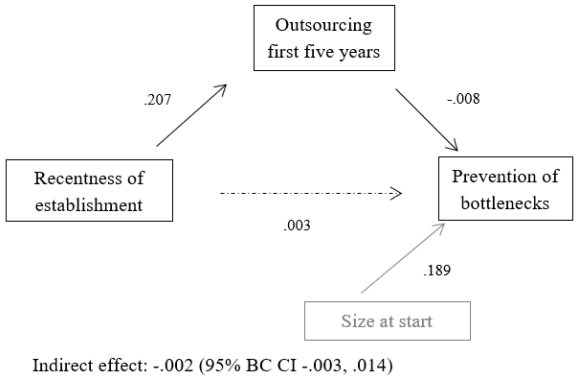

Figure 2: hypothesis 2: results illustrated

The coefficient of .207 between recentness of establishment and outsourcing the first five years is a suprising finding since it contradicts the findings from the bivariate analysis and hypothesis one. First, the correlation of recentness of establishment and outsourcing was .092 (Table 6). Second, younger companies seem to outsource less compared to older companies (Table 9). This regression analysis demonstrates a positive relation between recentness of establishment and outsourcing the first five years. This could be explained by comparing the means in outsourcing based on different years of foundation (see Table 10). For example, when comparing companies established before 2006 and after 2014 instead of before and after 2010, younger companies seem to outsource more than older companies. This is in line with the results of hypothesis two.

Table 12 illustrates the results of hypothesis 3: *Due to digitalization smoothing the transferability of non-core business services to a greater extent compared to core business services, more recently founded firms outsource relatively more non-core business services than core business services compared to earlier founded firms in their first five years.* The means are produced to compare differences across outsourcing non-core business in the two cohorts of the year of establishment. The numbers demonstrate the percentage of outsourced services that relate to the non-core business. A few conclusions can be drawn from Table 12. Companies founded before 2010 related 57.1% of the outsourced services to non-core business services. Companies founded after 2010 related 45% of the outsourced services to non-core business services. Companies founded before 2010 outsourced more non-core business services than companies founded after 2010. Third, companies founded before 2010 related 57.1% of those outsourced services to non-core business services, compared to 42.9 to core business services. Companies founded before 2010 outsource more non-core business services than core business services. Fourth, companies founded after 2010 related 45% of those outsourced services to non-core business services, compared to 55% to core business services. Companies founded after 2010 outsource more core business services than non-core business services.

Hypothesis 3 could not be supported. The assumption was that younger companies outsource more non-core business services relatively to core business services than older companies. The results demonstrate the opposite. An interesting finding occurred: older companies outsource more non-core business services compared to core business services. Younger companies outsource more core business services compared to non-core business services. This is surprising given the fact that non-core businesses are outsourced more easily than core business services.

Means hypothesis 3	
	Ratio outsourcing non-core vs. core business services
Companies founded before 2010	57.1%
Companies founded after 2010	45%
Average	52%

Table 12: hypothesis 3: means of outsourcing non-core business services between two groups

4.7 Summary

The analyses did not provide support for all of the three hypotheses. Next to the results of the multivariate analysis, the bivariate analysis demonstrated some interesting results between the items of outsourcing and items of bottlenecks. The specific correlations between the items can be read in the bivariate section. For example, the bottleneck of obtaining funding correlated weakly with three different outsourced services. A relation between bottlenecks and outsourcing can be deduced. Although correlations between specific outsourced services and specific bottlenecks are not included in the multivariate analysis due to the size of this study, it can be said that some outsourced services correlate with specific bottlenecks of startups.

The assumption of hypothesis one was that the more recently firms are founded, the more they would outsource. This could not be supported. Hypothesis two demonstrated no significant mediating effect of outsourcing the first five years on bottlenecks with the recentness of establishment as an independent variable. Hypothesis three demonstrated that older companies outsource more non-core business services compared to younger companies.

5. Conclusion

This final chapter contains a summary of the research including the answer to the research question, followed by the interpretation of the results. Thereafter, theoretical and managerial implications will be discussed. The chapter concludes with the limitations of the research and recommendations for future research.

5.1 Summary

This research aimed to gain insight into the extent to which digitalization alleviates bottlenecks of startups through gaining knowledge and saving time and money by outsourcing non-core business services. This goal was set because limited knowledge existed on the contribution of outsourcing business services to reduce bottlenecks. To achieve this goal, the following research question had to be answered: "*To what extent does digitalization of business services contribute to alleviating liabilities of startups through stimulating outsourcing of an increasing number of non-core business services thus creating more space for the entrepreneur to focus on core business activities?"*. To answer the research question, three hypotheses were tested. First, because digitalization made the digital proximity of business services possible, it is cheaper for startups to outsource business services (Morgan, 2004). This resulted in the first hypothesis: *Due to the ongoing digitalization of business services, more recently founded firms outsource business services to a significantly greater extent compared to earlier founded firms in their first five years.* Second, hypothesis two is an extension of hypothesis one. More recently established companies outsource to a greater extent and thus have more time to focus on their core business. This reduces the number of bottlenecks in the company (Kox, 2002). This led to hypothesis two: *Due to the ongoing digitalization of business services, more recently founded firms outsource business services to a significantly greater extent compared to earlier founded firms and by extension experience fewer bottlenecks in their first five years.* Third, non-core business services are easier to outsource due to the link with codified knowledge. The extent to which a service relates to the non-core business affects the influence of the recentness of establishment on outsourcing the first five years. The more recently a firm is founded, the more likely it will outsource non-core business services (Morgan, 2004; Nagy, 2013). This results in the third and final hypothesis: *Due to digitalization smoothing the transferability of non-core business services to a greater extent compared to core business services, more recently founded firms outsource relatively more non-core business services than core business services compared to earlier founded firms in their first five years.* A survey was sent to Dutch entrepreneurs established in 2005 and 2015 and additional respondents were found in the researcher's network. A valid response of 45 entrepreneurs from the survey was collected in May and June 2020. Afterward, bivariate and multivariate regressions analyses were executed. The analyses demonstrated no support for the three hypotheses. Regarding the research question, the digitalization of business services and the extent to which a service relates to the non-core business does not seem to increase the

extent to which services are being outsourced. It does not seem to alleviate the bottlenecks that enable the entrepreneur to focus on increasing the competitive advantage.

5.2 Interpretation of the results

The first hypothesis stated a positive influence of the recentness of establishment on outsourcing the first five years. The more recently a firm is established, the more likely it will outsource business services. Analyzing the data demonstrated no significant effect. This is surprising, as digitalization seemed to play a role in the increase of outsourcing (Kox, 2002). A possible explanation could be the economic crisis that started in 2007. While the literature suggests an increase in outsourcing business services, the economic crisis that started in 2007 might have affected the decision of entrepreneurs to outsource their business services (Edvardsson and Teitsdóttir, 2015). While outsourcing business services has decreased in costs due to digitalization, entrepreneurs may have no capital at all to perform these services. This is a possible explanation and cannot be confirmed by the data due to the scope of the research. However, comparing the means on outsourcing between companies founded before 2006 and founded after 2014 demonstrated that younger companies seem to outsource to a greater extent compared to older companies.

The second hypothesis posited a positive influence of the recentness of establishment on the prevention of bottlenecks mediated by outsourcing. The more recently a company is established and thus the more it has been digitalized, the greater the extent to which a company outsources business services, the fewer bottlenecks it will experience. After analyzing the data, no support was found for hypothesis two. When analyzing the direct effect of the recentness of establishment on the prevention of bottlenecks without outsourcing as the mediating factor, the analysis demonstrated a non-significant effect. Next, the recentness of establishment was of a non-significant effect on the prevention of bottlenecks when mediated by outsourcing. A possible explanation for this non-significance could be the influence of other variables. Only eleven percent of the variance in bottlenecks can be explained by the model. This means that 89 percent of the variance of bottlenecks is influenced by other variables. The literature demonstrates that digitalization led to an increase in outsourcing business services causing a decrease in bottlenecks (Kox, 2002). However, the bottlenecks of startups are not only determined by the degree of digitalization and outsourcing because the resources at the start and experience of the entrepreneur could affect the bottlenecks as well (Abatecola, Cafferata, and Pogessi, 2012; Guercini and Milanesi, 2016). As the number of employees at the start was already included in the research as a covariate, including the experience of the entrepreneur in the research may increase the explanatory power of the model. It might be an interesting direction to include other variables on the characteristics of a firm that might influence the bottlenecks of startups. Another possible explanation for the non-significance might be the difference in various outsourced business services that affect bottlenecks. Meaning: some outsourced business services might relieve bottlenecks and others do not. There exists

a difference between the items that make up the scale variables. As mentioned before in the bivariate analysis: some outsourced services are related to specific bottlenecks and others are not. The interpretation of outsourcing as a whole excludes signs of paradoxical results. For example, a specific relationship between outsourcing organizational services and the bottleneck 'drafting a business plan' exists. However, outsourcing organizational services and the bottleneck obtain financing do not have a relationship. This implicates that measuring the variables as an average excludes interesting relationships between specific outsourced services and specific bottlenecks.

The third hypothesis suggested a positive influence of the recentness of establishment on the outsourcing of non-core business services relative to core business services. No support was found for hypothesis three. This is surprising, as literature posits an increase in the outsourcing of non-core business services over the past decades (Kox, 2002). Several explanations could be offered for the results of hypothesis three. Younger companies outsource more core business services compared to non-core business services and older companies outsource more non-core services compared to younger companies. One should keep in mind that the outsourcing of core business services has increased as well, and not only the outsourcing of non-core business services (Legner et al., 2017). Although non-core business services are being outsourced more easily than core business services, this could explain why younger companies outsource core business services to a greater extent. This thesis focused on the rise of outsourcing non-core business services and it could be worthwhile to research the trend in outsourcing core business services. Besides, non-core business services can contain specific knowledge about the company which makes them less suitable for outsourcing (Lepak and Snell, 1998).

While the first two hypotheses could not be further interpreted due to non-significance, the bivariate analysis demonstrated interesting results. First, the bivariate section could not confirm the relation between specific outsourcing services and specific non-core business services. It cannot be stated that outsourced business services are related to non-core business services. This could be explained by the relation of a service to the core business. This can differ amongst companies. Services can belong to the core business in one sector, while they belong to the non-core business in another. Second, the bivariate analysis could confirm some of the interpretations presented for the three hypotheses. The scale variables outsourcing and bottlenecks do not have a relationship because some outsourcing services have a relationship with bottlenecks and some do not. For example, outsourcing data processing tasks has a relation with bottlenecks, while other outsourcing tasks do not have a relation with bottlenecks. Besides, specific outsourcing tasks have a relation with specific bottlenecks and some do not. For example, outsourced financial services are not related to the bottleneck time-to-market, while outsourcing financial services does correspond to the bottleneck obtain financial support. Referring to the literature section, a possible explanation for the presence or absence of specific relationships between outsourcing and bottlenecks could be the extent to which the outsourced service requires knowledge of the core business of the company (Miles, 2005; Morgan, 2004). Suggesting that outsourced services that contain a large amount of knowledge of the core business of the company might not alleviate

bottlenecks. The type of knowledge needed to perform core business services might be difficult to transfer correctly to the outsourcing partner. Consequently, outsourced core business services cannot be performed correctly and therefore do not contribute to reducing bottlenecks of a startup.

5.3 Theoretical implications

Current research focuses on the liabilities of startups and the increase of outsourcing business services, but the gap literature is about the influence of outsourcing (of non-core business services) on the survival rate of startups. This research demonstrated some theoretical insights into the relationship between outsourcing and the bottlenecks of startups. The results contribute to knowledge by not confirming an effect of the recentness of establishment on either outsourcing, bottlenecks, or non-core business outsourcing. The lack of a significant effect on bottlenecks by outsourcing and the recentness of establishment demonstrates that there still exists a gap of knowledge in the outsourcing of (non-core) business services and the effects on the bottlenecks of startups. The results contribute to the theory by revealing positive and negative significant correlations between outsourced services and bottlenecks. For example, outsourcing business services increases the time-to-market and production errors. However, outsourcing business services decrease the difficulties with obtaining financing. Regarding the link to the core business of a service, not enough knowledge on outsourcing of specific core business services exist to predict the effect on the survival rate of startups. Besides the link between core business services and outsourcing, non-core business services also can contain tacit knowledge which makes it harder to outsource these services. Therefore, specific core and non-core outsourced business services must be studied in a more detailed way to research the effect on the survival rate of startups.

5.4 Managerial implications

As an entrepreneur starting one's own business, a specific recommendation is to outsource specific services to make a profit. Since only 61 percent of startups survive the first five years, the results help the entrepreneur to lower the threshold for outsourcing business services. When in doubt about outsourcing services, the entrepreneur does not benefit from solely outsourcing services that are inexpensive to outsource. The results demonstrate that some outsourced services might increase bottlenecks. Outsourcing organization tasks could help form the business plan, while outsourcing data processing tasks increases the time-to-market. As an entrepreneur, one should be aware that solely focusing on outsourced services that are associated with the non-core business of the company is not supported by this research and thus could not be recommended. The recommendation is to apply selective outsourcing to make a profit.

Besides the recommendations that increase profits of startups, the implication for society is to invest in knowledge about the benefits of outsourcing for startups. This research was inconclusive about the effect of recentness of establishment or outsourcing on the survival rate of startups. But when the

survival rate of startups increases, the ecosystem receives a boost, because startups are the start of creating added value and innovation (EZK, 2018a). Further research into outsourcing business services might contribute to the ecosystem of startups. The third hypothesis has demonstrated that younger companies outsource more core business services compared to non-core business services. As an extension of these results, it may be useful to study the interaction between core business services and outsourcing more in-depth.

5.5 Limitations

The primary limitation is the sample size that represents the population of this research. First, the model of hypothesis two has a weak explanatory power which implies insufficient statistical power. Conclusions drawn from the results could gain strength by improving the sample size. Second, the population is not entirely represented in this research. One should keep in mind that entrepreneurs who responded to the survey present a distorted view of the population since entrepreneurs with a service-based company are over-represented compared to product-based companies. Since product-based companies perform fewer services online compared to service-based companies, they spend less time on a computer. Therefore, they are less motivated to fill in the survey. About the consequences of an overrepresentation of service-based companies for the results of the research can be said that product-based companies have less knowledge about performing services. The univariate section demonstrated that companies in the trading sector outsource slightly more than service-based companies. The increase in outsourced services could possibly be explained by the lack of knowledge in the company on performing services. Third, it is important to realize that companies established in 2005 and 2015 were invited to fill in the research and additional respondents were found in the researcher's network. To be invited to fill in the survey, the company still needs to exist. Startups who experienced many bottlenecks and therefore had to file for bankruptcy are not represented in the research, because they could not receive an invitation to the survey. This group might have demonstrated interesting results because the failure of their business assumes several bottlenecks. Those bottlenecks might have illustrated interesting relationships with outsourcing. Fourth, because the response rate of entrepreneurs who received the survey per e-mail was quite low, the researcher reached out to entrepreneurs in her network. One should be aware that the researcher unconsciously could be biased about companies that were sent an invitation to the survey.

The second limitation entails the measurement of the dependent variable. The entrepreneurs were asked to what extent they experienced various bottlenecks. Because the entrepreneurs had to answer about their experience of bottlenecks in the first five years of existence, the answer is subjective. Entrepreneurs who started their business in 2005 have to fill in a survey about their experiences from fifteen years ago. This response might not represent the state of events around that time accurately, because it relies on entrepreneurs' memory and not actual figures. Since memory is subjective, the

entrepreneur could have under-or overestimated the actual figures depending on various external factors, such as current mood (Odinot, Boon and Wolters, 2015).

A theoretical limitation of this research concerns the choice of an entrepreneur whether to outsource. An entrepreneur has two choices: outsourcing versus insourcing and digital outsourcing versus face-to-face outsourcing. In this research, the focus was placed on outsourcing and limited attention has been paid to the advantages and disadvantages of each of these four options. Despite the increase in the outsourcing of business services, it is essential to explain the motivation for a company to choose to outsource, because outsourcing may not be an option in the company at all.

Another theoretical shortcoming of this research is the focus on the outsourcing of non-core business services. Although the literature indicates that non-core business services are easier to outsource, the literature also indicates an increase in the outsourcing of core business services. In this study, little attention has been paid to the influence of the increase of the outsourcing of core business services.

5.6 Recommendations

Even though this research did not find an effect of the recentness of establishment or outsourcing on bottlenecks, recommendations can be made that broaden the academic debate on outsourcing. To increase the generalizability of the research and decrease the limitations mentioned in the previous section, it is recommended to increase the sample size of the research. The small sample size leaves the question if a larger sample size would have demonstrated other results about the effects on the survival rate of a startup.

Because bottlenecks are measured by a subjective experience of the entrepreneur, another outcome might have been viable when this was measured more objectively. One could not assume the entrepreneur either over-or underestimated the bottlenecks at the time, because that depends on different external factors. Although figures from that time would be difficult to recall, measure the dependent variable with actual figures might present the researcher with a more accurate response. For example, the bottlenecks could be measured by the number of holdups in the production process, the number of contacts in the network on LinkedIn, or revenue.

Further research into the entrepreneur's choice process about outsourcing business services would deepen its understanding. To gain in-depth knowledge of an entrepreneur's reasons to outsource, the research could be expanded by including personal interviews. This provides insight into an entrepreneur's decision on whether to outsource. Accounting for all choices in the outsourcing process would strengthen the academic debate around outsourcing.

Examing the impact of the increase in outsourcing core business services could broaden the insights into outsourcing as well. Further research is necessary to explore the influence of tacit knowledge on the increase in outsourcing of core business services.

Last, measuring the effect of specific outsourced services on specific bottlenecks did not fit in the scope of this research but is an interesting topic for further research. Measuring outsourcing as a variable does not affect the bottlenecks of a startup. It is worth further examine which specific outsourced business services do affect which bottlenecks. More interestingly, outsourcing of which business services do not affect bottlenecks and thus are not worth outsourcing. This could add to the purpose of this thesis: increase the survival rate of startups.

Literature

Abatecola, G., Cafferata, R., & Poggesi, S. (2012). Arthur Stinchcombe's "liability of newness": contribution and impact of the construct. *Journal of Management History*, *18*(4), 402-418.

AdviseurMakelaar (2008). *Praktijk Van Inkopen Professionele Adviesdiensten.* https://www.pianoo.nl/sites/default/files/documents/documents/praktijkcasesaanbesteden.pdf

Agbenyegah, A. T. (2013). *Challenges facing rural entrepreneurship in selected areas in South Africa* (Doctoral dissertation, North-West University).

Aldrich, H., & Auster, E. R. (1986). Even dwarfs started small: Liabilities of age and size and their strategic implications. *Research in organizational behavior*.

Augier, M., & Thanning Vendelø, M. (1999). Networks, cognition and management of tacit knowledge. *Journal of knowledge management*, *3*(4), 252-261.

Baker, P., Foster-McGregor, N., Johannes, K., Leitner, S. M., Schricker, J., Stehrer, R., ... & Yagafarova, A. (2015). *The relation between industry and services in terms of productivity and value creation* (No. 404). wiiw Research Report.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, *17*(1), 99-120.

Barrett, M., Davidson, E., Prabhu, J., & Vargo, S. L. (2015). Service innovation in the digital age: key contributions and future directions. *MIS quarterly*, *39*(1), 135-154.

Berger, T., & Frey, C. B. (2016). Digitalization, jobs and convergence in Europe: strategies for closing the skills gap. *Brüssel: Bericht im Auftrag der Europäischen Kommission*.

Bleijenbergh, I. (2015). *Kwalitatief onderzoek in organisaties* (Second edition.). Den Haag: Boom Lemma uitgevers.

Bloom, N., Eifert, B., Mahajan, A., McKenzie, D., & Roberts, J. (2013). Does management matter? Evidence from India. *The Quarterly Journal of Economics*, *128*(1), 1-51.

Blum, B., & Neumärker, B. (2020). Globalization, Environmental Damage and the Corona Pandemic-Lessons from the Crisis for Economic, Environmental and Social Policy.

Bøllingtoft, A. (2012). The bottom-up business incubator: Leverage to networking and cooperation practices in a self-generated, entrepreneurial-enabled environment. *Technovation*, *32*(5), 304-315.

Brüderl, J., & Schüssler, R. (1990). Organizational mortality: The liabilities of newness and adolescence. *Administrative science quarterly*, 530-547.

Bruhn, M., Karlan, D., & Schoar, A. (2018). The impact of consulting services on small and medium enterprises: Evidence from a randomized trial in mexico. *Journal of Political Economy*, *126*(2), 635-687.

Bury Council (2017). *Digital Assistant. https://www.bury.gov.uk/CHttpHandler.ashx?id=18423&p=0*

Cabrera, A., de la Cuadra, S., Galetovic, A., & Sanhueza, R. (2002). Las pyme: quiénes son, cómo son y qué hacer con ellas. *Santiago de Chile, Sociedad de Fomento Fabril (SOFOFA)*.

Cafferata, R., Abatecola, G., & Poggesi, S. (2009). Revisiting Stinchcombe's' liability of newness': a systematic literature review. *International Journal of Globalisation and Small Business*, *3*(4), 374.

Carroll, G. R. (1983). A stochastic model of organizational mortality: Review and reanalysis. *Social science research*, *12*(4), 303-329.

Carroll, G. R., & Huo, Y. P. (1988). Organizational and electoral paradoxes of the Knights of Labor. *Ecological models of organizations*, 175-193.

Centraal Plan Bureau (2020). *Zakelijke en ICT-dienstverlening; omzetontwikkeling, index 2015 = 100.* https://opendata.cbs.nl/statline/#/CBS/nl/dataset/83854NED/table?fromstatweb

Chaffey, D., & Ellis-Chadwick, F. (2019). *Digital marketing*. Pearson UK.

Christopher, M., Payne, A., & Ballantyne, D. (1991). Relationship marketing: bringing quality customer service and marketing together.

Costa, C. (2001). Information technology outsourcing in Australia: a literature review. *Information management & computer security*.

Das, A. (2003). Knowledge and productivity in technical support work. *Management Science*, *49*(4), 416-431.

De Faoite, D., Henry, C., Johnston, K., & van der Sijde, P. (2004). Entrepreneurs' attitudes to training and support initiatives: evidence from Ireland and The Netherlands. *Journal of Small Business and Enterprise Development*, *11*(4), 440-448.

De Mel, S., McKenzie, D., & Woodruff, C. (2008). Returns to capital in microenterprises: evidence from a field experiment. *The quarterly journal of Economics*, *123*(4), 1329-1372.

De Moor, M. (2017) *Oost west, online best: digital assistants zijn in opkomst.* Het Parool. https://www.parool.nl/amsterdam/oost-west-online-best-digital-assistants-zijn-in-opkomst~a4486575/

Dencker, J. C., Gruber, M., & Shah, S. K. (2009). Pre-entry knowledge, learning, and the survival of new firms. *Organization Science*, *20*(3), 516-537.

Desrochers, P. (2001). Geographical proximity and the transmission of tacit knowledge. *The Review of Austrian Economics*, *14*(1), 25-46.

Edvardsson, I. R., & Teitsdóttir, U. D. (2015). Outsourcing and financial crisis: Evidence from Icelandic service SMEs. *Employee Relations*.

Empirica GmbH, DIW Berlin and Databank Consulting spa (2003) 'ICT & e-business in the Business Services Sector', E-business watch, European Commission, Enterprise Directorate General, e-Business, ICT Industries, and Services, Bonn/Brussels, March.

Eriotis, N., Vasiliou, D., & Ventoura-Neokosmidi, Z. (2007). How firm characteristics affect capital structure: an empirical study. *Managerial Finance*, *33*(5), 321-331.

European Commission (2008). NACE Rev. 2: Statistical classification of economic activities in the European Community. https://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF

European Commission (2013). *Glossary: Business services.* https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Business_services

European Commision (2020). METADATA Statistical Classification of Economic Activities in the European Community, Rev. 2 (2008). https://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=NACE_REV2&StrLanguageCode=EN&IntPcKey=&StrLayoutCode=HIERARCHIC&IntCurrentPage=1

Evans, D., & Volery, T. (2001). Online business development services for entrepreneurs: an exploratory study. *Entrepreneurship & Regional Development*, *13*(4), 333-350.

Fehring, P. (2017). *Past werken als virtueel assistent bij mij?* Academie voor virtueel professionals. https://academievirtueelprofessionals.nl/

Fichman, M., & Levinthal, D. A. (1991). Honeymoons and the liability of adolescence: A new perspective on duration dependence in social and organizational relationships. *Academy of Management review*, *16*(2), 442-468.

Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. sage.

Fielden, S. L., & Hunt, C. M. (2011). Online coaching: An alternative source of social support for female entrepreneurs during venture creation. *International Small Business Journal*, *29*(4), 345-359.

Freeman, J., Carroll, G. R., & Hannan, M. T. (1983). The liability of newness: Age dependence in organizational death rates. *American sociological review*, 692-710.

Freeman, J., & Hannan, M.T. (1977). The population ecology of organizations. *American journal of sociology*, *82*(5), 929-964.

Freeman, J., & Hannan, M. T. (1989). *Organizational ecology*. Harvard university press.

Freeman, R. E. (2010). *Strategic management: A stakeholder approach*. Cambridge university press.

Gal, P., Nicoletti, G., Renault, T., Sorbe, S., & Timiliotis, C. (2019). Digitalisation and productivity: In search of the holy grail–Firm-level empirical evidence from EU countries.

Garnsey, E., & Heffernan, P. (2005). Growth setbacks in new firms. *Futures*, *37*(7), 675-697.

Govindarajan, V., Baruch, L. Srivastava, A. & Enache, L. (2019) *The gap between large and small companies is growing. Why?* Harvard Business Review

Grant, K. A., Croteau, M., & Aziz, O. (2019). The Survival Rate of Startups Funded by Angel Investors. *I-INC WHITE PAPER SERIES: MAR*, *2019*, 1-21.

Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Sage.

Guercini, S., & Milanesi, M. (2016). Interaction approach and liabilities: a case analysis of start-up firms. *Journal of Business-to-Business Marketing*, *23*(4), 293-309.

Guthrie, J. P., & Datta, D. K. (2008). Dumb and dumber: The impact of downsizing on firm performance as moderated by industry conditions. *Organization Science*, *19*(1), 108-123.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). Multivariate data analysis: Pearson new international edition. *Essex: Pearson Education Limited*.

Haki, M. K., & Forte, M. W. (2010, May). Proposal of a service oriented architecture governance model to serve as a practical framework for business-IT alignment. In *4th International Conference on New Trends in Information Science and Service Science* (pp. 410-417). IEEE.

Halliday, T. C., Powell, M. J., & Granfors, M. W. (1987). Minimalist organizations: Vital events in state bar associations, 1870-1930. *American Sociological Review*, 456-471.

Hansen, M. T., Nohria, N., & Tierney, T. (1999). What's your strategy for managing knowledge. *The knowledge management yearbook 2000–2001*, *77*(2), 106-116.

Hansen, M. T. (2002). Knowledge networks: Explaining effective knowledge sharing in multiunit companies. *Organization science*, *13*(3), 232-248.

Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford publications.

Heagney, J. (2016). *Fundamentals of project management*. Amacom.

Henriette, E., Feki, M., & Boughzala, I. (2015). The shape of digital transformation: A systematic literature review. *MCIS 2015 Proceedings*, 431-443.

Hertog, P. D. (2000). Knowledge-intensive business services as co-producers of innovation. *International journal of innovation management*, *4*(04), 491-528.

Hoitash, R., Hoitash, U., & Kurt, A. C. (2016). Do accountants make better chief financial officers?. *Journal of Accounting and Economics*, *61*(2-3), 414-432.

Horváth, K., & Szerb, L. (2018). Managerial practices and the productivity of knowledge-intensive service businesses: An analysis of digital/IT and cash management practices. *Strategic Change*, *27*(2), 161-172.

Howard, D., & Hine, D. (2000). The small enterprise environmental matrix: a tool for strategically positioning small business assistance programs. *Journal of Enterprising Culture*, *8*(01), 1-22.

Howells, J. (1996). Tacit knowledge. *Technology analysis & strategic management*, *8*(2), 91-106.

Huggins, R. (2011). The growth of knowledge-intensive business services: Innovation, markets and networks. *European Planning Studies*, *19*(8), 1459-1480.

Jasmand, C., Blazevic, V., & De Ruyter, K. (2012). Generating sales while providing service: A study of customer service representatives' ambidextrous behavior. *Journal of Marketing*, *76*(1), 20-37.

Janse, I. (2015) *Ze haalt alleen geen koffie voor de baas.* NRC. https://www.nrc.nl/nieuws/2015/11/25/ze-haalt-alleen-geen-koffie-voor-de-baas-1559912-a327480

Kamer van Koophandel (2019). Data over de bedrijvendynamiek. https://www.kvk.nl/download/DataBedrijvendynamiekJaaroverzicht2018_tcm109-472548.pdf

Kenealy, G. J. (2012). Grounded theory: A theory building approach. *Qualitative organizational research: Core methods and current challenges*, 408-425.

King, N. (2012). Doing template analysis. *Qualitative organizational research: Core methods and current challenges*, *426*.

Kox, H. (2002). *Growth challenges for the Dutch business services industry; international comparison and policy issues* (No. 40). CPB Netherlands Bureau for Economic Policy Analysis.

Kox, H., & Rubalcaba, L. (2007). The contribution of business services to European economic growth. In *Business services in European economic growth* (pp. 74-94). Palgrave Macmillan, London.

Landry, R., Amara, N., & Doloreux, D. (2012). Knowledge-exchange strategies between KIBS firms and their clients. *The Service Industries Journal*, *32*(2), 291-320.

Langley, A., & Abdallah, C. (2011). Templates and turns in qualitative studies of strategy and management. In *Building methodological bridges* (pp. 201-235). Emerald Group Publishing Limited.

Leach, J. C., & Melicher, R. W. (2011). *Entrepreneurial finance*. Nelson Education.

Lepak, D. P., & Snell, S. A. (1998). Virtual HR: Strategic human resource management in the 21st century. *Human resource management review*, *8*(3), 215-234.

Leuvering, D. (2017). *125 werkzaamheden om vanuit huis ondernemers te ondersteunen.* VA Business Academy. https://vabusinessacademy.nl/125-werkzaamheden-om-vanuit-huis-ondernemers-te-ondersteunen/

Lewis, K., Massey, C., Ashby, M., Coetzer, A., & Harris, C. (2007). Business assistance for SMEs: New Zealand owner-managers make their assessment. *Journal of Small Business and Enterprise Development*, *14*(4), 551-566.

Lieberman, M. B., Balasubramanian, N., & Garcia-Castro, R. (2018). Toward a dynamic notion of value creation and appropriation in firms: The concept and measurement of economic gain. *Strategic Management Journal*, *39*(6), 1546-1572.

LinkedIn (2019). *Search: digital personal assistant.* https://www.linkedin.com/search/results/people/?facetGeoRegion=percent5Bpercent22nlpercent3A0percent22percent5D&keywords=digitalpercent20personalpercent20assistant&origin=FACETED_SEARCH

Lith, P., Kautonen, M., Hyypiä, M., & Kuusisto, J. (2005). Uusimaa as a centre of knowledge-intensive business services.

Iivari, M. M., Ahokangas, P., Komi, M., Tihinen, M., & Valtanen, K. (2016). Toward ecosystemic business models in the context of industrial internet. *Journal of Business Models*, *4*(2).

Legner, C., Eymann, T., Hess, T., Matt, C., Böhmann, T., Drews, P., ... & Ahlemann, F. (2017). Digitalization: opportunity and challenge for the business and information systems engineering community. *Business & information systems engineering*, *59*(4), 301-308.

Lévesque & Stephan, 2020: It's Time We Talk About Time in Entrepreneurship. Entrepreneurship Theory and Practice, 44(2) 163–184

Levinthal, D. A., & Fichman, M. (1988). Dynamics of interorganizational attachments: Auditor-client relationships. *Administrative Science Quarterly*, 345-369.

Lopez, J.C., Babcic, S., & De La Ossa, A. (2015). Advice goes digital: how new digital investment services are changing the wealth management landscape. *Journal of Financial Perspectives*, *3*(3).

Lundvall, B. Ä., & Johnson, B. (1994). The learning economy. *Journal of industry studies*, *1*(2), 23-42.

Mann, C. K., Grindle, M. S., & Shipton, P. M. (1989). *Seeking solutions: Framework and cases for small enterprise development programs*. Kumarian Pr.

Meredith, G. G., & Howard, D. (1997). Counselling Entrepreneurs as Resources in Regional Economic Development. *Journal of Enterprising Culture*, *5*(04), 447-475.

Meyer, A. (2020). *The effects of service design on digitalization and the development of better service creation for stakeholders* (Bachelor's thesis, University of Twente).

Miles, I., Kastrinos, N., Flanagan, K., Bilderbeek, R., Den Hertog, P., Huntink, W., & Bouman, M. (1995). Knowledge-intensive business services. *EIMS publication*, *15*, 25-90.

Miles, I. (2005). Knowledge intensive business services: prospects and policies. foresight, 7(6), 39-63.

Miles, I. (2007). Business Services and their Users: a literature review. In *Business services in European economic growth* (pp. 39-61). Palgrave Macmillan, London.

Ministerie van Economische Zaken en Klimaat (2018a). *MKB-actieplan.* https://www.rijksoverheid.nl/documenten/rapporten/2018/06/29/mkb-actieplan

Ministerie van Economische Zaken en Klimaat (2018b). *Nederlandse Digitaliseringsstrategie.* https://www.rijksoverheid.nl/documenten/rapporten/2018/06/01/nederlandse-digitaliseringsstrategie

Mohamed, M., Stankosky, M., & Mohamed, M. (2009). An empirical assessment of knowledge management criticality for sustainable development. *Journal of Knowledge Management*, *13*(5), 271-286.

Moneypenny (2019). *Virtuele Assistent inhuren. https://moneypenny.nl/virtuele-assistent/*

Morgan, K. (2004). The exaggerated death of geography: learning, proximity and territorial innovation systems. *Journal of economic geography*, *4*(1), 3-21.

Mueller, S., Volery, T., & Von Siemens, B. (2012). What do entrepreneurs actually do? An observational study of entrepreneurs' everyday behavior in the start–up and growth stages. *Entrepreneurship Theory and Practice*, *36*(5), 995-1017.

Muller, E., & Zenker, A. (2001). Business services as actors of knowledge transformation: the role of KIBS in regional and national innovation systems. *Research policy*, *30*(9), 1501-1516.

Nagy, S. (2013). Service pyramid concept of knowledge intensive business services in the small and medium sized enterprises sector. *Editorial Preface*, *4*(11).

Nederlands Comité voor Ondernemerschap (2019). *Jaarbericht Staat van het mkb 2019.* https://cms.staatvanhetmkb.nl/wp-content/uploads/2019/10/Jaarbericht-De_staat_van_het_mkb-2019-6MB.pdf

Neely, A., Gregory, M., & Platts, K. (1995). Performance measurement system design: a literature review and research agenda. *International journal of operations & production management*, *15*(4), 80-116.

Ng, I. C., & Wakenshaw, S. Y. (2017). The Internet-of-Things: Review and research directions. *International Journal of Research in Marketing*, *34*(1), 3-21.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization science*, *5*(1), 14-37.

OECD (2019). Productivity Growth in the Digital Age. OECD Going Digital Policy Note, OECD, Paris. http://www.oecd.org/going-digital/productivity-growth-in-the-digital-age.pdf

Odinot, G., Boon, R., & Wolters, L. (2015). Het episodisch geheugen en getuigenverhoor. *Tijdschrift fvoor Criminologie*, *57*(3), 279.

Onifade, A. (2010). The indispensable secretary. *Journal of Social Sciences*, *22*(1), 47-51.

Parida, V., Sjödin, D., & Reim, W. (2019). Reviewing literature on digitalization, business model innovation, and sustainable industry: Past achievements and future promises.

Parviainen, P., Tihinen, M., Kääriäinen, J., & Teppola, S. (2017). Tackling the digitalization challenge: How to benefit from digitalization in practice. *International Journal of Information Systems and Project Management*, *5*(1), 63-77.

Piller, F. T. (2020). Ten Propositions on the Future of Digital Business Models for Industry 4.0 in the Post-Corona Economy. *Available at SSRN 3617816*.

Pritchard, K. (2012). Combining qualitative methods. *Qualitative organizational research: Core methods and current challenges*, 132-148.

Rachinger, M., Rauter, R., Müller, C., Vorraber, W., & Schirgi, E. (2018). Digitalization and its influence on business model innovation. *Journal of Manufacturing Technology Management*.

Regelhelden (2019). *Over Regelhelden.* https://regelhelden.com/over/

Rutten, J. (2014). Do incubators stimulate innovation performance in startups through openness?.

Santos, J. B., & Brito, L. A. L. (2012). Toward a subjective measurement model for firm performance. *BAR-Brazilian Administration Review*, *9*(SPE), 95-117.

Scheepers, R., Venkitachalam, K., & Gibbs, M. R. (2004). Knowledge strategy in organizations: refining the model of Hansen, Nohria and Tierney. *The Journal of Strategic Information Systems*, *13*(3), 201-222.

Schwabe, D., Rossi, G., Esmeraldo, L., & Lyardet, F. (2001). Web design frameworks: An approach to improve reuse in web applications. In *Web Engineering* (pp. 335-352). Springer, Berlin, Heidelberg.

Sebora, T. C., Lee, S. M., & Sukasame, N. (2009). Critical success factors for e-commerce entrepreneurship: an empirical study of Thailand. *Small Business Economics*, *32*(3), 303-316.

Seidler-de Alwis, R., & Hartmann, E. (2008). The use of tacit knowledge within innovative companies: knowledge management in innovative enterprises. *Journal of knowledge Management*, *12*(1), 133-147.

Singh, J. V., Tucker, D. J., & House, R. J. (1986). Organizational legitimacy and the liability of newness. *Administrative science quarterly*, 171-193.

Smith, D. (2003). Five principles for research ethics. *Monitor on psychology*, *34*(1), 56.

Spohrer, J. C., & Maglio, P. P. (2010). Toward a science of service systems. In *Handbook of service science* (pp. 157-194). Springer, Boston, MA.

Stephan, M., Silvia, M., & Arie Y, L. (2008). A dynamic perspective on next-generation offshoring: The global sourcing of science and engineering talent. *Academy of Management Perspectives*, *22*(3), 35-54.

Still, K., Seppänen, M., Korhonen, H., Valkokari, K., Suominen, A., & Kumpulainen, M. (2017, July). Business model innovation of startups developing multisided digital platforms. In *2017 IEEE 19th Conference on Business Informatics (CBI)* (Vol. 2, pp. 70-75). IEEE.

Stinchcombe, A. L. (1965). Organizations and social structure. *Handbook of organizations*, *44*(2), 142-193.

Stolterman, E. and A. C. Fors (2004). "Information Technology and the Good Life." In: Information Systems Research: Relevant Theory and Informed Practice. Ed. Kaplan, B. et al., London: Kluwer Academic Publishers.

Sullivan, R. (2000). Entrepreneurial learning and mentoring. *International Journal of Entrepreneurial Behavior & Research*, *6*(3), 160-175.

Symon, G., & Cassell, C. (Eds.). (2012). *Qualitative organizational research: core methods and current challenges*. Sage.

Tuten, T. L., & Solomon, M. R. (2017). *Social media marketing*. Sage.

Vaessen, P. (2005). *Kennisintensief ondernemerschap in Nijmegen.* https://www.yumpu.com/nl/document/read/20256631/kennisintensief-ondernemerschap-in-nijmegen-spin-offs-van-de-

Venkatraman, N., & Ramanujam, V. (1986). Measurement of business performance in strategy research: A comparison of approaches. *Academy of management review*, *11*(4), 801-814.

Vlotte Tantes (2019). *Digital Assistant.* https://www.vlottetantes.nl/digital-assistant/

Virtua Support (2019) *Over Virtua Support. https://www.virtua.support/nl/over-ons*

Wholey, D. R., & Brittain, J. W. (1986). Organizational ecology: Findings and implications. *Academy of Management Review*, *11*(3), 513-533.

Work Ninjas (2019). *Diensten.* *https://workninjas.nl/?gclid=CjwKCAjwwZrmBRA7EiwA4iMzBDWWs6D6BMQ3cDfHsvLEA9hO2QPVWFtudP4bFYoZJJoJQ9XGuRV6gRoCbe8QAvD_BwE#services*

Yazdanfar, D., Abbasian, S., & Brouder, P. (2015). Business advice strategies of immigrant entrepreneurs in Sweden. *Baltic Journal of Management*, *10*(1), 98-118.

Yoo, O. S., Corbett, C. J., & Roels, G. (2016). Optimal time allocation for process improvement for growth-focused entrepreneurs. *Manufacturing & Service Operations Management*, *18*(3), 361-375.

Yusoff, M. N. H. B., Yaacob, M. R. B., & Ibrahim, M. D. B. (2010). Business advisory: A study on selected micro-sized SMEs in Kelantan, Malaysia. *International Journal of Marketing Studies*, *2*(2),

Zachary, M. A., Gianiodis, P. T., Payne, G. T., & Markman, G. D. (2015). Entry timing: Enduring lessons and future directions. *Journal of Management*, *41*(5), 1388-1415.

Appendix

The survey used for this research is in Dutch and presented in the pages hereafter.

Enquête

Beste ondernemer,

Fijn dat u deelneemt aan deze enquête. Het onderzoek is gericht op de ontwikkeling van ondernemingen. De vragen gaan dan ook over de eerste vijf jaar van uw onderneming. Bij het beantwoorden van de vragen, vraag ik u zich te verplaatsen in de situatie van toen. De enquête duurt ongeveer 5 minuten. Uw antwoorden worden vertrouwelijk behandeld en niet met derden gedeeld.

Nogmaals bedankt voor uw behulpzaamheid!
Nicky van Koesveld

Voor vragen of nadere informatie, bel 0627895279 of mail nicky.van.koesveld@student.ru.nl.

1: Geslacht: wat is uw geslacht?

- ○ Man (1) Vrouw (2)
- ○ Anders, namelijk (3) _____

2: In welk jaar is uw bedrijf opgericht?

(1)

▼ 2020 (1) ... 1970 (51)

3: Wat is uw geboortejaar? *(Bijvoorbeeld: 1984)*

_____

4: Hoeveel medewerkers (inclusief uzelf) had uw bedrijf ongeveer op het moment van oprichten?

_____

5: Hoeveel medewerkers (inclusief uzelf) had uw bedrijf ongeveer na vijf jaar? *(wanneer het bedrijf korter bestaat, vul dan het huidige aantal medewerkers in)*

_____

6: Omschrijf kort de kernactiviteit van uw bedrijf.

_____

7: De volgende vragen hebben betrekking op **de eerste vijf jaar van het bestaan** van uw bedrijf.

Vooral in de beginfase komen taken op u af die nieuw zijn. Als ondernemer heeft u de keuze om taken uit te laten voeren door een extern bedrijf of zelf uit te voeren met uw eigen bedrijf.

Geef met de schuifbalk aan welk deel van de taken destijds door uw bedrijf zelf is uitgevoerd. Het resterende gedeelte is uitgevoerd door een extern persoon/bedrijf. (Advies: uit onderzoek blijkt dat een snelle reactie meestal al een juiste is).

Geheel door extern bedrijf uitgevoerd	Gedeeltelijk door extern bedrijf/eigen bedrijf uitgevoerd	Geheel door eigen bedrijf uitgevoerd	Niet van toepassing
0	50	100	

Juridische taken ()	
Financiële, accountants- en fiscale taken ()	
Organisatorische en economische taken ()	
Technisch ontwerp ()	
Webdesign en design huisstijl ()	
Ontwikkeling software en apps, programmeren en bouwen websites ()	
Dataverwerking en webhosting ()	
Overige software diensten ()	
Promotie- en reclamediensten ()	
Markt- en opinieonderzoek ()	
Onderzoek en ontwikkeling ()	
Werving en selectie personeel ()	

8: In welke mate waren onderstaande activiteiten **in de eerste vijf jaar** belangrijk voor het realiseren van de omzet:

	n.v.t. (1)	redelijk lichte mate (2)	redelijke lichte mate (3)	redelijke mate (4)	redelijk sterke mate (5)	sterke mate (13)
Juridische taken (1)	○	○	○	○	○	○
Financiële, accountants- en fiscale taken (2)	○	○	○	○	○	○
Organisatorische en economische taken (3)	○	○	○	○	○	○
Technisch ontwerp (4)	○	○	○	○	○	○
Webdesign en design huisstijl (5)	○	○	○	○	○	○
Ontwikkeling software en apps, programmeren en bouwen websites (6)	○	○	○	○	○	○
Dataverwerking en webhosting (7)	○	○	○	○	○	○
Overige software diensten (12)	○	○	○	○	○	○
Promotie- en reclamediensten (8)	○	○	○	○	○	○
Markt- en opinieonderzoek (9)	○	○	○	○	○	○

Onderzoek en ontwikkeling (10)	○	○	○	○	○	○
Werving en selectie personeel (11)	○	○	○	○	○	○

9: Kruis aan in welke mate uw bedrijf **in de eerste vijf jaar** knelpunten/uitdagingen heeft ervaren bij het realiseren van onderstaande activiteiten:

	geen/zeer klein knelpunt (1)	klein knelpunt (2)	enigszins een knelpunt (3)	groot knelpunt (4)	zeer groot knelpunt (5)
Opstellen goed businessplan (55)	○	○	○	○	○
Opbouwen geschikt netwerk (56)	○	○	○	○	○
Vergaren van marktkennis (57)	○	○	○	○	○
Verkrijgen van financiering (58)	○	○	○	○	○
Beheersen ontwikkeltijd van product/dienst (59)	○	○	○	○	○
Omgaan met fouten in productie/dienstverlening (60)	○	○	○	○	○

Controle

10: In welke mate hebben zelf uitgevoerde activiteiten meer bijgedragen aan de omzet dan uitbestede activiteiten?

- ○ lichte mate (1)
- ○ redelijk lichte mate (2)
- ○ redelijke mate (3)
- ○ redelijk sterke mate (4)
- ○ sterke mate (5)

U bent bijna klaar met de enquête!

11: Geef aan welk percentage van de **uitbestede** taken gepaard ging met digitaal contact. Het resterende percentage van het contact vond persoonlijk plaats.

Persoonlijk contact: ontmoetingen verlopen face-to-face (zoals op kantoor).
Digitaal contact: ontmoetingen verlopen via het internet (zoals e-mail, Skype, online chat, Whatsapp).

Geheel persoonlijk contact	Gedeeltelijk persoonlijk/digitaal contact	Geheel digitaal contact	Niet van toepassing
0	50	100	

Juridische taken ()	
Financiële, accountants- en fiscale taken ()	
Organisatorische en economische taken ()	
Technisch ontwerp ()	
Webdesign en design huisstijl ()	
Ontwikkeling software en apps, programmeren en bouwen websites ()	
Dataverwerking en webhosting ()	
Overige software diensten ()	
Promotie- en reclamediensten ()	
Markt- en opinieonderzoek ()	
Onderzoek en ontwikkeling ()	
Werving en selectie personeel ()	

12: Kruis aan op welke afstand de partner aan wie u de taken heeft uitbesteed, zich bevond *(geef een schatting bij meerdere partners).*

	n.v.t. (7)	< 5 km (2)	5-10 km (3)	10-20 km (4)	20-50 km (5)	> 50 km (6)
Juridisch advies (1)	○	○	○	○	○	○
Financieel-accountants- en fiscaal advies (2)	○	○	○	○	○	○
Organisatie en economisch advies (3)	○	○	○	○	○	○
Technisch ontwerp en advies (4)	○	○	○	○	○	○
Webdesign en design huisstijl (5)	○	○	○	○	○	○
Ontwikkeling software en apps, programmeren en bouwen websites (6)	○	○	○	○	○	○
Dataverwerking en webhosting (7)	○	○	○	○	○	○
Overige software diensten (12)	○	○	○	○	○	○
Promotie- en reclamediensten (8)	○	○	○	○	○	○
Markt- en opinieonderzoek (9)	○	○	○	○	○	○

Onderzoek en ontwikkeling (10)	○	○	○	○	○	○
Werving en selectie personeel (11)	○	○	○	○	○	○

13: Gefeliciteerd! U bent aan het einde van de enquête. Heeft u vragen of toevoegingen die niet in de bovenstaande vragen zijn besproken?

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14: Mocht u benieuwd zijn naar de resultaten van het onderzoek, laat dan hier uw e-mailadres achter. Dan stuur ik u na afloop een kopie van mijn thesis toe.

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