The embeddedness of the business-to-business platform market through online framing

A quantitative research examining the relationship between the network position and the homogeneousness of webpage content of companies in the business-to-business platform market.

Student Name Anne Toonders

Student Number 481092

Supervisor Dr. Ju-Sung (Jay) Lee

Master Media Studies – Media & Business

Erasmus School of History, Culture and Communication

Erasmus University Rotterdam

Master's Thesis

June 2019

THE EMBEDDEDNESS OF THE BUSINESS-TO-BUSINESS PLATFORM MARKET THROUGH ONLINE FRAMING

ABSTRACT

The platform economy is a growing market that consists of four branches. One of these branches is the business-to-businesses platform market. This market delivers and hosts services to business customers or clients via their own platform, often to increase efficiency in handling different tasks or helps analyzing data. The network and the digital profile of 65 companies that are active in the B2B platform market were studied to find out how the framing or similarity of the digital profiles of organizations is connected to the embeddedness of these organizations in their network. Isomorphic pressures predict that organizations within a population are more similar as organizations strive to gain legitimacy and trust. The digital profiles, consisting of two pages of an organizations' website, were coded with quantitative content analysis. To test the embeddedness of the companies, how integrated organizations are within a population, the network was constructed by scraping the organizations' websites manually to find their customers, integrations and investors. It was found that within this market the digital profiles are significantly similar, what suggests that the B2B platform market is isomorphic. It also appeared that the homogeneousness' of the digital profile is related to the embeddedness of an organizations in the network. If the similarity is related to the position of the network, this should also be reflected for the outliers of the market; the organizations that belong to a niche. Although the profiles were found to be significantly different of niche organizations than from non-niche organizations, the embeddedness of these niches did not appear to be. Lastly, the network of the B2B platform market turns out to be a small world network, so that indicates that this market is embedded in more ways than one. As a result, the embeddedness of an organization can be found in the framing of the digital profiles. Organizations that use similar statements on their websites are likely to have a closer relationship and appear to be more embedded in the market. As the embeddedness of an organization can predict better economic performance, this outcome calls for more research into the relationship between embeddedness and the digital profile and or in this market.

KEYWORDS: *business-to-business, embeddedness, isomorphism, small world network, digital profile*

Table of Contents

1. Introduction

A new economic revolution is happening. According to a Deloitte report issued at the end of 2018, the world is going through an economic revolution because of the platform economy (Chan, Voortman & Rogers, 2018). The rise of the platform economy carries serious consequences, challenges and opportunities for the labor market and organizations (Chan, Voortman & Rogers, 2018). This new economy - valued at 7.2 trillion dollars in 2018 - has been growing exponentially in the past few years (Consultancy Global, 2018), and its arrival unsurprisingly exposed pros and cons. For example, it provides consumers more choices and offers flexible incomes for workers (Consultancy Global, 2018). On the other hand, there have been problems with privacy breaches, the growth of monopolies and decreased social cohesion (Consultancy Global, 2018).

Platforms can be described as "complicated mixtures of software, hardware, operations, and networks. The key aspect is that they provide a set of shared techniques, technologies, and interfaces to a broad set of users who can build what they want on a stable substrate" (Kenney & Zysman, 2016, p.64). Within the platform economy ecosystem, there are four key branches, each with a different functions. Some facilitate services for consumers - such as the well-known Facebook, AirBnB and Uber - to platforms that help sell products like Etsy and Amazon. The third branch consist of platforms that serve as intermediaries for payments such as PayPal. The last branch is the least visible as it provides software for other platforms or companies. This is what will be referred to as the business-to-business (B2B) platform market. In the B2B platform market, businesses create and sell digital tools "to support the creation of other platforms and market places" (Kenney & Zysman, 2016, p.65). So, the B2B platform market can be defined as a market in which companies and organizations have an online space that enables direct transactions between suppliers and business customers (Li & Penard, 2014).

Organizations are "social units of agents that are structured and managed to meet a need, or pursue collective goals" (Bílková, Greco, Palmigiano, Tzimoulis & Wijnberg, 2018, p. 1). Their operation and survival is dependent on resources, namely capital, of which there are four different types for organizations: physical capital, financial capital, social and intellectual capital (Kaya, Sahin & Gurson, 2010). Physical capital comprise tangible objects like buildings, stock and equipment (Kaya, Sahin & Gurson, 2010). In the internet age, this also includes provisions for online space, like a website. Falling under financial capital is cash or investments a company makes (Kaya, Sahin & Gurson, 2010). These are the two traditional forms of capital. However, in the 1990s new forms of capital were introduced: social and intellectual capital (Nahapiet & Ghoshal, 1998). Intellectual capital refers to the knowledge, skills and experience of the

employees, and also the ownership over patents and trademarks (Kaya, Sahin & Gurson, 2010). Social capital is based on the network of relationships that, nurtured over a long period, could result in benefits through increasing trust and cooperation among actors or organizations (Nahapiet & Ghoshal, 1998). Intellectual capital and social capital are both intangible forms of capital. The most prominent characteristic of the traditional way of studying organizations and their capital is that it has been primarily resource-based. However, Bílková et al. (2018) introduces the logic of resources and capabilities to combine resources with the agency of people to transform resources into other resources. The agency of people is part of the intellectual capital of a company; employees or people in the network of an organization can further add value to existing resources and improve or change an organization to set them apart from their competitors.

While these forms of capital constitute the structure within a company, companies also operate in a structure of organizational ecology, within a common market. Organizational ecology is a theory that uses insights from the disciplines biology and economy to be able to understand how the environment influences the competitive or cooperative behavior of organizations (Hannan & Freeman, 1977). According to the population theory, which is derived from organizational ecology, companies should be viewed from a larger perspective (Carroll, 1984), specifically, a focus on the connections between companies. This broader perspective exposes the landscape or ecology in which companies operate. Uzzi's concept of embeddedness shows how integrated an organization can be within a network (1996), that defines its ecology. A network is a set of nodes - such as organizations or people, and ties - relationships such as friendships and alliances - that connect the nodes (Borgatti & Ofem, 2010). Thus, in the network of organizations, social capital manifests in the pattern of ties among organizations. The embeddedness of a company determines what opportunities are available for companies (Uzzi, 1996). Embeddedness refers to the structural position of a company in a network – how and to what other organizations it is connected to – can reveal consequential outcomes, such as the company's competiveness and economic performance (Iyer, Lee & Venkatraman, 2006).

The internet has created a "high velocity environment" in which business models constantly have to adapt to changes and opportunities (Wirtz, Schilke & Ullrich, 2010). This also applies to the business-to-business marketing. Early research about the effect of internet on marketing of the B2B market found that the internet leads to more innovation, customization and affects sales (Avlonitis & Karayanni, 2000). Nevertheless, for a long time, business-to-business branding was an area that was often overlooked by brands and researchers (Hadjikhani & LaPlaca, 2013). However, B2B branding has become a more important tool for setting

companies apart from their competitors (Österle, Kuhn & Henseler, 2018). Just as with business-to-consumer (B2C) branding, it can be used to communicate the values and benefits of an organization and it provides opportunities for identification with prospective customers and differentiation from their competitors (Österle, Kuhn & Henseler, 2018). In B2B branding, the focus often lies more on the functional components of the company such as reliability, quality and technology (Österle, Kuhn & Henseler, 2018). This focus has to do with the different kind of relationships organizations in the B2B market have with their customers or clients. The relationship is often long-term and or involves co-operation and collaboration (Cawsey & Rowley, 2016). Furthermore, this market's buyers or clients are often professionals with knowledge about products and the sector, so therefore less easily influenced by empty marketing claims (Cawsey & Rowley, 2016). Branding can establishes trust, enhances a feeling of assurance of the quality and confidence in the company and or product (Li, Pieńkowski, Van Moorsel & Smith, 2011; Bendixen, Bukasa & Abratt, 2004; Kotler & Pfoertsch, 2006). This is particularly important in a digital market where transactions are often done remotely rather than face-to-face (Li et al, 2011). The organizations in the B2B platform market are all pure-players, meaning that the companies only do business over the internet without a physical store (Muzellec, Ronteau & Lambkin, 2015), hence why trust has to be built through online communication. In the B2B platform market, companies deliver a service or integration into the existing products of clients, which incurs a longtime investment of time, money and collaboration. Moreover, the organizations often receive sensitive data about the clients' customers' personal data or revenue. For that reason, there needs to be a level of trust, before handing valuable data over to other organizations. Therefore, marketing is an important tool for these businesses to establish a solid relationship. In the B2B branch, they often communicate information about their brand through their online presence, in particular, their webpages. That makes these digital profiles a key marketing tool (Virtsonis & Harridge-March, 2009). It provides the business consumers with direct information and the possibility to interact (Moen, Madsen & Apselund, 2008).

To build further upon two of the aforementioned key elements of the platform economy and the branding of business-to-business organizations, this research aims to investigate their digital profiles in conjunction with the positions of organizations in their network. Therefore, the research question is the following:

RQ: How is the embeddedness of a business-to-business company reflected in the framing of its digital profile?

1.1. Academic relevance

There are multiple studies that focus on the different elements of the platform economy. These studies often focus on one of the other three branches of the economy market, and less on B2B platform market. Examples of these studies are cases studies on the effects of Facebook, Uber or Airbnb on the different markets like labor market, privacy or retail (Fuchs, 2012; Henten & Windekilde, 2016; Nguyen, Rintamäki & Saarijärvi, 2018). The business-to-business platform market - that this research investigates - is not often the focal point of scientific inquiry. While it the B2B platform market is an important branch of the platform economy it is not visible for the consumer, however it plays a vital role in helping other business grow and increasing revenue for these businesses. Kenney and Zysman (2016) remark that the future of the platform market is still unknown and there are choices to be made that can define and change the economic systems. De Reuver, Sørensen and Basole (2018) call for the need to study the different variances of the platform market and suggest more research in less common areas of this market. This study aims to do just that by focusing on a less visible market of the platform economy.

In doing so, this thesis combines two different aspects of companies: their network position and their online branding strategy. The lack of research focus in this area elevates this thesis to be innovative and a valuable addition to the existing academic landscape. Furthermore, there is less research in to the B2B market compared to the B2C market (Hadjikhani & LaPlaca, 2013). And even the existing research into the branding of the B2B market is regularly more focused on the branding on companies' social media presence than their own website (Cawsey & Rowley, 2016). One similar study to this thesis, but in an entirely different market, does focus on the brand positioning of the British printing industry - and through some overlapping methods, namely quantitative content analysis - to see which brand positioning elements are used in the online B2B environment (Virtsonis & Harridge-March, 2009). Thus, this thesis complements this study, but following the authors' suggestion of examining different B2B markets. On the embeddedness of organizations, studies have looked into the embeddedness of small and medium-sized enterprises, retailers, finance networks, and numerous different areas and markets (Cooke, Clifton & Oleaga, 2005; Kaufman, Jayachandran & Rose, 2005; Uzzi & Gillespie, 2002). Cooke highlights the importance of investigating embeddedness by revealing how social capital plays a role on improving the business performance on medium-sized business enterprises (Cooke, 2007). This thesis thus examines the interplay and convergence of embeddedness and the companies' digital branding of a market. According to Gandhi, Jamjoun & Heider is especially research needed that combines the branding with the organizational network. This study is doing exactly that and aiming to filling in that gap.

1.2. Cultural relevance

As the platform economy is still relatively new, this research aims to start to understand the platform economy and in particular the business-to-business platform market better. The B2B platform market is not wholly visible for the average consumer, but does play an impactful role in the current economy. According to Forrester, the B2B e-commerce market will continue to steadily climb 10% annually over the next five years (Bonde, Bruno, Wu, Ruhl & Birrel, 2019). The transactions that take place in the B2B commerce market are based on (long term) relationships and can improve a business' financial position (Gandhi, Jamjoum & Heider, 2019). The use of well-managed platforms for a business can reduce costs while growing the revenue at the same time (Meyer & Mugge, 2001). So, it can be very lucrative for businesses to acquire access to a platform (Meyer & Mugge, 2001). This research will strengthen the understanding of this market and the value of relationship between organizations. It might be worth for the organizations within the B2B platform market to invest more money and time into their branding and capitalizing on the social capital to improve their embeddedness in a network and possibly their economic performance.

Secondly, this research will shed light on a market or branch that is often under researched, having been overshadowed by more popular topics such as B2C branding and the other branches of the platform economy. The clients of the organizations within this market engage with sensitive information from customers, which can include email addresses, home addresses, phone numbers and bank details. Often do the organizations in the B2B platform market receive this sensitive data to process or analyze it with their platform. The clients' customers almost certainly do not have an understanding of where their personal information can end up. A lot of the companies that are studied use Facebook's or Google's services in order to run or perform the services of their platforms. In the last few years, giant platforms like Facebook and Uber have been under fire over their lack of protection of people's data, with new news stories coming out every month (Light, 2019; Sommerville, 2019; Conger, 2018). This research – as research does – can aid in drawing in the public's attention to not only the existence of the more well-known companies of the platform economy, but also at the less visible players in that market. This thesis shows the importance of understanding the embeddedness of organizations in the platform economy, in particular the B2B platform market. The more central a company is in a network or the amount connections it has, can be an indication how far personal information could spread throughout the network. Besides the position of these organizations in the network, this research also focusses on the content of digital profiles of organizations. Among other things, privacy is also covered. It will reveal how focused

organizations are on this topic. All in all, this research will help consumers understand better how the platform economy is constructed and will reveal a part of the network. Besides that, it will inform consumers about the digital profile and the focus on privacy of organizations in the B2B platform market. This will give consumers a better understanding of where there data can go and how much these organizations value it.

1.3. Chapter outline

In the following chapters, the research question will be answered. In the second chapter, the theoretical framework is presented. In the theoretical framework, multiple concepts like organizational ecology, population theory and embeddedness with its corresponding consequences will be explained. Besides that is the digital profile discussed in relationship to branding. Lastly, the small world network theory is introduced. These concepts are translated into five hypotheses, which will help answer the research question. In the third chapter is explained how these hypotheses can be answered and the dataset is comprehensively discussed. In this case there are two different datasets. Both of these have their own method of doing the research. The methods are quantitative content analysis and the network analysis and will both be explained, as well as the different tests that have to be conducted in order to answer the hypotheses. This leads to the fourth chapter that will present the results of the intercoder reliability tests, descriptive statistics and the five hypotheses. In the last chapter the results will be discussed in relationship to the theoretical framework, as well as the limitations, future research and a short conclusion that answers the research question.

2. Theoretical framework

In order to aid in answering the research question, this chapter presents the underlying theoretical concepts. Based on these concepts, the hypotheses will be introduced and clarified. The theoretical framework focusses on the influence of the environment on how corporations behave. Besides this, the chapter also explains what embeddedness is and what role it plays in the economy.

2.1. Organizational ecology

Organizations operate within an ecology, an organizational ecology, a concept introduced by Hannan and Freeman in 1977. Organizational ecology is a theory that uses insights from the disciplines biology and economy to be able to understand how the environment influences the competitive or cooperative behavior of organizations (Hannan & Freeman, 1977). This environment limits the abilities of organizations to change; they operate in structural processes that creates inertia within the organizations that is affecting its behavior and development of organizations (Hannan & Freeman, 1977). Specifically, this inertia can affect an organization's ability to adapt to changing environments properly. According to Hannan and Freeman (1977), there are internal and external pressures that can drive this inertia. Internal pressure comes from within an organization or company, and there are numerous internal pressures that affect the ability to change. Examples of the causes and constraints of internal pressures include the following: the lack of information within a company can lead to uninformed (managerial) decisions, reorganization as it can upset the balance among employees and managers, submitting to sunk costs, and growing bureaucracy that makes quick turnarounds or changes difficult and slow (Hannan & Freeman, 1977; Suddaby & Foster, 2017). External pressures can also drive structural inertia, that is, the external environment influences the adaptability of an organization. External pressures include barriers of entry and exit of a market, the high costs of acquiring information and competitive pressures (Hannan & Freeman, 1977; Suddaby & Foster, 2017). Thus, the direction of structural inertia can maintain due to these pressures, while rendering organizational change difficult to accomplish (Suddaby & Foster, 2017).

Organizational ecologists argue that the success of a company is connected to its ability to change to the environment and adapt new innovations and resources. That is why inertia can be problematic for an organization. However, Hannan & Freeman argue that inertia can be beneficial in individual cases (Hannan & Freeman, 1983). The inertia ensures reliability and accountability (Hannan & Freeman, 1983). That is, as companies are not able to adapt or change

quickly, the lack of change ensures consistency and therefore facilitates business, while improving the companies' reliability (Hannan & Freeman, 1983).

2.1.1. Population theory

One of the crucial positions from organizational ecology theory is that they argue that organizations have to be viewed from a larger perspective, the population level. Consequently, perspectives from population ecology have been integrated into organizational ecology (Carroll, 1984).) This integration asks how are companies connected and how do they operate in the bigger picture. Populations in organizational ecology can be described as "sets of organizations engaged in similar activities and with similar patterns of resource utilization (Baum & Rowley, 2002, p. 13)". In this theory the organizations are not individually assessed, but the focus lies on a group of organizations. The populations (categories) are created and established by two factors: how companies position themselves and how audiences perceive them (Hsu, Koçak & Hannan, 2009). Within a population, organizations have features in common that makes them recognizable as a population. These features that organizations share can be technological, long or short-term goals and similar forms of authority within an organization. (Abbott, Green & Keohane, 2016). The population of the B2B platform market consists of companies that share the same technology and their services are more-or-less similar in their function and goals: their services help their clients become more efficient. The platforms increase the speed for analyzing data or perform other tasks. Other examples of recognizable populations are fast-food chains, trade unions and hospitals (Abbott, Green & Keohane, 2016). These three examples are all populations that can be clearly described and can be recognized. That does not mean that all the organizations within a population have the same features, as there are differences between the companies too. Two key differences can be the size of a company and the access to resources (Abbott, Green & Keohane, 2016).

> "A fundamental feature of a population is its members' dependence on a common set of resources. Because of this common dependency, organizations within a population respond similarly to changes in their environment (Abbott, Green & Keohane, 2016, p. 257)".

The dependencies and similarities within a population are fundamental for this research as the dependencies and similarities are a crucial in order to understand the embeddedness of organizations in a network. The "routines, path dependence, and interdependencies between populations and other institutions encourage status quo decisions and behaviors (Lowry, 2017, p. 380). This relationship between the populations and embeddedness will be explained later. The

final element of organizational ecology is population density. This concept denotes the "number of organizations of a particular type" in a defined and determined population (Baum & Oliver, 1992, p. 540). It is relevant to the understanding of the behavior and survival of companies in an ecology, because in a more dense population there will be more competition between organizations. The heightened competition can be attributed to the scarcity of resources in a dense population. This scarcity can restrict a population to a pre-determined maximum of organizations (Berkhout et al, 2015). When the population reaches its maximum, the market tends to institutionalize (Lowrey, 2017). This stabilizes the market, and the population gains legitimacy (Lowrey, 2017). However, institutionalizing incurs other ecological mechanisms such as isomorphism (Lowrey, 2017).

In sum, the population ecology explains that organizations do not act independently, but act and react to their competitors. The social capital, the relationships and network, within a population become the bases of crucial and newly recognized organizational dynamics that are consequential to an organization's performance in its market/population.

2.1.2. Isomorphism

Organizational ecology unveils several key mechanisms. Isomorphism is one of them. It is a mechanism introduced by Hawley in 1967 that explains the phenomenon of organizations in a population that are becoming extremely similar or resemble each other (Tan, Shao & Li, 2010). The process of isomorphism demonstrates that organizations are actively adjusting their characteristics to become more compatible with the environmental characteristics (DiMaggio & Powell, 1983) and consequently mirror one another. This statements connects with the population density. As mentioned earlier, when populations are more dense they will institutionalize, in that case isomorphism dictates that the companies will show similar characteristics. Powell and DiMaggio introduced two types of isomorphism: competitive and institutional. Competitive isomorphism focusses on a market that contains competition between organizations, are able to measure success and in which niches are present, that exists in populations that have open and free competition (DiMaggio & Powell, 1983). To complement the competitive isomorphism, Powel and DiMaggio recognizes institutional isomorphism. Institutional isomorphism makes clear that organizations are not only interested in resources and customers, but furthermore are competing for "political power and institutional legitimacy, for social as well as economic fitness (DiMaggio & Powell, 1983, p. 150)". In the B2B platform market, both forms of isomorphism are present. They operate under the competitive isomorphism characteristics. In the B2B platform market there is free competition, the presence

of niche organizations and fitness of organizations can be measured, additionally, at the same time the companies are also looking for the political power and legitimacy. One example of that are the organizations in the market that try to become more powerful by merging with smaller platforms.

Aforementioned is that isomorphism is the process where companies resemble each other, this happens as organizations strive to attain or retain legitimacy (Bice, 2017). This legitimacy is generated so that external institutions and entities can recognize similar companies (Lowry, 2017). This can be recognizing the partners or the integrations of an organizations, the manner in which these companies describe their products or the people in the organization. The ability to recognize parts of a company, can create trust that gives the organizations the appearance of competence, consistency, fairness, empathy and objectivity (Hobbs & Goddard, 2015). Especially for internet firms this legitimacy has enormous value (Zacharakis, Shepherd & Coombs, 2003). Organizations who do online business often are dependent on external actors such as venture capitalists for investments and mentorship (Zacharakis, Shepherd & Coombs, 2003). In the ecommerce, B2B platform market, it is likely that companies aim to become isomorphic to gain this type of legitimacy (Alhorr, Singh & Kim, 2010). With the constantly changing values and environment in a market, it is important to maintain one's legitimacy to be able to survive (Lowry, 2017). To survive requires to "being in accord with shifting external institutions such as dominant political, economic and cultural religious institutions (Lowry, 2017, p. 318)". Consequently, organizations aim for legitimacy and at the same time contribute to the isomorphic nature of a market. The longer that organizations survive the more likely they are to conform to the institutional environment and share the logic of the population (Lowry, 2017). External changes can influence the logic of the population and force organizations to reposition themselves (Lowry, 2017).

However, at the same time can diversification appear in these markets and can induce organizational growth (Haveman, 1993). Diversification is the process of becoming more varied and diverse, an organization can do this by branching out or varying its range of services and changing operation (Kistruck, Qureshi & Beamish, 2011). Through diversification, companies transform their core activities and structures by implementing or developing new products and services (Haveman, 1993). Organizations can diversify by entering new markets or geographic fields (Kistruck, Qureshi & Beamish, 2011). However, diversification is not a long term solution to counter isomorphism. Often, organizations first observe strategic diversification from successful companies and will attempt to imitate (Haveman, 1993). Hence, this imitation eventually leads to further isomorphism in the market.

2.1.3. Isomorphic mechanisms

For markets and organizations to become isomorphic, DiMaggio and Powell (1983) introduced three key pressures that can lead to isomorphism. These pressures are often the result of managers that are unaware they contribute to isomorphism by with their decisions and actions, but come about because there is a desire to increase the effectiveness of their organization (DiMaggio & Powell, 1983). The three pressure identified by DiMaggio and Powell are the *coercive*, *mimetic* and *normative* pressures. For this research normative pressure is less relevant. The normative pressure involves moral or duty-based choice-making or duty (Boxembaum & Jonsson, 2017). It is closely linked to cultures of professionalization in companies (Bice, 2019) Normative pressures can be circulated within in a market through active participation in events (Cavusoglu, Cavusoglu, Son & Benbasat, 2015). These events can be workshops, education programs and conferences that are for example organized by trade organizations (Cavusoglu, et al., 2015). That does not apply to this marker as much, as the organizations are world-wide and not very organized (yet). Therefore it is does not fit this research very well. The remaining pressures - coercive and mimetic – are however important for this thesis.

Mimetic mechanisms induce organizations to copy existing role models or notable exemplars (Greenwood & Meyer, 2008). These mechanisms appear in environments where organizations are similar in size, strategy and face the same structural constraints (Hannan & Freeman, 1977). It often transpires because of horizontal pressure by peer organizations or other horizontal inducements (Boxembaum & Jonsson, 2017). The mimicking of role models reduces uncertainty for organizations (Zacharakis, Shepherd & Coombs, 2003). Particularly, in the early stages of a start-up or the development of a company, the investor or creators will often look at their competitors and mimic their innovation and style (Bice, 2017). The reasoning is that this would improve their legitimacy and allow them to be perceived as more successful (Bice, 2017). This pressure of mimesis leads to "convergence of values and practices (Bice, 2017, p. 24)". For the B2B market, elements such as the design of the webpage, its content or marketing approaches are likely to also be influenced by mimesis practices.

The second pressure is the coercive mechanism. It takes hold when external elements or cultural expectations change and force organizations to adjust to new circumstances (Boxembaum & Jonsson, 2017). These external changes or cultural expectations can be set by relied-upon organizations and the cultural environment in which a company operates (Bice, 2017). Coercive pressure is the only pressure that is linked to the environmental surroundings of organizations (Frumkin & Galaskiewicz, 2004), i.e. outside of the population of other organizations. As coercive pressure is dictated by changes in culture, regulation and scrutiny,

organizations are under pressure to cope with the changed environments. Often organizations in positions such as the aforementioned are forced to "diffuse or eliminate this pressure by changing their practices (Frumkin & Galaskiewicz, 2004, p. 286)". This pressure can be experienced by companies as persuasion or "invitations to join in collusion (DiMaggio & Powell, 1983, p. 150)". It can also manifest as pressure from a government mandate (DiMaggio & Powell, 1983). This particular case happens when governments introduce new laws or regulation that organizations have to abide by, indirectly increasing the similarity between organizations, hence, isomorphism. While members of the B2B platform market do not all operate under a single government, they do world-wide business and as a result come in contact with regulations and laws from either major governments or governing bodies or new governments, that exhibit their own isomorphism in the governmental realm (LeTendre, Baker, Akiba, Goesling & Wiseman, 2001). Subsequently, most business in the platform market will be subjected by laws and regulations from the European Union or The United States, one way or another.

As with mimetic pressure, coercive pressure can also result in an increase of the legitimacy of an organization (Frumkin & Galaskiewicz, 2004). Legitimacy can be gained by obliging to the societal expectations of conforming to new regulation and fitting in with the cultural standards (Bice, 2017). Organization tend to react in a defensive manner and by doing that they gravitate towards isomorphic transformation (Frumkin & Galaskiewicz, 2004). To avoid conflict, the easiest way is to adapt and adopt the newest regulation or cultural standards, this maintains their legitimacy and ensures survival (Frumkin & Galaskiewicz, 2004). However, there are times when organizations do decouple and do not become isomorphic under coercive pressure (Boxembaum & Jonsson, 2017). The decoupling happens when the organizations strongly dislike and distrust the actor, for example a government that asserts the pressure (Kostova & Roth, 2002). Another reason for decoupling is the proposed practices are viewed as inefficient (Kostova & Roth, 2002). This shows that organizations do not blindly follow coercive pressures, but that practices and regulations are examined and only copied and implemented when it improves their legitimacy or the desire to fit the cultural standards.

2.1.3. Niche theory

In their theory of organizational ecology, Hannan and Freeman (1983) also introduced the concept of *niches*. The concept also originated in the biology and evolution theory (Laland, Matthews & Feldman, 2016). In organizational ecology, a niche is a fundamental concept expressing "the ways in which the growth rate of populations depend on resources and on the actions of other populations (Hannan & Freeman, 1983, p. 1118)". Companies in a niche are the

outliers of a homogenous market, as they are often a more focused, smaller and narrower segment of a larger market (Ottosson & Kindström, 2016). A niche is defined by some fitness function that measures how successful a business is. (Hsu, Koçak & Hannan, 2009). The fitness function helps identifying which organizations and in what specific part of a market they cannot survive, persist or thrive (Hsu, Koçak & Hannan, 2009). In most populations, there are niche organizations present (Ottosson & Kindström, 2016).

A niche divides organizations between specialists and generalists (Hannan & Freeman, 1983). The population or subpopulation is described as generalist when it is a broad niche (Hannan & Freeman, 1983). Broad niche is a population that has a large tolerance for change and in which it is fairly easy to recreate the unique features of the organizations in the niche by non-niche organizations as they have a broader range of products (Hannan & Freeman, 1983). The specialists have less tolerance for change (Hannan & Freeman, 1983). They display a smaller range of variation of products (Dobrev, Kim & Hannan, 2001) these organizations are situated on the peripheries of a networks (Dobrev, Kim & Hannan, 2001). All this constitutes the *niche-width theory*. This theory expresses "the ways in which the growth rates of a population depend on resources and on the actions of other populations (Hannan & Freeman, 1983, p. 1118).

An important element in the niche theory is the focus on resources. The dependence on the same resources is an essential for establishing a population, and because of this dependency on the same resources constrains organizations to respond in the same manner (Abbott, Green & Keohane, 2016). This shows that mimesis indirectly due to resource dependency. When two organizations rely and require different resources, it indicates that they operate in different niches (Abbott, Green & Keohane, 2016). Organizations successfully operate in a niche when their social, political and economic values and conditions can sustain pressures from organizations outside their niche (Abbot, Green & Keohane, 2016). As mentioned earlier, there are multiple types of resources within an organization, the difference between non niche and niche organizations can be different access to resources like physical, financial, social and intellectual capital. Specifically, in the platform market, these difference are likely to come from the social and intellectual capital, which are what create niches in this particular market. It is known that within the platform market organizations operate as a niche (Langely & Leyshon, 2017). In fact, this is the condition that bred web 2.0 platforms (Van Dijck, 2013). Social media platforms were built on individuals and organizations' capitalizing on a new kind of online interaction, resulting in specific niches within the social media market (Van Dijck, 2013; Langely & Leyshon, 2017), that itself offers affordances and resources that ironically mirror some of the capital required to develop and maintain the niche – social, physical/technological, and intellectual capital. The

United Kingdom – as with other geographical markets – witnessed in 2015an increasing number of platforms operating in a distinct market niches (Langely & Leyshon, 2017). The social media market can be described as niche, but within this market there are possibly also organizations that appear as niche. It is plausible that these observations are similarly applicable for the B2B platform market. Therefore, within the B2B platform market niche organizations will stand out, assuming the market is isomorphic.

2.2. Embeddedness of organizations

In the aforementioned concepts and theories, it becomes clear that organizations do not operate alone, but are interdependent of each other. This can either be a within a population or niche. In order to fully understand the previous concepts, it is important to talk about networks. Borgatti and Ofem define:

> "A network consist of a set of nodes or actors, along with a set of ties of a single type that connect the nodes. The nodes can be persons, teams, departments, organizations, industries, or any other type of entity that is capable of having some sort of relationship with another entity. Ties can be a wide variety of types, such as friendships between individuals, communication patterns between departments, alliances between organizations, exchange between industries or conflict between nation-states (Borgatti & Ofem, 2010, p. 19)".

2.2.1. Social network theory

The network this research examines is that of the B2B platform market. The network of the companies comprises their relationships to one another. In the social network theory, the relations between firms or people is often the subject of study (Borgatti & Ofem, 2010). From an economic perspective, social network theory developed through the examination of networks, identified roles, and their consequences on an economic system (Granovetter, 1985). Granovetter introduced a key network concept, the strength of weak ties theory (Borgatti & Halgin, 2011). The tie strength "characterizes the closeness and interaction frequency of a relationship between two parties (Levin & Cross, 2004, p. 1478)" and thus a weak tie denotes a relationship that can be considered infrequent or casual. The strength of weak ties is contingent on two premises. For one, the strength of the relationship between two people (ties) determines the overlap in social networks (Borgatti & Halgin, 2011). That is, if there is a strong connection between two parties it is more likely that they share more ties with third parties (Borgatti & Halgin, 2011). Therefore it the chances of weak ties between organizations that share more ties is greater (Borgatti & Halgin,

2011). This aggregation of relationships exhibits another network concept called homophily, that states that people (or organizations) are connected to people (or organizations) who are similar to each other (McPerson, Smith-Lovin & Cook, 2001). These similarities can occur through characteristics like gender, socioeconomic status and ethnic backgrounds (Grabher & König, 2017), and even non-physical traits, such as opinions, and attitudes, behaviors. The second premise is that bridging ties play an important role in transmitting information (Borgatti & Halgin, 2011). A bridging tie is one that connects people or organizations that are not connected to one another (i.e. two separate clusters) (Borgatti & Halgin, 2011). In the organization realm, the bridging ties "link a focal firm to contacts in economic, professional, and social circles not otherwise accessible to the firm (McEvily & Zaheer, 1999, p. 1136)". A bridging tie provides access to information that is not circling in their closed network, what introduces opportunities and access to intellectual resources to a company that are not available to competitors ((McEvily & Zaheer, 1999; Borgatti & Halgin, 2011). By combining these two premises, it can be concluded that the more social capital people or organization has, the more successful someone or an organization can become (Borgatti & Halgin, 2011).

Often is the value of social capital is overlooked in economics as the prices and revenues are the focal point of a particular market but it is almost impossible to argue how markets operate while not discussing how noneconomic objectives can influence action (Rangan, 2000). Social and intellectual capital are examples of noneconomic objectives, but have consequences or associations to economic ones. For example, a study found a positive correlation between the numbers of network connections of a startup founder harbored and the amount of money the founder raised (Mollick, 2014). Tsai and Ghosal (1998) also found that investing in social capital will lead to an increase in value, like access to knowledge and information, based on the exchange of resources. This easily demonstrates the relevance and impact if social capital, in contributing to the thriving of a business. Similarly, another study observed that that the bigger a social network is the greater the chances a business has to succeed (Vismara, 2016). The social network perspective and research reveal how and why social capital is valuable for a company and how connections between organizations are established.

2.2.2. Embeddedness

One focus of organizational network analysis is how the embeddedness of an organization in a network determines the accessibility of possible opportunities available (Uzzi, 1996). One of Uzzi's key features of embeddedness is "the idea that organization networks operate on a logic of exchange which differs from the logic of markets (Uzzi, 1996, p. 676)".

While Uzzi finds embeddedness important, he acknowledges that industries consist of more complex coexisting modes of organizing (1996). Economic performance can become affected by social interactions and interactions among organizations, that is, their networks.

These social and organizational interactions can either be online or offline. An offline network influences the online network and vice versa (Matzat, 2010). As mentioned earlier, a network can always grow or change. Consequently, embedded ties can arise from social and or material exchange between organizations (Uzzi, 1996). Trust is one of the outcomes from the social network and, when emerging from and channeled through ties, it can enhance the economic performance (Sako, 1997). There are multiple advantages that are a direct result from embeddedness. Embeddedness increases the trust of organizations what can help reduce costs, increase future returns and long-term improvement (Sako, 1997). Moreover, the fear of opportunistic behavior is reduced by embeddedness, as the behavior of tied and trusted organizations become more predictable to one another (Paulssen & Roulet, 2016). However, embeddedness of organizations also has a downside, the increased trust in organizations can enhance the chances for malfeasance and fraud (Granovetter, 1985). Therefore, a mix of arms-length and embedded ties is preferable as that may leverage the impact of negative consequences (Uzzi, 1996). Arm-length ties between organizations have only a transactional connection, and no other robust or higher trust relationship whatsoever. Organizations who are embedded in a network become more predictable and trustworthy. This predictability, or isomorphism, can therefore reveal the position an organization in a population. Subsequently, the knowledge of the position of a company's embeddedness in a network, provides a foundation on which economic predictions are possible (Uzzi, 1996).

2.2.3. Virtual embeddedness

Complementing the embeddedness based on direct physical relationships, there exists the concept of virtual embeddedness introduced by Fowler, Lawrence and Morse (2004). Connections of virtual embeddedness are established using electronic technology like the internet (Fowler, Lawrence & Morse, 2007). With the arrival of Web 2.0, the internet has become more social, thereby increasing the possibility of form relationships over the internet at the individual level (Vasileiadou & Missler-Behr, 2011) and also at the inter-organizational level (Fowler, Lawrence & Morse, 2007). Characteristic of virtual ties are that they are not constrained by time, organizational and physical space (Vasileiadou & Missler-Behr, 2011). According to Fowler, Lawrence and Morse, the virtual ties retain the benefits of physical relationships. The cons of virtual embeddedness are the following: firstly, the transparency of the internet creates trust. The

ability to do research, look at reviews or forums helps form trust (Fowler, Lawrence & Morse, 2004) These forums and platforms for reviews often have past experiences of customers and ratings for organizations, what can be used as a guide. The same forums and reviews help at the same time to reduce the likelihood for organizations to be opportunistic, because the reputation can be affected when negative experiences are detailed on these forums (Fowler, Lawrence & Morse, 2004). The second advantage of virtual embedded ties is that it decreases the uncertainty. In the virtual world, creating ties is more often done via textual conversations, conversations can go by email or chat, and therefore leave a more complete record, an enchiridion that organizations can go back to and hold the other party accountable (Fowler, Lawrence & Morse, 2004). This is an advantage over face-to-face conversations. The validity of the claims on the internet are checked and corrected by other parties or connections, this makes it less likely to lie (Fowler, Lawrence & Morse, 2004) the digital record of companies, such as the digital review forums but also the accessibility to news articles, can lead to more transparency. Lastly, when organizations encounter problems in their company, that they might need help with, these can more easily be outsources or tackled as a community through embedded ties. The virtual ties help it to it become a community based on cooperation, instead of trying to solve problems by approaching their connections and relations more traditionally one-on-one instead of everyone at once (Fowler, Lawrence & Morse, 2004). The virtual embedded ties differ from the physical embedded ties, but bring to each problem a new solution and in some cases it works better than the traditional embeddedness.

The two types of embeddedness go hand in hand. They do not exclude each other. In the business-to-business platform market, these two forces are both present. The social capital, the connections and network of employees, the relationships between the executives and investors that partly happen offline, creates the traditional embeddedness ties. At the same time, virtual ties are also present in this market. An example of virtual ties are the organizations that companies work with or provide integrations for.

2.4. Online information

So far in this theoretical framework, the discussion of how organizations and companies are embedded and what that can mean for economic success has been theoretical. This raises the question of what companies do to position themselves in markets. In this research, the focus lies on the websites from companies. These webpages that we can consider as "digital profile" often provide information about the brands and new messages and also attention (from the media), that is especially useful in the business-to-business branch (Virtsonis & Harridge-March, 2009).

On the internet, it is valuable for companies to provide direct access to information and the possibility to interact (Moen, Madsen & Apselund, 2008). Their online presence helps organizations to position themselves. The term 'brand positioning' "embraces the competitive position that the brand occupies in a chosen market (Virtsonis & Harridge-March, 2009, p. 537)". Brand positioning measures how a brand compares to its competitors in terms of its stand-out features of products (Virtsonis & Harridge-March, 2009). Besides that, it facilitate identification with the brand, products or services (Kotler & Pfoertsch, 2007). Branding also helps companies to differentiate from their competitors (Kotler & Pfoertsch, 2007). To define the concept of a brand is necessary, so a brand can position themselves accordingly (Park, Jaworski & Maclnnis, 1986). The increase in attention in the B2B market enabled more investments into (mobile) websites (Zahay, Schultz & Kumar, 2015). Business-to-business customers interact more with websites from partners, competitors and network to learn about new products and offerings (Zahay, Schultz & Kumar, 2015). In a recent study it was found that over 80% of the executives of B2B organizations use social media before making the decision to get involved with an organization (Gustafson, Pomirleaunu, Mariadoss & Johnson, 2019.) Besides social media, search engines and industry sources are the companies' websites used to classify and learn more about a company before doing business with them (Zahay, Schultz & Kumar ,2015). Thus, the digital information of the companies in the platform market is a form of brand positioning.

These digital profiles also reveal the network an organization is in. Networks are visible on those webpages via hyperlinks and mentions. Hyperlinks are ties to other websites on the internet. The network of websites grows with the amount of hyperlinks and the quality of these links (Tremayne, 2006).

> "Hyperlinks have been described as vehicles for the expression of collective identity, public affiliation, credibility, visibly, reputation, authority and endorsement. The totality of hyperlinks on a set of organizations websites constitute an inter-organizational network and hyperlink networks demonstrate the structural embeddedness of online organizational behavior (Fu & Shumate, 2015, p. 1809)".

The brand positioning of the companies in the platform market will be visible through the patterns in their use of hyperlinks of their webpages. These hyperlinks can reveal how the brand positions itself, elements of their identity and reputation. Relational information, similar to hyperlinks, can also be strongly implied in a company's digital profile (i.e. its webpages). Specifically, not in every case do the companies mentioned on the webpages include hyperlinks. However, these companies can clearly be part of their network and therefore should be integrated into the company's network and description of embeddedness.

2.3. First hypotheses

Given how many of the above conceptual implications are intertwined, the hypotheses declaration has been reserved until the end of the first part of this chapter, with each hypothesis preceded by a summary of their justification.

Organizations in a market do not stand alone they operate in a network. This is organizational ecology. Within a market multiple mechanisms are active. Isomorphism is exhibited when companies within a market become similar and start to resemble one another in a variety of ways (Tan, Shao & Li, 2010). This happens because isomorphic mechanisms can improve trust and legitimacy. Companies are not actively striving for isomorphism, but it happens over time as they unwittingly start to copy other organizations. Thus, one can expect that similarity will also be visible in the digital profiles of companies, which they use to frame themselves in given markets.

H1a: In an isomorphic market, the digital profiles of companies are similar.

As organizations are more isomorphic, this characterization influences the embeddedness of company in the market. Embeddedness is position of an organization within a market. Embeddedness is established by the connections and relationships between companies an organization has within one market. Due to isomorphism, the embeddedness of a company within a market, are likely to be similar.

H1b: Given that the market may exhibit isomorphism, the embeddedness of companies in their networks are similar.

When both of these previous given hypotheses are true, that would suggest that the similarity of the digital profiles will also reflect the similarities in the embeddedness of companies within the market.

H1c: Isomorphism also dictates that the similarity of companies' digital profiles is related to similarity of their networks.

Within a market, there are niche companies present. Niche companies are the outliers in a market, as they tend to have a smaller, more focused scope than other companies within the market (Ottosson & Kindström, 2016). Thus, in an isomorphic market they will stand out.

H2: Niche companies will appear more distinct from the rest of the population of organizations content- (i.e. digital profile) and network-wise (i.e. their embeddedness).

2.4. Small world theory

Networks can evolve into certain shapes or topologies, depending on their activities and aims. In the current time, most networks have become more similar in architecture (Barabási, 2009). Yet, several topologies have been observed across many contexts and systems. For example, the scale-free nature of networks explains the evolution of many networks; the dynamic of preferential attachment – the rich get richer in the context of network ties – seems endemic in many social and physical systems (Barabási, 2009). However, empirical networks also reflect another topology, the small world network. In the "small-world" network, nodes are densely connected in adjoining clusters with some infrequent exceptions of connections being made that defy expectations thus bridging network distances (e.g., a platform service company embedded with other such companies but then linking to an educational institution) (Watts & Strogatz, 1998). More specifically, the small world topology is characterized by a network in which the average distance between nodes (number of connections to reach every pair) has a logarithmic proportion to the network size. These networks evolve into these topologies as nodes (individuals or organizations) expand their network (Jin, Grivan & Newman, 2001). It is important in this network concept that the ties between the nodes are not treated in isolation, because relationships are based on both direct and indirect interactions (Borgatti & Ofem, 2010). Information and resources can travel back and forward throughout the entire network (Borgatti & Ofem, 2010).

While the "small-world" network was originally theorized about individuals, it has become applicable to other kinds of systems, such as markets. For example, it has been found that companies in the software sector, operate as a small world ecosystem (Iyer, Lee & Venkatraman, 2006). Small world networks can also be seen in sectors like infrastructure, biotechnology and banking (Sen et al, 2003; Gay & Dousset, 2005; Tse, Liu & Lau, 2010). According to Iyer, Lee & Venkatraman (2006), the position of organizations in the network can have predictive economic effects. Thus, how companies are embedded and also positioned among themselves and their affiliated organizations should exhibit small network properties.

H3: The network of the platform market will appear as a small world network.

2.5. Conceptual model

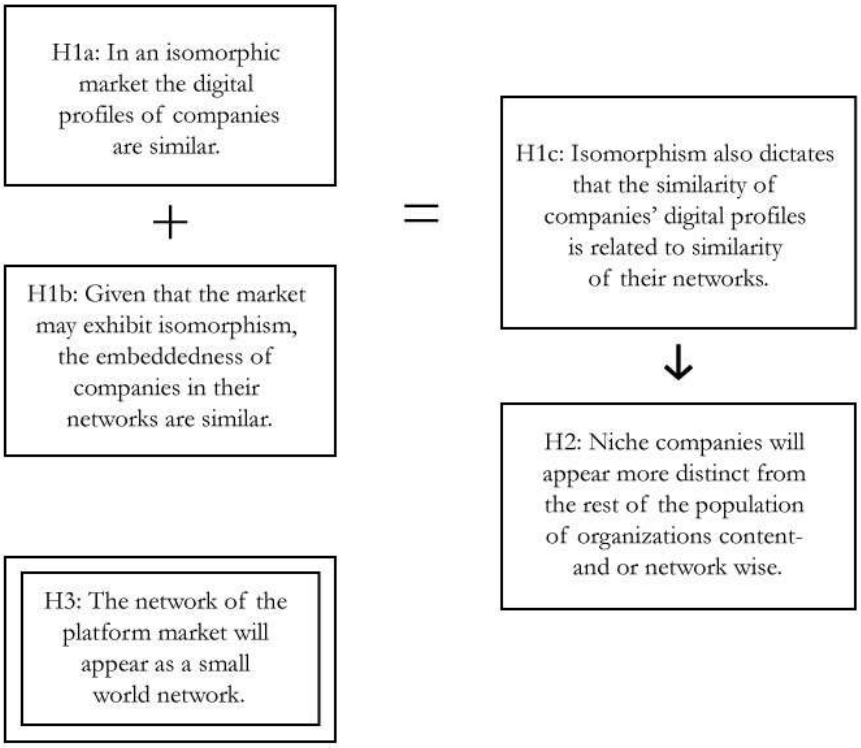


Figure 1: Conceptual model

3. Methodology

Based on the earlier introduced concepts and hypotheses, it is hypothesized that there is a relationship between the embeddedness of an organization in their network and the homogeneity of their webpage branding content. This chapter presents the two research methods, quantitative content analysis and the network research. To be able to answer the presented hypotheses this chapter elaborates further on the research design, used methodologies, the operationalization and the method of data analysis. For this studies a quantitative approach is applied.

3.1. Choice of method

To answer the five posed hypotheses, mixed methods quantitative research will be employed. The two methods that are needed to form an answer are quantitative content analysis and network analysis, comprising of both visualization, measures, and network statistics. The case study these methods will be used on is the business-to-business platform market.

This first method is quantitative content analysis. This is one of the most important research methods in social science (Krippendorff, 1989). It is a method that categorizes texts and organizes them by similar meanings and find overarching patterns of the activities and resources of a company (Hseih & Shannon, 2005). A framework is the basis to detect the recurring identifying patterns and themes (Hseih & Shannon, 2005). Via content analysis the contents of an article or text can be summarized into smaller categories (Elo & Kyngäs, 2008). These smaller categories make it possible to understand the meaning of the texts (Elo & Kyngäs, 2008). The last benefit of content analysis is the reproductive nature of this method, what ensures the same results when research is repeated (Krippendorff, 1989).

The second method used is network analysis. Network analysis focusses on the whole of a network and their linkages and not on the individuals themselves (Wasserman & Faust, 1994). It views "organizations in society as system of objects (…) joined by a variety of relationships (Tichy, Tushman & Fombrun, 1979, p. 507). The method focuses on the ties between nodes to reveal positions, connectedness, cohesion, and embeddedness (Borgatti, Mehra, Brass & Labianca, 2009). The combination of the network analysis and social science reveals not only the network, but interprets every network as each own and connects that to the literature (Borgatti et al., 2009). Network analysis can reveal insights in several markets, including communications studies (Tichy, Tushman & Fombrun, 1979).

4.2. Sampling

This research examines the digital information of sixty-five companies that are active in the business-to-business platform market. These companies are identified via multiple competitor/market databases like Owler, SpyFu, SimalarWeb, Datafox, Craft, CB Insight, Featuredcustomers, Captera, g2crowd, Google and Industry Index. That is, NGData is the focal company of the research project for which this MA thesis is a part of, and thus its competitors comprise the remaining sources of data. So, with NGData as the reference company, a list of their competitors in the platform market is compiled. In total, the eleven competitor databases returned a list of eighty-four companies. After removing the duplicates seventy-two companies remained. After cleaning and manually checking the organizations, the final list contained sixty-five companies. The ones that were removed were for example Contour (a platform that is not available in English), Plainflow (whose website is not active) and Signal (a business-to-customer platform instead of B2B).

For the quantitative content analysis, the data is manually scraped. The webpage information was collected at a single point in time in between the 1st and the 7th of April in 2019. For each company, two webpages are part of the dataset. The pages that are analyzed are the 'front page' of each company and the page that is often called 'about us', 'who are we', or 'company'. On this 'about us' page, more information about the history, values and or management of the company are presented. The front page provides more information about the services they offer, customer service and general information. There are two companies who only have one entry; these companies are Churn-rate and FindMine. In both cases their website only consists of one page and that is therefore the only entry for the respectable companies. The entries are vary in size, roughly between 150 and 1500 words. The completed dataset is 128 company texts.

3.3. Operationalization

The quantitative content analysis of H1a and H1c employs the framework from the research of Virtsonis and Harridge-March (2009). Virtsonis and Harridge-March use quantitative content analysis to see which brand positioning elements are used in the online B2B environment (2009). They identified ten different elements that help position brands (Figure 1). These categories are the following: 1) 'Benefits and features'; 2) 'Value chain position and offering'; 3) 'Pricing and value statements'; 4) 'Competitive advantage'; 5)'Product and service information'; 6) 'Information on processes'; 7) 'Relationships and partnering'; 8) 'Leadership claims and corporate power'; 9) 'Comparative statements'; and 10) 'Corporate social responsibility'. The frequency of

occurrence of each of these ten different categories in each of the two kinds of webpages constitutes the coding. Every sentence of the scraped articles is coded. One sentence can fall under more categories or none. For each of the ten categories, there are concepts in the data that correspond with these themes to code the dataset. In addition to this framework, a document was set up that gives examples and explanations of how these categories correspond to the B2B platform market (appendix 1). The coding creates a table with 193 entries. Each company (most of them) has two lines of coding the two entries/pages and an additional line that totals the two. With the framework, the texts are processed and eventually compared to one another.

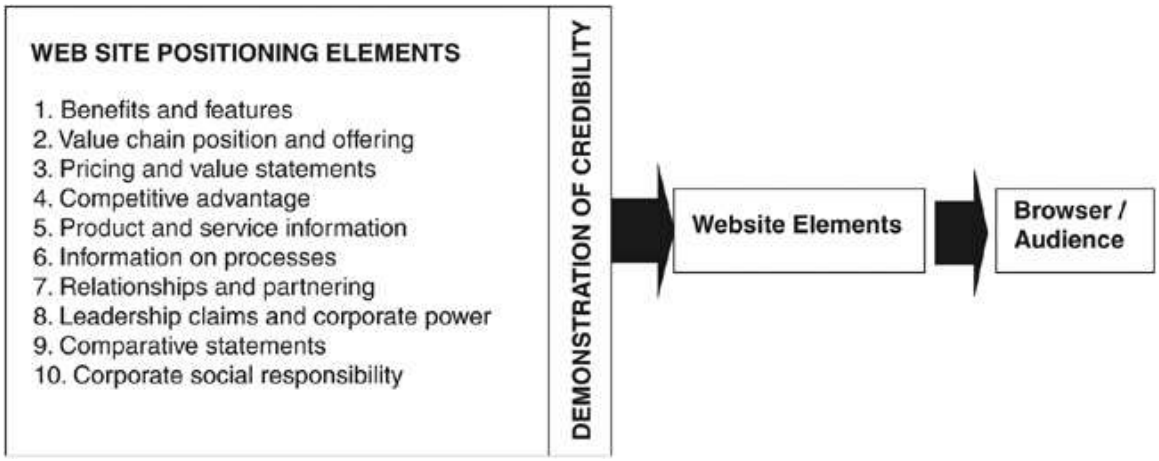


Figure 1: Virtsonis & Harridge-March (2009)

To answer H1b, a hyperlink network dataset needs to be manually coded. Firstly, there needs to be a framework how these hyperlinks will be notated. The information that is required about these hyperlinks is the following: source company, hyperlinked target company, industry of target, relationship with source company, genre of the company of the target, in-market or out-market (of target) and lastly the ease of access to the link (e.g., on the front pages vs. two levels deep). For the hypotheses 1c the content of these hyperlinks will be coded as well with the aforementioned framework of Virtsonis and Harridge-March (2009). For the network analysis, the webpages of the sixty-five companies are manually inspected. Every page of a company's website is checked to see if other organizations are mentioned. Under mentions fall organizations that are mentioned on the website with or without a hyperlink. These mentioned will be comprised into an edge table. The table consists of information about the target companies, the genre of the market these companies operate in, if a hyperlink is included for the target company, the relationship with the organization and the access of the mention, the page where it is mentioned.

To answer hypothesis 2, niches have to be defined. Niche organizations are outliers in a market. These can be found in multiple ways, but in this case the outliers will checked via the

network analysis and the content analysis, to see if they are distinctly different than the other companies in the platform market. To perform these tests, first were companies quantitatively selected who appear to be niche. In the network dataset, the genre of the markets (i.e. industry of clients that are targets of links/mentions) is included, so that made detecting niche companies easier. When organizations have a customers whose genre is not frequently used by other companies and are mostly catering towards this one genre, the organizations were selected as niche.

For hypotheses 1b, 1c, 2 and 3, this hyperlink network data will be used for network analysis and measured and visualized in Gephi (Bastian, Heymann & Jacomy, 2009). In Gephi, network measurements such as degree centrality (number of in and out connections) and betweenness (extent of gatekeeper) can be obtained. With SPSS, the similarity within digital profile and network structure can be determined through a distance matrix. This betweenness can also reveal a distinct aspect about the embeddedness of these companies in the market.

3.4. Measurements

In order to measure the extent of isomorphism among companies, several similarity matrices (of the quantitative/linear algebra) are constructed. A matrix is mathematic diagram that consists of a rectangular array of numbers in which the rows and column are in relationship with each other. These matrices are n x n where n is the number of companies and each cell indicates a relation or distance between a pair of companies, noted by their respective row and column. There are multiple measurements that are needed to construct these matrices.

One of these measurements will be based on similarity of digital profiles, using measures such Euclidean distance of the quantitative coding values for every pair of companies (i.e. each company is a vector of features for which a scalar Euclidean distance can be computed for every pair of companies). That is, higher distance values indicates less similarity (or higher dissimilarity). Specifically, the Euclidean distance between a pair of points of any dimension, is the absolute difference of each dimension's value squared then summed across all dimensions. Then, the square root of the final sum is calculated as the Euclidean distance. For the QtCA, each of the columns (i.e. a count of a feature on the company web page) is a distinct dimension.

The other matrices will express (dis)similarity of companies based on their network embedding, using measures such as node-level degree and betweenness centrality as well as the overlapping number of neighboring companies. Gisling et al. (2008) found a positive relationship between embeddedness and betweenness centrality. Freeman introduced the seminal centrality measures (Freeman, 1978). Each centrality measure expresses different aspects about how

advantageously positioned a node is in a network. Despite the age of these measure, they are still very much in use in current research (Borgatti et al, 2009). The first one is degree, which measures how many connections a focal node has and thus how involved the node within its local neighborhood. This measure looks at the direct surroundings of the node (Freeman, 1978). A high degree centrality indicates high activity and/or popularity of a node. The weighted degree version of this centrality also considers node weights; that is multiple hyperlinks/references from source company to a target company. The second measure that Freeman introduced is closeness centrality: "the inverse sum of shortest distances to all other nodes from a focal node (Opsahl, Agneessens & Skvoretz, 2010)" that captures the reach of a node to all other nodes in the network. A node with high closeness centrality is situated centrally in a way that its information dissemination (both directly and indirectly) to the rest of the network is faster than a node with low closeness centrality. The last measurement of centrality is betweenness. Betweenness measures how a node is situated on the shortest path between two other nodes (Freeman, 1978). Specifically, it is calculated as the proportion of shortest paths (i.e. series ties that indirectly links any pair of other nodes) that a given node lies on, then summed across all the existing pairs. A node with high betweenness can serve as a 'broker' or 'gatekeeper'. All three account for different facets of the concept of embeddedness. These three measurements are used to compute distance matrixes, by standardizing or scaling the data. As with the positioning data (quantitative coding), dissimilarity will be calculated for all three measures (and, if needed, normalized) (i.e. each triple of values constitute a feature vector for each company for which Euclidean distance can be computed).

3.5. Data analysis

Before testing the five hypotheses, the descriptive statistics of two datasets were performed. This gave an overview of how frequent the categories of content analysis are used. In the network analysis it will provide information about the genres the mentioned companies are in and the relationships between the source organization and the mentioned organizations.

3.5.1. Analysis for H1a

To answer H1a, "In an isomorphic market the digital profiles of companies are similar", multiple steps have to be taken. Firstly, the raw data has to be scaled using SPSS' PROXSCAL procedure. PROXSCAL uses an "alternating least-squares algorithm to perform multidimensional scaling (IBM.com)". With this procedure, an intermediary matrix is generated. This matrix takes the raw QtCA data, extracts the Euclidean distances between each unit of analysis (i.e. count of

features per company) to measure the distances between each company's total. As this kind of distance is symmetric, the operations are performed on the upper triangle of the matrix. PROXSCAL cleans up the data, it transforms if from squared distances to normalized distances. It generated a final matrix for the hypothesis testing of the thesis. As there exists no operationalization of homogeneity for this measure, the criteria will be based on the maximal observed distance (i.e. dissimilarity) using a 50% cutoff of that empirical maximum and also the theoretical maximum, in the case the companies are severely isomorphic and an empirical cutoff fails to fully detect their homogeneity.

The empirical maximum distance can be seen easily by running descriptive statistics on the PROXSCAL data, which shows the range and the maximum. This maximum is than halved in order to create the 50 % cutoff point. After establishing the cutoff point, a one-sample t-test is employed. If the t-test is significant, the mean is significantly different than the cutoff point - but also this mean should be less than the cutoff point. This would mean that the digital profiles are significantly similar and can be a sign of an isomorphic market. The theoretical maximum uses the same dataset that is created PROXSCAL. It calculates to the largest possible 'worse case' possible distance by adding two fake rows (fake, extreme case companies, one with the minimum of all dimensions and another with their maximums. The distance between these two extreme case companies is then the theoretical maximum. The mean of the distances among the empirical companies is tested measured against this theoretical maximum. If the mean is significantly less than this theoretical maximum, then the companies' digital profiles can be considered similar (under this extreme assumption). If both of these tests are significant and in the expected direction, then H1a is fully accepted.

3.5.2. Analysis for H1b

In order to answer H1b, multiple steps have to be taken. H1b states the following: "Given that the market may exhibit isomorphism, the embeddedness of companies in their networks are similar." To answer this hypothesis the network dataset is imported into Gephi. Gephi is a tool that visualizes a network and also provides different network measurements (Bastian, Heymann & Jacomy, 2009). As mentioned earlier, these measurements are betweenness centrality, weighted degree and closeness centrality. These are chosen as they all three calculate to some aspect or definition the position, hence embeddedness, of an organization in relationship to each other, direct or indirect. The quality of these relationships characterizes the embeddedness

of a market. There are two possible variants of the network data: one that shows the complete network and one that only shows the network of only the platforms.

This first one will be used for the next steps. Otherwise, the network data suffers from missing data as links among connected organizations, such as Amazon and Microsoft, are not captured in this analysis. The three measures of the platform market are imported into SPSS and transformed into a distance matrix. Prior to their conversion to the distance matrix, each variable (i.e. network centrality measure) was standardized (i.e., mean-centered and scaled) in order to allow for equal weight from each measure, as their mathematical ranges differ greatly. The same steps as for H1a have to be taken. With PROXCAL, the three measures are transformed into one distance measure. The hypothesis testing follows similarly to H1a, where after running the descriptive statistics, the empirical maximum was established. The empirical maximum is the following: these data matrixes will all be tested with the One-Sample T-Test with the 50% cutoff of the mean the one-sample t-test was conducted in order to test that against the empirical maximum. If the combined measurements come back significant, the companies are embedded in their networks similarly.

As the first analysis tested if the companies are similarly embedded via network measurements, another test can be performed using the network ties. For this test, the direct ties between the 65 companies are removed. The network is then folded so that are the companies are now linked by their common targets. A high value or weight between two companies indicates have many targets in common. This data will go through the same process of the PROXSCAL. The empirical maximum of the distance measure is measured with the cutoff of 50% by the T-Test. The higher the distance measure the more connections or embedded a platform into the market is. So, the higher the more connections, so if the T-Test comes back not significant, that will show that the organizations are connected and therefore embedded into the market.

3.5.3. Analysis for H1c

For the data for analysis for H1c: "Isomorphism also dictates that the similarity of companies' digital profiles is related to similarity of their networks", are the distance matrix from the QtCA and the actual network data used (that is operationally also a matrix). That is, the distance content-wise between two companies (a single cell in the 1st matrix) is compared to the existence (and weight) or non-existence of a hyperlink between those two companies.

Furthermore, while PROXSCAL incurs transformations/normalizations of raw Euclidean distances during its multidimensional scaling, a comparison against these raw Euclidean distances would answer H1c more comprehensively. As for the network matrices, this analysis is done two different versions. The first one is the direct relationship between the source platforms. The second matrix is an affiliation network, in which a tie indicates the existence and extent of mutual connections organizations have. This indicates when two source companies are related via embeddedness to common target companies; this distinction mirrors the earlier use of both direct and indirect network centrality measurements in the test for H1b. In half of the tests, the distance is left as it is; in the other half, the distances transformed into similarity. Specifically, the QtCA distance measures are transformed into similarities by taking their inverse (i.e. 1/distance). A higher, positive correlation indicates that the similarity between two companies is associated with the network relation (either direct or indirect/affiliation), whereas with distances, the interpretation involves understanding that higher distance would confer a negative correlation to the existence of a tie. The reason for both variants of (dis)similarity is that operationalization of (dis)similarity is often complex due to mathematical idiosyncrasies and so multiple versions of distance should be tested.

In order to test H1c, a correlation that employs a permutation test to assess significance is required (rather than standard parametric methods of SPSS) due to autocorrelations in matrix/network data (Mantel, 1963). For this, the network package 'ORA-Lite' (Altman, Carley & Reminga, 2018) that includes the QAP permutation test for correlation and regressions will be employed (Krackhardt, 1988); the QAP (or quadratic assignment procedure) is a variant of the Mantel test designed for network data. The correlation test is one-tailed; therefore the one-tailed p-value outcomes of a QAP procedure can directly be compared to the significance level of 0.05. The end result is eight tests that will answer this hypothesis in multiple ways: 2 (variants of QtCA distance matrix) x 2 (distance vs. inverse distance/similarity) x 2 (direct and indirect networks).

3.5.4. Analysis for H2

H2 states: Niche companies will appear more distinct from the rest of the population of organizations content- (i.e. digital profile) and network-wise (i.e. their embeddedness).To answer this hypothesis, first the niches have to be established. The niches are based on qualitative assessment, as described in the Operationalization subsection above. The four companies identified as outliers are Trendminer, Bulbtech, Iteneris and Vital Insights. In order to establish if these companies are distinct in the market content wise, these four companies are used to create two datasets. From the distance matrix, the output from PROXSCAL - that was used to answer

H1a - is reused to construct two sets of distances. For the 1st matrix, the rows representing niche companies are removed so that the remaining distances are non-niche companies to all other companies. For the 2nd matrix, all companies except for niche companies are removed so that the remaining distances are for just the niche companies to all other companies. The distances of each matrix are transformed into a single column variable in SPSS alongside an additional variable (column named isNiche) that indicates whether the source company (row) was niche (value of 1) or non-niche (value of 0) With the independent samples (aka 2-sample) t-test, the mean of the distances for niche to all others can be compared to the mean of the distances of the non-niche to all others can be compared for the niche and non-niche organizations.

To detect the niches in the network, the network measures data (non-matrix, attribute data) was supplemented with a similar indicator/dummy variables as above; that is, isNiche where 0 indicated the row/company that is non-niche and 1 indicated a niche company. Thus, several, independent samples t-test are conducted on each of the network measurements: weighted degree, closeness, and betweenness centralities. While running these tests, it is necessary to engage bootstrapping for the generation of proper confidence intervals, and consequently the significance test, since the portion of the dataset that represents niches is very small, with only four platforms (i.e. four cases in niche group for this test). The bootstrapping was set to 1000 bootstrap samples. The independent samples t-tests will compare the niches from the non-niche to detect significant differences.

3.5.5. Analysis for H3

H3 states the following: The network of the platform market will appear as a small world network**.** To answer it, the shortest path lengths of randomly selected pairs of nodes in the network should be proportional logarithmically with the network size (Watts & Strogatz, 1998). For this, hypothetical networks of varying node sizes from the collected network will be randomly subsampled from the empirical networks, and from each, the shortest path length (computed through Gephi) for random pairs of nodes will be measured. For something to be a small world network, there are two conditions. First of all, the clustering coefficient is the density of a node's ego-network, i.e. the number of existing ties of node's neighbors (directly connected nodes) to one another (Watts & Strogatz, 1998). This measure expresses the extent to which the ego-node's local network is dense or cohesive. Secondly, the average clustering coefficient has to be high and the average path is proportional to the network size (Watts & Strogatz, 1998). The hypothesis will be confirmed under these two conditions. First, in Gephi the clustering coefficients for each of the nodes are calculated for a network. To test the first condition, the

mean of the clustering coefficients is compared to that from a completely random network of same size and density through a one-sample t-test in SPSS. Second, if there is strong and significant relationship between these path lengths from the subsampled networks and the logarithm of their corresponding (hypothetical) network sizes.

The second condition can be measured with a linear regression test. The test uses the average path lengths of the existing paths in the subsampled network as dependent variable. The independent variable is the logarithm number of nodes in the subsample H3 is tested on both the hyperlink network and also the affiliation network. If both of conditions/tests are significant and in the positive direction for both networks, then H3 is fully confirmed.

3.6. Validity and reliability

To ensure the validity of the quantitative content analysis, this research uses a pre-existing codebook from Virtsonis & Harridge-March (2009), what makes the coding more valid and reliable, as the framework has been tested before (Elo et al., 2014). To make sure the manual coding is conducted reliably, a second coder will code 10% of the data to test the consistency of the first coder (Macnamara, 2005). These 13 texts that the second coder coded are randomly sampled to increase the reliability. To ensure consistency throughout the coding and instructions for the second coder to rely on, a handbook has been created with instructions and examples of each of the categories (appendix 1) (Macnamara, 2005). The results of both the first and second coder are compared to test the similarity. The Krippendorff's alpha will be used, as is can test ratio intervals, to test the reliability (Elo et al. 2014; Krippendorff, 2011). The results of the reliability test appears in the results chapter.

The network will be collected directly from the webpages of the organizations to so they are both reliable and mostly valid. From the organizations every single webpage was checked to see if any companies were mentioned, in order to create the most complete network. However, the network data is not completely valid, as companies may be constantly repositioning themselves and this thesis' network data represent a single snapshot of the network. All the data, both the network and the content analysis, has been collected in from the 1st of April until the 24th of April. Hence the data might not be up-to-date anymore. The data is via Gephi analyzed with high quality statistics, clustering and layout algorithms (Bastian, Heymann & Jacomy, 2009). By implementing the network in Gephi, a tool that has been successful in doing do network and semantic network studies, the network analysis is done as reliable as possible (Bastian, Heymann & Jacomy, 2009).

4. Results

4.1. Descriptive analytics

The quantitative content analysis resulted in 65 entries (aggregate of both webpages from each company) (N = 65). Each entry comprised ten different categories from the coding framework. The most frequent category is 'Benefits and features' (M = 16.88, SD = 9.320) with a total 1097 sentences that fall under this category across all webpages. That is, on average each company displayed 16.88 instances of 'Benefits and features'. The least frequently used category is 'Comparative statements' (M = .77, SD = 1.086), only mentioned a total 50 times. The descriptive statistics show that the categories can be divided into three different groups. The most frequently mentioned, with over 1000 mentions, are 'Benefits and features' and 'Product and service information' (M = 15.46, SD = 8.825). This shows that the information on the websites of companies within the B2B platform market talk most about the benefits of their services and what their services exactly entail. The second group is moderately often mentioned, between 100 and a 1000 mentions. Belonging to this group are 'Value Chain position and offering' (M = 4.25, SD = 3.482), 'Competitive advantage' (M = 3.57, SD = 3.428), 'Information on processes' ((M = 3.09, SD = 4.344), 'Relationships and partnering' (M = 5.40, SD = 4.853) and 'Leadership claims and corporate power' ((M = 7.82, SD = 6.282). The last group has under one hundred mentions and these kind of statements not as apparent in the B2B platform market. These are 'Comparative statements', 'Corporate Social Responsibility' ((M = 1.03, SD = 3.221) and 'Pricing and value statements' ((M = 1.48, SD = 1.969). Organizations within the platform market do not often compare themselves to their competitors. This is not surprising, as most platforms perform very different services and therefore the comparison is not as easy. However, still within a population or niche, comparisons are possible but appear not to be done. Corporate Social Responsibility is not a topic that is often talked about in this market. In this framework privacy and security are included in the CSR category. It is notable that the score is low, as privacy and security of data have been gaining importance and relevance over the last years. Lastly, there are very few statements over pricing or revenue. Overall, it shows that there are clear differences between the categories. The aggregate of these differences are examined as we test the hypotheses

The network analysis consists of mentioned companies by the organizations on their webpage. This resulted in a large dataset (N = 4047, M = 63.98 SD = 84.31). The mean are the mentions, so on average a company mentions almost 64 organizations on their website. However, there are four companies that do not provide any information about their network or relationships with companies on their website. These are Ticto, Imec, Infutor and Persongraph.

Thus, they are considered network 'isolates'. The top three companies that mentions the most companies are Tealium with 387 mentions that is 9.6% of the total list. The other two companies with the most mentions are Pega (n = 321) with 7.9% and Segment (n = 320) 7.8% of the dataset. In terms of the genre of the target company in the network, the relationship type between the sources company and the mentioned companies are mostly customer (n = 1564) based, with 38.6% they form the biggest group. Integrations (n = 1239) and Partners (n = 1160) are combined 59.3%. It must be noted that companies do not always use the terms integrations and partners similarly, the meaning of partners and integrations are interchangeable in some cases. So would be best to use both categories under the umbrella term integrations. That makes integrations the biggest part of this dataset. This number is high, because there are organizations that mention all the integrations on their platform, what can be over 200 entries for integrations on one website. The mentioned (target) organizations are active in 35 different genres. The platform market is the largest market where 44.3% of the organizations are active in. The other genres companies are the most active in are IT (n = 410), Consultancy (n = 288), Financial Services (n =231) and Retail (n = 229). Only 17.3% of mentions provided a direct hyperlink to other pages, the rest of the dataset are purely mentions.

4.2. Intercoder reliability

To test the reliability of the quantitative content analysis, an intercoder reliability test had to be performed. This is in order to test the consistency and the reliability of the coding. Approximately 10% of the dataset (N = 128) was randomly selected for the second coder. This resulted in a smaller dataset of 13 entries. This smaller dataset (n = 13) was compared to the coding of the fist coder. To perform the intercoder reliability, the Krippendorff's alpha test was conducted. The Krippendorff's alpha test is suitable as it can test the reliability on the four different levels and in this case the ratio level variables (Hayes & Krippendorff's, 2007). The test showed that $\alpha = 0.684$. This is above the cut-off point of .667, everything below this cut-off point has to be discarded. However, above .800 would be considered good. In this case, that there is only one other coder and overall a small dataset may be one of the reason of the lower alpha. However, the upper confidence bound is .789, thus potentially placing the reliability close to good. Furthermore, in some cases, an alpha that is higher than .667 is appropriate, when it is breaking new ground (Riffe et al., 2005). That can be argued, as this framework is earlier applied on a different B2B market, but not on the B2B platform market that this thesis studies. That can result in a lower alpha. Therefore, we can deem the coding reliable enough.

4.3. Testing the hypotheses

4.3.1. H1a: Homogeneity digital profiles

To test the first hypothesis, H1a: **In an isomorphic market the digital profiles of companies are similar**, multiple tests were conducted. To recap, the digital profiles were coded based on an existing framework. This data was used to determine the similarity of the digital profiles. The Euclidian distance measures the distances of the companies compared to each other. The distance measures the dissimilarities between the companies. The plot of the multidimensional scaling of the distances generated by PROXSCAL (figure 1) (called 'derived stimulus configuration' in SPSS) is shown in Figure 1. This plot reduces multidimensional data into lower dimensions that can be easily interpreted. Points that are visibly close to one another represent companies with similar content. The figure reveals that the contents of companies' digital profiles are closely related; however, there are outliers visible as such as Persongraph, Datamentors and Trifecta; these are more dissimilar to the rest of the companies and, with some pairs, to one another. The companies in and around the center of the axes are more likely to be similar in content and seem to be more clustered.

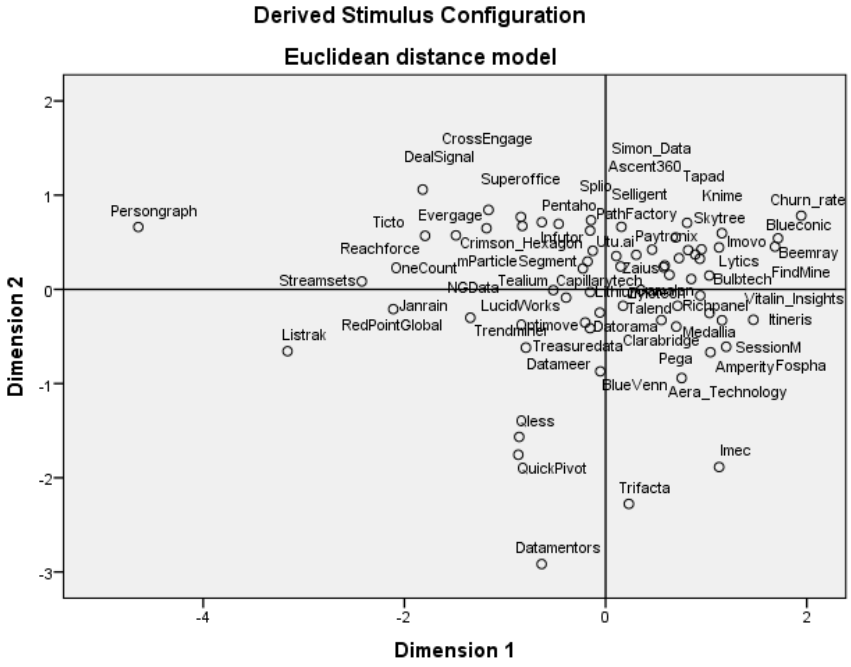


Figure 1 Euclidean distance of the webpage content

Descriptive statistics on the distance matrix returns the following values (N = 2080, X_1 = .029, X_n = 3.036, M = .839, SD = .513), where X_1 is the minimum distance and X_n is the maximum distance. The empirical maximum and the theoretical maximum determined if the

digital profiles of the B2B platform market are isomorphic. The empirical maximum is configured with the one-sample T-Test. First, it was decided that the cutoff for an isomorphic market is 50% of the maximum, so that is $X_m/2 = 1.5018$. The one-sample T-Test was used to test this cutoff point. The T-Test returned $p < .001$ (one-tailed). Therefore it can be concluded that the similarity of the digital profiles of companies is significantly less than half of the empirical maximum distance, so the digital profiles appear to be similar. Besides that, the percentiles show that the mean of 75% of the most dissimilar organizations is 1.122. This is still significantly below the cutoff; therefore it can be concluded that the contents of the webpages are similar and therefore the B2B platform market is isomorphic. The theoretical distance, using the range between a maximal and minimal company is 3.310. As this is larger than the empirical maximum, we can easily declare the t-test significant. That is, the theoretical test is unnecessary as the empirically-based test already supports the hypothesis. Consequently, both the empirical maximum and the theoretical maximum are significant, and therefore is H1a accepted. The digital profiles of organizations in the platform market appear to be homogeneous.

Descriptive Statistics after T-Test		
N		2080
Mean		.839
Median		.734
Std. Deviation		.513
Range		3.007
Minimum		.029
Maximum		3.036
Percentiles	25	.459
	50	.734
	75	1.122

Table 1 Descriptive statistics H1a

4.3.2. H1b: Embeddedness of the platform market

The second hypothesis is **H1b: given that the market may exhibit isomorphism, the embeddedness of companies in their networks are similar.** To answer this hypothesis multiple tests are conducted. First, the data was imported into Gephi, what was used to create two visual graphs. The first (figure 3) is the full network. In this graph all the companies,

relationships and sources companies can be seen. The companies that are in the dataset, the B2B platform businesses, are dark purple and the mentioned companies are pink. It shows the connections between the clients, organizations or else. In this visual the outliers are apparent, who do not mention any other source companies or organizations that are mentioned by other businesses in the market. The clustering is clearly visible, however in this graph the relationships between the source companies are not clear to see. To figure that out, two other test had to be ran.

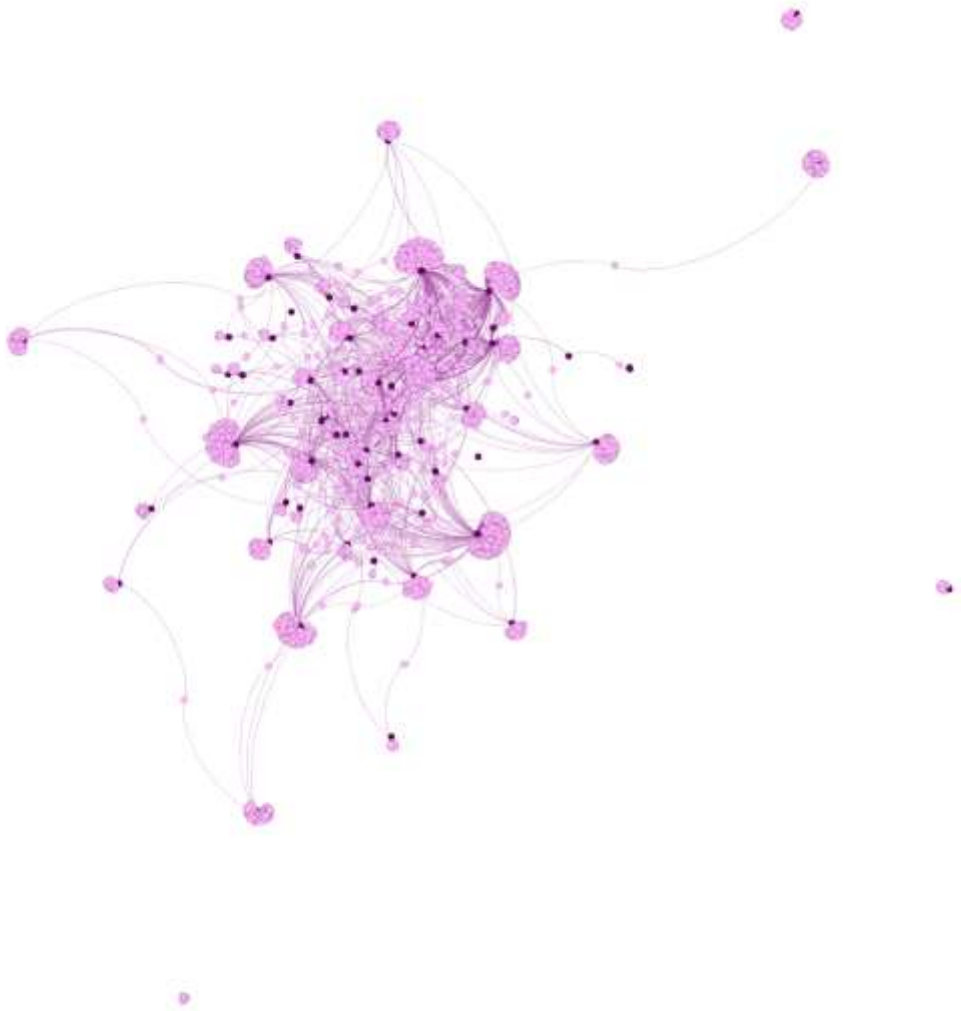


Figure 2 Full Network of B2B platform market

To establish how similarly embedded the organizations are a t-test was performed on distances based on weighted degree, betweenness and closeness centrality. The lower the distances, the more similarly the organizations are embedded. The mean empirical distance appears low (M = .65, SD = .76). The percentiles show that over 50% is under the mean. The empirical maximum measures that more clearly, the cutoff point is 50%, so X_n = 3.25/2, thus the t-test was measured against 1.625. The mean of the distance measures (M = .65, SD = .76) shows that the companies are significantly more embedded than half of the maximum t (2080) = 1.625; p <.001 (one-tailed), 95% [-1.01, -.95] the t-test shows that the organizations are similarly embedded. This means that the companies are statistically similar in the way they are embedded, as the organizations have to same measures for embeddedness. Although it does not confirm exactly how the organizations are related. Therefore, H1b is so far partly supported, as they show similar embeddedness.

To test the connections of the organizations a second one sample t-test was done. In Gephi the edges were removed, to create a dataset of the platforms and the direct links to their common targets. This test will shows how many linkages the source companies have. This dataset contains the measure for distance for part two of answering H1b. This measure was scaled and transformed, as this measure looks at the connections of an organization is the higher the number comes back as, the more connected the organizations have. As the results of the two tests, part one and two are so similar, the descriptive statistics are presented in table 2. The weighted degree (M = .65, SD = .76) is relatively low (table 3). The cutoff point is 50%, so that is X_n = 2.94/2 = 1.47. The one sample t-test returned t (2080) = 1.47; p <.001 (one-tailed), 95% [-.85, -.79], so the tested value significantly different. In this case, that shows that half of the maximum is significantly higher than the presented mean before. That is, the extent to which the majority of the companies have common mentions is less than 50% of the empirical maximum rather than more. As this part of the analysis is looking for the results above the cutoff point, it can be concluded that the organizations do not show embeddedness in the direct relationships and linkages between the organizations.

In can be concluded that H1b is only partly supported. The first part shows that organizations in the B2B platform market are similarly embedded into a market based on similarity of network positions based on measurements. However, the second part of the H1b does not show that these organizations are embedded within this particular market, as the direct relationships of the platforms are not significantly connected.

Descriptive statistics H1b			
		H1b - 1	**H1b - 2**
N	Valid	2080	2080
	Missing	0	2145
Mean		.646	,649
Median		.38	,36
Std. Deviation		.763	,760
Minimum		.00	,00
Maximum		3.25	2,94
Percentiles	25	.12	,11
	50	.38	,36
	75	.84	,79

Table 2 H1b comparison part 1 and 2

4.3.3. H1c: Content and network are connected

With the third hypothesis is the culmination of H1a and H1b is measured. H1c combines the former hypotheses**: Isomorphism also dictates that the similarity of companies' digital profiles is related to the similarity of their networks**. There are eight different tests that answer this hypothesis. The first network that is tested is the adjacency matrix with direct hyperlinks. These are the companies in the dataset that are directly connected to each other. For the content analysis the matrix after PROXSCAL is used. Without the distance conversion into similarity, the correlation test was conducted. This test returned $r = -.047$, $p = 0.004$ (one-tailed). The p value here shows the proportion of correlations that are more extreme (in this case, more negative) than -0.047. The $p = .004$ meaning only 4 of the hypothetical comparisons had correlations more extreme than -0.047. The negative, significant correlation means that when a hyperlink is present between two companies there is less distance. The second test is done with the same matrices, but the distance was converted into similarity. By changing the value into similarly, there is now a positive relationship. This test returned $r = .035$, $p = 0.946$ (one-tailed), meaning only 1- p = .056 of the hypothetical correlations were more significant than the observed one, this here $p < .10$, which can be deemed as 'weakly significant'. There is weakly significant positive correlation between the direct hyperlink network and similarity. The two

following tests are done with the direct hyperlink network and the raw Euclidean distances; recall that PROXSCAL applies transformation on the Euclidean distances. The first one is not converted to similarity and returned r = -.053, p = 0.001 (one-tailed). This test shows a weak, negative yet significant relationship, so therefore it can be concluded that test three shows a significant relationship between the similarity in content and network. The fourth test converts the Euclidean distance matrix into a similarity matrix (1/distance). This test showed r =.062 and p = .996 (one-tailed), meaning p = .004 when considering hypothetical correlations that are more extreme. Consequently, this correlation test is also statistically significant. The first four hypotheses show that there is generally a statistically significant positive correlation between the similarity of content on the platform and the existence of a tie in their direct network. Conversely, there is a negative correlation between the difference in content and the existence of ties in the network.

These next four tests were used to check if the relationships to targets, i.e. clients or integrations of the B2B platforms, also play a role in the similarity of content and network. It tested when companies have to same connections or clients, they will appear more similarly. The first test of this second block used besides the affiliation network the distance matrix. Without transforming the data into similarity the test showed that r = -.034 and p = .314 (one-tailed) meaning only 1- p = .686 of the hypothetical relations are more significant. In this case there is a negative correlation, but it is not significant. In 314 cases the p returned higher than r = -.034. There is no significant relationship between the affiliation network and the content. When these two matrices are converted to similarity it returns r = .114 and p = .992 (one-tailed) meaning 1- p = 0.008. This positive correlation showed a significant yet weakly similarity between the matrices. The final two test were conducted with the proximity matrix that uses the raw Euclidean distance. Without converting these matrices into similarity the first test retuned r = -.034 and p = .323 (one-tailed) meaning. So, no significant relationship without converting it into similarity. When the same matrices are converted into similarity it gives r = .056 and p = .848 meaning that 1- p =.152. This is also insignificant. It is possible that the similarity of the network of platforms also corresponds with the similarity of the digital profile on the webpage.

When all the tests are combined, it reveals that H1c is accepted. The direct relationship between organizations who both are in the business-to-business platform market are contributing to the similarity of the content on the digital platforms. However, when affiliations of these companies are taken in account only one of the tests came back significant. Nevertheless is H1c accepted as it passed five of the eight tests and more driven by direct ties rather than affiliation. It can be concluded that there is a relationship between content on the webpage and their network.

4.3.4. H2: Niches in embedded network

As the platform market is embedded, every market has outliers. These **Niche companies will appear more distinct from the rest of the population of organizations content- and or network wise.** This hypothesis has two different variables to test, the similarity of niche companies with non-niche companies and the position of the niche-companies in the network. First, the similarity of the content was tested. The descriptive frequencies showed that the non-niche companies (M = .83, SD = .52) have a slightly higher mean than the niche (M = .75, SD = .48). The T-Test was conducted to compare these means. The Levene's test shows p = .030, so variances are unequal. The means are distinct from each other, with p = .005 this is significant. The content of the niches is therefore significantly different from the platforms that are more embedded in the platform market.

Determining if the niches stand out in the network position is checked through different measures. Three of the measures are connected to the degree of connections, the incoming, outgoing and weighted degree. This measure looks at how many a connections a platform has and how involved it is with the surrounding connections. Firstly, the weighted in degree for non-niche (M = .41, SD = .83) and niche (M = .00, SD = .00), shows directly that the four niches do not have any incoming connections. Therefore, the Levene's Test of equality of variances is p = .065, so equal variances are not assumed. The associated t-test's p-value is p = .001 (two-tailed). That means that the incoming connections are not significantly different for niches. The weighted out degree for non-niche (M = 60.82, SD = 85.66) and niche (M = 27.25, SD = 27.39) are on the first appearance very distinct. The T-Test shows that the Levene's test is p = .207, so the equal variances are assumed. There is a no significant difference, p = .441 (two-tailed). Niche companies therefore do not have significant different outgoing connections than the companies that are embedded in the market. The combined weighted degree for non-niche (M = 61.23, SD = 86.22) and (M = 27.25, SD = 27.39) are therefore after conducting the Levene's test gives p = .207, so equal variances are assumed and returns the p = .438; these statistics are similar to the previous test due to the similarity of the data itself. So, the weighted degree of the niches is not significantly different than the non-niche companies. The two out of the three measures of degree are found not significant, so therefore it can be concluded that the niches do not stand out in in a market, as no evidence was found that they have difference in incoming and outgoing connections with other companies.

The two other measures that can determine the positioning of a niche in a network are betweenness centrality and closeness centrality. Before doing the t-test the betweenness centrality for niches (M = .00, SD = .00) and for non-niches (M = 187.21, SD = 741.65) it is clear that it

was different as the niches did not pick up any data for the betweenness. Levene's test returned p = .328, so no equal variances are assumed. The p = .618 (two-tailed) revealed that the betweenness is not significantly different. The betweenness centrality measures how a node is situated on the shortest path and the niches. This result concludes that nodes in niches do differ how they are situated on the shortest paths. The last measure is closeness centrality. At first sight is directly clear that the non-niche (M = .88, SD = .33) and niche (M = .75, SD = .50) are more similar than the previous measures that were tested. The Levene's test does not assume equal variances (p = .237). The closeness is therefore not similar between these niche and non-niche and p = .491 (two-tailed), so not significant. Therefore there is no evidence found that the closeness between niche and non-niche companies is different.

Overall, the hypothesis is partly accepted. The contents of the digital profiles of niche and non-niche companies are significantly different, so therefore the niches do stand out in the market based on their digital profiles. However, the niches do not stand out in the network. The three measures for degree do not assume equal variances and are not significantly different than the non-niche. Niche companies do not have fewer direct links to other connections than the non-niche platforms do. The betweenness shows that there is a no evidence found for a difference between niche and non-niche platforms. The last network measure that did not return significant is closeness centrality, the companies that are niche do not differ in the distance to other nodes from the focal node than the non-niche platforms. Overall, there the niches standout in an embedded network. Hence why H2 partly is accepted.

4.3.4. H3: Platform market small world

To be able to answer the last hypothesis: **The network of the platform market will appear as a small world network**, two conditions have to be fulfilled. The first condition is that the average clustering coefficient has to be high. As the clustering coefficient for the direct network was very low = .105, it immediately does not quality for being small world. However, the affiliation network reveals an average clustering coefficient of .857. A one-sample T-Test was used to test this value against a sample of average clustering coefficients drawn from randomly generated networks of the same size and density as the affiliation network; this sample's networks' average clustering coefficient had M = .39, SD = .004. The clustering coefficient of the empirical affiliation network is high and statistically significant (p < .001). Therefore, the first condition that the platform market is a small world is fulfilled.

The second condition is that the average path between nodes has to be proportional to the logarithm of the network size.

Once again, using random samples of the existing network, sampling varying node sizes (N) and calculating the average of all path lengths between all pairs of nodes, a regression can be performed on the average path length (DV) and the sample size (IV). The regression test (table 4) shows that $R^2 = .4245$. The relationship between log(N) and the average path length is $b^* = .657$, $p < .001$ That means there is a strong, significant, and positive relationship between the average path length and the logarithm of the network size, based on subsamples of the empirical network.

The two conditions are both statistically significant, that means that H3 is accepted. It can concluded that the platform market is not only isomorphic, but also a small world network.

5. Discussion and conclusion

The chapters leading up to the conclusion were essential in order to answer the research question. The research question is the following: **How is the embeddedness of a business-to-business company reflected in the framing of its digital profile?** This thesis focusses on business-to-business organizations that operate in the platform market. Within the platform market organizations offer an online space that enables transactions between the suppliers and consumers (Li & Penard, 2014). The digital profile and the embeddedness in de market of the organizations in the dataset have been studied on the basis of five hypotheses. The results of these five hypotheses are clarified in order to answer the research question.

5.1. Interpretation of results

5.1.1. Content of the digital profiles

The first part of the dataset is the coding of the articles. This tells something about the content of the webpages. Websites are used to provide information and news about organizations (Virtsonis & Harridge-March, 2009). It revealed that 'Benefits and features' and 'Product and service information' are most frequently mentioned on the websites. The sentences that belong to this category both introduce and go in-depth about their services. These categories are very information driven. One of the categories that are the least frequently mentioned are 'Comparative statements'. The effectiveness of advertisements that compares organizations has been studied often, with results ranging from positive to negative effects to these kind of statements (Bambauer-Sachse & Heinzle, 2018; Chang, 2007; Zhang, Moore & Moore, 2011). For example, it has been found that it can lead to a decrease of credibility (Chang, 2007). This uncertainty probably causes the reluctance to include these comparisons. The other category that is not often mentioned is 'Pricing and value statements'. Not including the pricing can be because of multiple reasons: personalized offers and a tactic to come in contact with a prospective customer to convince them of their product. The least mentioned category is 'Corporate social responsibility', with privacy statements included. This is remarkable, as privacy has been a topic that is seriously discussed in media recently (Light, 2019; Sommerville, 2019; Conger, 2018). Most of the companies who did include privacy statements, talked about regulation and often the GDPR (eugdpr.org). That is the relatively new European regulation on data privacy. However, most companies in the dataset are not located in the European Union and therefore do likely not feel the need to include such statements. As introduced in the introduction, can this information help realize the consumer how much organizations care about their data and protecting it.

The descriptive statistics of the network dataset revealed that there were four companies without any mentions. Two of these organizations, Ticto and Persongraph, also stood out in the Euclidean distance model that was created for H1a. In this model both of the companies are visible as the outliers. So, the companies are both network and content wise outliers. This suggests that these organizations do not have a strong online presence or are not embedded in the B2B market and therefore not similar. The last observation that can be made from the descriptive statistics is that 41% of the companies that are linked too are also active in the platform market. This can be for two reasons. The first reason is that within the B2B platform market organization often create tools that support and can be integrated into other platforms (Kenney & Zysman, 2016). Besides that, the mentioned companies are other platforms that can be integrated with their product. This market relies heavily on other organizations ((Kenney & Zysman, 2016).

5.1.2. Relationship between content and network

H1a focuses on the digital profiles of the organizations. The hypothesis states that in an isomorphic market the digital profiles of the organizations are similar. These digital profiles are composed of two pages of the companies' webpages. The empirical and theoretical maximum revealed that these profiles appear to be similar, therefore hypothesis 1a is accepted. This hypothesis reveals two things. Firstly, the digital profiles of the companies are significantly similar. According to Kotler & Pfoertsch (2007) digital profiles are often used by organizations to differentiate themselves, but this is not found with these organizations. In the business-to-business platform market the organizations have not succeeded in differentiating their online profiles. This can be explained by the second part of this hypothesis. Markets in which organizations are similar in strategy and size, isomorphism can appear (Hannan & Freeman, 1977). In isomorphic markets the mimetic and coercive mechanisms induce organizations to copy the role models or organizations that excel in that market (Greenwood & Meyer, 2008). Isomorphism often happens because organization strive to be conceived more as legitimate and it can build trust (Bice, 2017). The relationship between isomorphism and branding has been studied before and found true, as this hypothesis also confirms that connection (Rahman, 2014; Fay & Zavattaro, 2016). Therefore, it can be concluded that the business-to-business platform market is an isomorphic market, as the digital profiles are similar.

In H1b the focus lies on the network and relationships of the organizations. H1b hypnotizes that the market might be isomorphic, therefore the embeddedness of the organizations in their networks are similar. This was tested for similarity of embeddedness and

the how the organizations are embedded in their particular market. The hypothesis is partly supported. The organizations show similarity in how much they are embedded in a network. However, the organizations are not embedded similarly in one network. A study from Heidenreich stated that embeddedness is not necessarily an isomorphic pressure organizations have to abide by (Heidenreich, 2012). Organizations have the choice and the opportunity to decide and select to what extent the organizations want to partake in different environments (markets) (Heidenreich, 2012). This explains the second part of the hypothesis, which the organizations in the business-to-business market do not all participate in the same market. At the same time does this hypothesis shows that the organizations are similarly embedded relative to one each other. Hüther and Krücken explain that even within one market, there are different subsections, in which the demands and expectations are not homogeneous (Hüther & Krücken, 2016). It is thus likely that within the business-to-business platform market there are multiple subsets to which different organizations belong. That can explain why the organizations are not embedded in the same network, but do show similarity in the amount of embeddedness in their own respective markets (or niches).

H1c combines the former two hypotheses. The hypothesis proposes that isomorphism dictates that the similarities of the digital profiles of organizations and the similarity of their networks are related. The relationship between embeddedness and branding has not been studied before in a B2B market, as these studies often focus on the embeddedness of the customer in the organization in business-to-consumer markets (Stockburger-Sauer, 2010; Stockburger-Sauer, 2011, Edensor & Millington, 2008). However, the tests revealed that there is a significant relationship between the content of the webpage and their network. The four tests that were conducted with the direct ties network all returned significant. That means that companies who have a direct relationship or connection, the (virtual) embeddedness, show similarity in their digital profiles. What demonstrates that organizations are often familiar with other companies in their own networks and therefore more likely to get inspiration from them or copy features to gain legitimacy. This is caused by the isomorphic pressures. The mimetic and coercive pressures of isomorphism clarify this, as organizations are striving to be perceived legitimate (Frumkin & Galaskiewicz, 2004). The relationship between isomorphism and legitimacy has been found in past research (Phillips & Zuckerman, 2001; Deephouse & Carter, 2005). Moreover, the tests with the affiliate network revealed that only one out of four is significant. So, when two companies work for the same brands, it does not have to mean that there is a connection between the two organizations. To be expected is that organizations that provide services to the same customers

perform different tasks to the clients' different needs. It could be two companies who are both more niche or differently embedded in the market.

As mentioned in the introduction of this thesis, this branch of the platform economy has not been studied often. This study provides a new insight into this part of the platform economy, the B2B side, what was argued important to do (De Reuver, Sørensen & Basole, 2018). In particular on the brand positing and embeddedness of these organizations. Marketing research often focusses on the B2C market, and when a study focusses on the B2B market, it is often on their social media profiles (Hadjikhani & LaPlaca, 2013). By testing the digital profiles that includes the organizations' websites of organizations that operate in the B2B market, it adds something new to the B2B marketing field. The embeddedness of organizations in markets as retailers and financial companies has been found before and this thesis adds to that field of research by proving the embeddedness of organizations in the B2B platform market (Kaufman, Jayachandran & Rose, 2005; Uzzi & Gillespie, 2002).

5.1.3. Outliers of the market

The fourth hypothesis focuses on the outliers in the network. H2 hypothesized that niche companies will appear more distinct from other organizations content and network wise. The tests revealed that niche companies did significantly differ content wise. The organizations that are non-niche are more similar, as is explained with the isomorphic pressures in H1a and H1c. The Euclidean distance model from H1a showed the difference in distance between the organizations, in the model there are distinct outliers. These can be compared to the four niche companies that are measured in H2. The niche organizations that were qualitatively selected are Trendminder, Bulbtech, Iteneris and Vital Insights. In the Euclidean distance model these organizations do not appear to be the outliers. It does show that Iteneris, Bulbtech and Vital Insights border each other and are near the edge of the cluster, while Trendminer is not as close in distance with the other three. This shows that three out of the four niche organizations are more similar content wise. However, the four companies do not appear as distinct outliers. That can be explained as Tan, Shao and Li found that central firms in a network have the opportunity to avoid isomorphic pressures and have the ability to differentiate and innovate and shape the environment (Tan, Shao & Li, 2013). The companies that appear as distinct outliers in the model, play possibly a more central role in the network.

The discussed niche theory would benefit from supplementing it with niche marketing. Niche marketing is a "creative process" that zooms in on a small part of a market that is not

saturated yet (Dalgic & De Leeuw, 1994). This marketing technique helps the organizations to set themselves apart and fulfill particular needs (Dalgic & De Leeuw, 1994). "Niche marketing could be defined as positioning into a small, profitable homogenous market segments which have been ignored or neglected by others (Dalgic & De Leeuw, 1994, p, 42)". This type of marketing is often used to differentiate themselves from the competition (Kotler, 2003). So, the possibility exists that organizations lean in to appear as a niche and therefore are seem more distinct than others. However, Toften argues that organizations are not deliberately adjust or segment their marketing to appear as niche (Toften, 2009). For this thesis the niche organizations have been selected based on qualitative measures, so therefore it can be assumed that they do not only use their marketing or profile to appear as a niche. However, the digital profile alone is not capable of predicting if organizations are niche. Nonetheless, within the B2B platform market the niche companies are content wise significantly different than non-niche organizations.

Besides the focus on the digital profiles of the niche organizations, the embeddedness was also tested. There is no evidence that niches are embedded differently. Four out of the five measures did not show evidence of a statistical difference between the niche and non-niche companies. That would suggest that the niche organizations can be described as generalist niche companies. These kind of niches are not as focused and fit in with multiple markets (Aldrich & Wiedenmayer, 1993). However, the mean of the closeness centrality shows from the niches is lower than the non-niche, so therefore further away from nodes and thus the niche organizations tend to be on the fringe of the network. Moreover, the weighted degree mean also revealed a large difference in in and outgoing paths and connections. The non-niche organizations have almost three times as many in and outgoing connections. Lastly, the betweenness of the niches is low, what also indicates that the organizations are on the fringe of the network. This gives away that niche companies do appear not to be central in the network. This is in accordance with previous studies, in which niches have been described as not as embedded within a market (Ottosson & Kindström, 2016; Abbot, Green & Keohane, 2016). Although no significant difference was found between non-niche and niche organizations network wise, there are reasons to suspect that they might be connected.

5.1.4. Platform market as small world

The last hypothesis is H3, which proposes that the network of the platform market will appear as a small world network. In a small world network the focus lies on the distance between neighboring nodes, not the direct links (Watts & Strogatz, 1998). To my knowledge, is the B2B platform market not been studied yet in regards a small world network. Nevertheless, it has been

found true that markets that focus on software, infrastructure and banking all can be small world (Iyer, Lee & Venkatraman, 2006; Sen et al, 2003; Seaton & Hackett, 2004; Tse, Liu & Lau, 2010). The first condition is that the average clustering coefficient has to be high. For the direct network, this coefficient was low, yet the affiliate network showed that when this number was tested against the coefficients of random generated networks it revealed it is statistically significant. In the direct relationship network there were less clusters, so the companies within the dataset are not very clustered. The affiliate network is significant, in that network more clusters are found, so the integrations and customers are more clustered. The second condition is that the average path between nodes has to be proportional to the logarithm of the network. Likewise as the first condition, was this also found to be statistically significant. That means that the business-to-business platform market is not only isomorphic, but is also a small world network.

In this thesis it appears that the B2B platform market is as well as an isomorphic network also a small world network. This does not have to be the case in other markets. It is possible to have markets that are isomorphic but not a small world network and vice versa. In a small world network there can be a large amount of ties and nodes who are all clustered in different neighborhoods, from whom a couple of ties or connections bridge these clusters together. That means that these neighborhoods or clusters can vastly differ from each other. These clusters can literally be on the other side of the world, while still being a small world network (Watts & Strogatz, 1998). That can prevent isomorphism from happening in the whole network. However, isomorphism might appear in the smaller clusters or neighborhoods. These neighborhoods can start to influence other clusters. This can be done by exchanging information, knowledge and cultural customs via people or organizations. If this happens, the organizations or people in other clusters might so adopt or take on this new knowledge or cultural customs, which can lead to isomorphism throughout the whole network.

5.2. Limitations

While this research reveals new insights in the relationship between the content and the embeddedness of organizations in the B2B platform market, there are theoretical, methodological and statistical limitations that have to be acknowledged.

Firstly, this thesis focuses on the digital profile of the organizations. This digital profile consists of two webpages of the organizations. These two pages are the home page and "about us". These two pages give a limited view of the actual contents of their complete website. It would be recommended to include all the webpages of their website into the dataset, i.e. the

product pages, features and others, to capture the complete digital profile. Furthermore, most organizations have a bigger online presence than their own website. The presence of B2B organizations on social media has expanded of the last few years (Salo, 2017). In the B2B market around 90 percent of the organizations is active on social media (Gruner & Power, 2017). Social media profiles are just as the websites a channel where organizations can present and sell their product (Agnihotri, Dingus, Hu & Krush, 2016). Besides it being an opportunity to sell the product, provides it opportunities for customer service as well (Angihotri et al., 2016). As it is easier to come in contact with people via social media channels (Iankova, Davies, Archer-Brown, Marder & Yau, 2018), it can provide opportunities to improve the virtual embeddedness of an organization. Gruner & Power acknowledge that the connections made via social media can be studied with the social network theory (Gruner & Power, 2017). The connections are a valuable addition to include these into the network analysis. The digital profiles of the organizations service a different purpose, but the social media channels should also be included in that digital profile. Due to the feasibility of this thesis, the inclusion of social media had been decided against.

The second limitation is methodological. The intercoder reliability test revealed an average result, that is just above the cutoff point, but not good. There can be multiple reasons why this score is this low. First of all, with quantitative content analysis 128 articles have been coded in total. For the intercoder reliability test the second coder coded a subset of ten percent of the dataset. However, to gain maximum reliability it is advised to have one or more coders who do (at least) a subset of the dataset (Elo et al., 2014; Macnamara, 2005). Particularly for this research, as the second coder only conducted a small subset of 13 articles, would it have been beneficiary to have more coders. More coders would give a better indication if the framework from Virtsonis and Harridge-March (2009) is applicable on different B2B markets. The score from the Krippendorff's test can also be explained by flaws of the code book. The code book or coding list instructs and explains the framework in detail for the second reader (Macnamara, 2005). This is used so the coding is consistent and it can be replicated for future studies (Macnamara, 2005). The code book might not have been detailed enough, so by improving the instructions more similarity between the coding of the first and second coder could be achieved. Lastly, the framework van Virtsonis and Harridge-March (2009) might not be suitable for the B2B platform market. The framework was used on websites of B2B British printing companies, but not yet on other B2B markets. Therefore, it might be interesting to study the differences between the coders and check if there are categories that overlap and need to be removed. These are three explanations why the intercoder reliability test score is only average. However, as stated

in the result section can this score also be perceived as enough, because the study is breaking new ground and a lower score is sufficient (Riffe et al., 2005).

The last limitations are concerning H2. The study is done with 65 organizations and only four of those organizations indicated that they are niche. That is a very small dataset to find valid statistic results. With the use of bootsrat it was tried to make up for the small dataset in order to find the best results. Nonetheless, the tests with the network revealed that both the measurements weighted in degree and betweenness have a mean and standard deviation of .00. That shows that zero out of the four niches had any incoming connections and are not situated on the shortest paths between organizations. However, this is likely not very representative for other niche companies in the B2B platform market or any other markets and is a direct result from the small dataset. Besides that, the t-tests that have been conducted to determine the niches and the other hypotheses that uses matrix data, the t-test is not the fully proper test to run due to non-independence of the data (independence of each row from one another). To do test the data properly, it requires a matrix permutation-based procedure to establish a proper null hypothesis distribution to accomplish this. Performing such a test is beyond the scope of the MA thesis, but could be explored in more precise research.

5.3. Future research

This thesis focuses on a part of the platform economy that is not studied often, the B2B platform market. While this study revealed that the digital profile is related to the embeddedness of an organization in their network, it also leaves a lot of unanswered question and it reveals opportunities to do more research into this market.

First of all, this study can be expanded by increasing the dataset with more organizations and therefore more niche organizations. That would improve the hypothesis on niches and the reliability of this research. In a larger dataset, there will likely be more niche organizations, what will give more information about the behavior of niche organizations in a network. As part of H2 is now inconclusively answered. Moreover, the reliability of this study can be improved in multiple ways. In the limitation paragraph there are three suggestions presented that can help with improving this study. These are the following: to include one or more coders who do a larger portion to check the validity, increase the details and instructions of the code book and lastly to adapt the used framework so it fits the B2B platform market better.

Secondly, the market is a fast changing industry. One month after collecting the data there are organizations in the dataset that changed the information on their websites. Besides the change of information, Crimson Hexagon merged with Brandwatch on the 8th of May. So the

network position and the digital profile of this company is likely different after the merge. Before finishing this thesis, the data is already outdated. However, that does shows that this market is changing fast and that gives plenty of opportunity to do thought-provoking research into the B2B platform market of the platform economy.

Thirdly, the focus in this research lies on the digital profile, extracted from their websites. But as mentioned in limitations, the study would benefit from including the social media channels too. The social media can be used to do the quantitative content analysis and the network analysis as well. Social media profiles are used as customer service, so it would give a more comprehensive overview of all the relationships, i.e. clients and integrations, organizations have (Angihotri et al., 2016). Not all the organizations in the dataset mention all the organizations on their own website, but possible connect with these organizations via social media. Besides the inclusion of social media, another opportunity for this research is looking at the visual aspects of the websites. While scraping the data, it was clear that there are websites that are visibly very similar. So, it would be interesting to create a framework to examine and code the design and compare this to the digital profiles and the network position. The design and colors used on a website also influences behavior of customers (Lui, Marchewka & Yi-Fang Ku, 2004; Tarafdar & Zhang, 2008). Subsequently is the relationship between the visual digital profile and embeddedness interesting, as both can reveal information about the economic performance. Moreover, a benefit of studying the design is that it might be easier to notice afterwards in other companies, than only the textual analysis.

Moreover, in this study it appeared that the network is both isomorphic and a small world network. Although, does not have to be case in every network. This can be studied in other industries and markets, to figure out how information and knowledge travels between nodes and ties. That does not only have to limited to the platform economy, but also offline industries can benefit from studying relationships and networks.

Lastly, to complement this study and make it more practical the relationship between embeddedness, the digital profile and the economic performance could be made. There is a positive relationship between the embeddedness of an organization within their network and the economic performance for manufactures (Gulati & Stytch, 2007; Echols & Tsai, 2004). That proposes the question if the digital profile says something directly about the economic performance.

5.4. Conclusion

To recap, this thesis focusses on the B2B platform market in order to answer the research question: **How is the embeddedness of a business-to-business company reflected in the framing of its digital profile?** To answer this question the similarity of the digital profiles – two of the webpages from the organization – are compared to each other and their embeddedness in their network. The first hypothesis showed that these digital profiles of the organizations are similar. This can be explained by organizational pressures that cause isomorphic mechanisms. These pressures appear as organizations strive to gain legitimacy and trust by copying the competitive organizations in their network. Moreover, the organizations do not appear all to be embedded in the same network, but are similarly embedded in a network. The combination of these two revealed that the similarity of the digital profiles is connected to the embeddedness in the network.

Afterwards was tested if the outliers, the niche organizations, of this dataset stand out content and network wise. The niche companies are significantly different content wise than non-niche organizations, but do not stand out in the network. However, more research is needed to conclude that with certainty. To see how the network of the platforms is constructed, the network was tested to see if it is a small world network. The business-to-business platform market appears to be isomorphic as well as a small world network. This shows that the B2B platform market is embedded in more ways than one.

The embeddedness of an organization can be found in the framing of the digital profiles. When organizations in the B2B platform market use a lot of the same characteristics, like displaying the benefits of their product, information about their product and services and pricing statements, these organizations are more likely to be closely connected within the network. Consequently, there is a relationship between the content of the digital profiles with the position of an organization in a network.

6. References

Abbott, K. W., Green, J. F., & Keohane, R. O. (2016). Organizational ecology and institutional change in global governance. *International Organization, 70*(2), 247-277. doi:10.1017/S0020818315000338

Agnihotri, R., Dingus, R., Hu, M. Y., & Krush, M. T. (2016). Social media: Influencing customer satisfaction in B2B sales. *Industrial Marketing Management, 53*, 172-180. doi:10.1016/j.indmarman.2015.09.003

Aldrich, H. E., & Wiedenmayer, G. (1993). From traits to rates: An ecological perspective on organizational foundings. *Advances in Entrepreneurship, Firm Emergence, and Growth, 1*, 145-195. doi 10.1108/s1074-754020190000021010

Alhorr, H. S., Singh, N., & Kim, S. H. (2010). E-commerce on the global platform: Strategic insights on the localization-standardization perspective. *Journal of Electronic Ecommerce Research, 11*(1), 6-12. Retrieved from http://www.jecr.org/node/96

Altman, N., Carley, K. M., & Reminga, J. (2018). *ORA user's guide 2018* (2nd Ed.). Pittsburgh: School of Computer Science - Carnegie Mellon University.

Avlonitis, G. J., & Karayanni, D. A. (2000). The impact of internet use on business-to-business marketing: Examples from American and European companies. *Industrial Marketing Management, 29*(5), 441-459. doi:10.1016/S0019-8501(99)00071-1

Bambauer-Sachse, S., & Heinzle, P. (2018). Comparative advertising: Effects of concreteness and claim substantiation through reactance and activation on purchase intentions. *Journal of Business Research, 84*, 233-242. doi:10.1016/j.jbusres.2017.11.025

Barabási, A. (2009). Scale-free networks: A decade and beyond. *Science, 325*(5939), 412-413. doi:10.1126/science.1173299

Bastian, M., Heymann, S., & Jacomy, M. (2009). Gephi: An open source software for exploring and manipulating networks. Paper presented at the *Third International ICWSM Conference,* San Jose. 361-362. Retrieved from https://www.aaai.org/ocs/index.php/ICWSM/09/paper/view/154/1009

Baum, J. A. C., & Oliver, C. (1992). Institutional embeddedness and the dynamics of organizational populations. *American Sociological Review, 57*(4), 540-559. doi:10.2307/2096100

Baum, J. A. C., & Rowley, T. J. (2017). Companion to organizations: An introduction. *The Blackwell Companion to Organizations*, *1*, 1-34. doi:10.1002/9781405164061.ch0

Bendixen, M., Bukasa, K. A., & Abratt, R. (2004). Brand equity in the business-to-business market. *Industrial Marketing Management, 33*(5), 371-380. doi:10.1016/j.indmarman.2003.10.001

Berkhout, J., Carroll, B. J., Braun, C., Chalmers, A. W., Destrooper, T., Lowery, D., & Rasmussen, A. (2015). Interest organizations across economic sectors: Explaining interest group density in the European Union. *Journal of European Public Policy, 22*(4), 462-480. doi:10.1080/13501763.2015.1008549

Bice, S. (2017). Corporate social responsibility as institution: A social mechanisms framework. *Journal of Business Ethics, 143*(1), 17-34. doi:10.1007/s10551-015-2791-1

Bílková, M., Greco, G., Palmigiano, A., Tzimoulis, A., & Wijnberg, N. (2018). The logic of resources and capabilities. *The Review of Symbolic Logic, 11*(2), 371-410. doi:10.1017/S175502031700034X

Bonde, A., Bruno, J., Wu, S., Ruhl, C., & Birrell, R. (2019). *US B2B eCommerce will hit $1.8 trillion by 2023. landscape: The B2B eCommerce playbook.* Forrester. Retrieved from https://www.forrester.com/report/US+B2B+eCommerce+Will+Hit+12+Trillion+By+2021/-/E-RES136173

Borgatti, S. P., & Ofem, B. (2010). Social network theory and analysis. In A. J. Daly (Ed.), *Social network theory and educational change* (1st ed., pp. 17-29). Cambridge: Harvard Educational Press Cambridge.

Borgatti, S. P., & Halgin, D. S. (2011). On network theory. *Organization Science, 22*(5), 1168-1181. doi:10.1287/orsc.1100.0641

Borgatti, S. P., Mehra, A., Brass, D. J., & Labianca, G. (2009). Network analysis in the social sciences. *Science, 323*(5916), 892-895. doi:10.1126/science.1165821

Boxenbaum, E., & Jonsson, S. (2017). Isomorphism, diffusion and decoupling: Concept evolution and theoretical challenges. In R. Greenwood, C. Oliver, T. B. Lawrence & R. E. Meyer (Eds.), *The SAGE handbook of organizational institutionalism* (2nd ed., pp. 77-101). London: Sage Publications.

Carroll, G. R. (1984). Organizational ecology. *Annual Review of Sociology, 10*(1), 71-93. doi:10.1146/annurev.so.10.080184.000443

Cavusoglu, H., Cavusoglu, H., Son, J., & Benbasat, I. (2015). Institutional pressures in security management: Direct and indirect influences on organizational investment in information security control resources. *Information & Management, 52*(4), 385-400. doi:10.1016/j.im.2014.12.004

Chang, C. (2007). The relative effectiveness of comparative and noncomparative advertising: Evidence for gender differences in information-processing strategies. *Journal of Advertising, 36*(1), 21-35. doi:10.2753/JOA0091-3367360102

Conger, K. (2018, September 26). **Uber settles data breach investigation for $148 million**. *The New York Times*. Retrieved from https://www.nytimes.com/2018/09/26/technology/uber-data-breach.html

Cooke, P., Clifton, N., & Oleaga, M. (2005). Social capital, firm embeddedness and regional development. *Regional Studies, 39*(8), 1065-1077. doi:10.1080/00343400500328065

Dalgic, T., & Leeuw, M. (1994). Niche marketing revisited: Concept, applications and some European cases. *European Journal of Marketing, 28*(4), 39-55. doi:10.1108/03090569410061178

Davis, G. F. (2006). Mechanisms and the theory of organizations. *Journal of Management Inquiry, 15*(2), 114-118. doi:10.1177/1056492605280238

Deephouse, D. L., & Carter, S. M. (2005). An examination of differences between organizational legitimacy and organizational reputation*. *Journal of Management Studies, 42*(2), 329-360. doi:10.1111/j.1467-6486.2005.00499.x

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review, 48*(2), 147-160. doi:10.2307/2095101

Dobrev, S., Kim, T., & Hannan, M. (2001). Dynamics of niche width and resource partitioning. *American Journal of Sociology, 106*(5), 1299-1337. doi:10.1086/320821

Echols, A., & Tsai, W. (2005). Niche and performance: The moderating role of network embeddedness. *Strategic Management Journal, 26*(3), 219-238. doi:10.1002/smj.443

Edensor, T., & Millington, S. (2008). 'This is our city': Branding football and local embeddedness. *Global Networks, 8*(2), 172-193. doi:10.1111/j.1471-0374.2008.00190.x

Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative content analysis: A focus on trustworthiness. *SAGE Open, 4*(1), 1-10. doi:10.1177/2158244014522633

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing, 62*(1), 107-115. doi:10.1111/j.1365-2648.2007.04569.x

Fay, D. L., & Zavattaro, S. M. (2016). Branding and isomorphism: The case of higher education. *Public Administration Review, 76*(5), 805-815. doi:10.1111/puar.12626

Fowler, S. W., Lawrence, T. B., & Morse, E. A. (2004). Virtually embedded ties. *Journal of Management, 30*(5), 647-666. doi:10.1016/j.jm.2004.02.005

Fowler, S. W., Lawrence, T. B., & Morse, E. A. (2007). New ventures in the information economy: Exploiting virtual embeddedness and knowledge-based assets. *Proceedings, 2007*(1), 1-6. doi:10.5465/ambpp.2004.13862970

Freeman, L. C. (1978). Centrality in social networks conceptual clarification. *Social Networks, 1*(3), 215-239. Retrieved from: https://www.bebr.ufl.edu/sites/default/files/Centrality%20in%20Social%20Networks.pdf

Freeman, J., & Hannan, M. T. (1983). Niche width and the dynamics of organizational populations. *American Journal of Sociology, 88*(6), 1116-1145. doi:10.1086/227797

Frumkin, P., & Galaskiewicz, J. (2004). Institutional isomorphism and public sector organizations. *Journal of Public Administration Research and Theory, 14*(3), 283-307. doi: 10.1093/jopart/muh028

Fu, J. S., & Shumate, M. (2015). Social media activity and hyperlink network analysis: A holistic media ecology perspective. Paper presented at the *2015 48th Hawaii International Conference on System Sciences,* 1808-1817. doi:10.1109/HICSS.2015.218

Fuchs, C. (2012). The political economy of privacy on Facebook. *Television & New Media, 13*(2), 139-159. doi:10.1177/1527476411415699

Gandhi, S., Jamjoum, A. K., & Heider, C. (2019, 1 Feb.). **Why customer experience matters for B2B**. Retrieved from https://sloanreview.mit.edu/article/why-customer-experience-matters-for-b2b/

Gay, B., & Dousset, B. (2005). Innovation and network structural dynamics: Study of the alliance network of a major sector of the biotechnology industry. *Research Policy, 34*(10), 1457-1475. doi:10.1016/j.respol.2005.07.001

Gilsing, V. A., Nooteboom, B., Vanhaverbeke, W., Duysters, G. M., & Oord, A. J. (2008). Network embeddedness and the exploration of novel technologies: Technological distance, betweenness centrality and density. *Research Policy, 37*(10), 1717-1731. doi:10.1016/j.respol.2008.08.010

Grabher, G., & König, J. (2017). Performing network theory? Reflexive relationship management on social network sites. In B. Hollstein, W. Matiaske & K. Schnapp (Eds.), *Networked governance: New research perspectives* (pp. 121-140). Cham: Springer International Publishing. doi:10.1007/978-3-319-50386-8_8

Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology, 91*(3), 481-510. doi: 10.1002/9780470755679.ch5

Greenwood, R., & Meyer, R. E. (2008). Influencing ideas: A celebration of DiMaggio and Powell (1983). *Journal of Management Inquiry, 17*(4), 258-264. doi:10.1177/1056492608326693

Gruner, R. L., & Power, D. (2018). To integrate or not to integrate? understanding B2B social media communications. *Online Information Review, 42*(1), 73-92. doi:10.1108/OIR-04-2016-0116

Gulati, R., & Sytch, M. (2007). Dependence asymmetry and joint dependence in interorganizational relationships: Effects of embeddedness on a manufacturer's performance in procurement relationships. *Administrative Science Quarterly, 52*(1), 32-69. doi:10.2189/asqu.52.1.32

Gustafson, B. M., Pomirleanu, N., John Mariadoss, B., & Johnson, J. L. (2019). The social buyer: A framework for the dynamic role of social media in organizational buying. *Journal of Business Research.* 1-9. doi:10.1016/j.jbusres.2019.05.004

Hadjikhani, A., & LaPlaca, P. (2013). Development of B2B marketing theory. *Industrial Marketing Management, 42*(3), 294-305. doi:10.1016/j.indmarman.2013.03.011

Hammervoll, T., & Toften, K. (2009). Niche firms and marketing strategy: An exploratory study of internationally oriented niche firms. *European Journal of Marketing, 43*(11), 1378-1391. doi:10.1108/03090560910989948

Hannan, M. T., & Freeman, J. (1977). The population ecology of organizations. *American Journal of Sociology, 82*(5), 929-964. doi:10.1086/226424

Hansen H., A., & Windekilde, M. I. (2016). Transaction costs and the sharing economy. *INFO, 18*(1), 1-15. doi:10.1108/info-09-2015-0044

Haveman, H. A. (1993). Follow the leader: Mimetic isomorphism and entry into new markets. *Administrative Science Quarterly, 38*(4), 593-627. doi:10.2307/2393338

Hayes, A. F., & Krippendorff, K. (2007). Answering the call for a standard reliability measure for coding data. *Communication Methods and Measures, 1*(1), 77-89. doi:10.1080/19312450709336664

Heidenreich, M. (2012). The social embeddedness of multinational companies: A literature review. *Socio-Economic Review, 10*(3), 549-579. doi:10.1093/ser/mws010

Hinrichs, C. C. (2000). Embeddedness and local food systems: Notes on two types of direct agricultural market. *Journal of Rural Studies, 16*(3), 295-303. doi:10.1016/S0743-0167(99)00063-7

Hobbs, J. E., & Goddard, E. (2015). Consumers and trust. *Food Policy, 52*, 71-74. doi:10.1016/j.foodpol.2014.10.017

Hsieh, H., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15*(9), 1277-1288. doi:10.1177/1049732305276687

Hsu, G., Hannan, M. T., & Koçak, Ö. (2009). Multiple category memberships in markets: An integrative theory and two empirical tests. *American Sociological Review, 74*(1), 150-169. doi:10.1177/000312240907400108

Hüther, O., & Krücken, G. (2016). Nested organizational fields: Isomorphism and differentiation among European universities. *Socio-Economic Review, 46*, 53-83. doi:10.1108/S0733-558X20160000046003

Iankova, S., Davies, I., Archer-Brown, C., Marder, B., & Yau, A. (2018). *A comparison of social media marketing between B2B, B2C and mixed business models.* Unpublished manuscript. Retrieved https://www.sciencedirect.com/science/article/abs/pii/S0019850117301116?via%3Dihub,

Iyer, B., Lee, C., & Venkatraman, N. (2006). Managing in a "Small world ecosystem": Lessons from the software sector. *California Management Review, 48*(3), 28-47. doi:10.2307/41166348

Jin, E., M., Girvan, M., & Newman, M. E. J. (2001). Structure of growing social networks. *Physical Review E, 64*(4), 1-9. doi:10.1103/PhysRevE.64.046132

Kaya, F. B., Sahin, G. G., & Gurson, P. (2010). Intellectual capital in organizations. *Problems and Perspectives in Management, 8*(1), 153-160. Retrieved from https://businessperspectives.org/images/pdf/applications/publishing/templates/article/assets/3200/PPM_EN_2010_01_cont_Kaya.pdf

Kenney, M., & Zysman, J. (2016). The rise of the platform economy. *Issues in Science and Technology, 32*(3), 61-69. Retrieved from https://issues.org/the-rise-of-the-platform-economy/

Kistruck, G. M., Qureshi, I., & Beamish, P. W. (2013). Geographic and product diversification in charitable organizations. *Journal of Management, 39*(2), 496-530. doi:10.1177/0149206311398135

Kostova, T., & Roth, K. (2002). Adoption of an organizational practice by subsidiaries of multinational corporations: Institutional and relational effects. *Academy of Management Journal, 45*(1), 215-233. doi:10.5465/3069293

Kotler, P. (2003). *Marketing management* (11th ed.). Upper Saddle River, NJ.: Prentice-Hall.

Kotler, P., & Pfoertsch, W. (2006). *B2B brand management* (1st ed.). New York: Springer Science & Business Media.

Krackhardt, D. (1988). *Predicting with networks: Nonparametric multiple regression analysis of dyadic data*, *10*(4), 359-381. doi:10.1016/0378-8733(88)90004-4

Krippendorff, K. (2011). Computing Krippendorff's alpha-reliability, *Communication Commons,* 1-10. Retrieved from https://repository.upenn.edu/asc_papers/43/

Laland, K., Matthews, B., & Feldman, M. W. (2016). An introduction to niche construction theory. *Evolutionary Ecology, 30*(2), 191-202. doi:10.1007/s10682-016-9821-z

Langley, P., & Leyshon, A. (2017). Platform capitalism: The intermediation and capitalization of digital economic circulation. *Finance and Society, 3*(1), 11-31. doi:10.2218/finsoc.v3i1.1936

LeTendre, G. K., Baker, D. P., Akiba, M., Goesling, B., & Wiseman, A. (2001). Teachers' work: Institutional isomorphism and cultural variation in the U.S., Germany, and Japan. *Educational Researcher, 30*(6), 3-15. doi:10.3102/0013189X030006003

Levin, D. Z., & Cross, R. (2004). The strength of weak ties you can trust: The mediating role of trust in effective knowledge transfer. *Management Science, 50*(11), 1477-1490. doi:10.1287/mnsc.1030.0136

Li, F., Pieńkowski, D., van Moorsel, A., & Smith, C. (2012). A holistic framework for trust in online transactions. *International Journal of Management Reviews, 14*(1), 85-103. doi:10.1111/j.1468-2370.2011.00311.x

Li, Z., & Penard, T. (2014). The role of quantitative and qualitative network effects in B2B platform competition. *Managerial and Decision Economics, 35*(1), 1-19. doi:10.1002/mde.2602

Light, L. (2019, June 3). **Facebook is breaking the five basic principles of trust building**. *Forbes* Retrieved from https://www.forbes.com/sites/larrylight/2019/06/03/facebook-is-breaking-the-five-basic-principles-of-trust-building/

Liu, C., Marchewka, J.,T., & Yi-Fang, K C. (2004). American and Taiwanese perceptions concerning privacy, trust, and behavioral intentions in electronic commerce. *Journal of Global Information Management, 12*(1), 18-40. doi:10.4018/jgim.2004010102

Lowrey, W. (2017). The emergence and development of news fact-checking sites. *Journalism Studies, 18*(3), 376-394. doi:10.1080/1461670X.2015.1052537

Macnamara, J. R. (2005). Media content analysis: Its uses, benefits and best practice methodology. *Asia Pacific Public Relations Journal, 6*(1), 1-34. doi: 10453/10102

Mantel, N. (1963). Chi-square tests with one degree of freedom; extensions of the mantel-haenszel procedure AU. *Journal of the American Statistical Association, 58*(303), 690-700. doi:10.1080/01621459.1963.10500879

Matzat, U. (2010). Reducing problems of sociability in online communities: Integrating online communication with offline interaction. *American Behavioral Scientist, 53*(8), 1170-1193. doi:10.1177/0002764209356249

McEvily, B., & Zaheer, A. (1999). Bridging ties: A source of firm heterogeneity in competitive capabilities. *Strategic Management Journal, 20*(12), 1133-1156. doi: 10.1002/(sici)1097-0266(199912)20:12<1133::aid-smj74>3.3.co;2-z

McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology, 27*(1), 415-444. doi:10.1146/annurev.soc.27.1.415

Meyer, M. H., & Mugge, P. C. (2001). Make platform innovation drive enterprise growth. *Research Technology Management, 44*(1), 25-39. doi: 10.1080/08956308.2001.11671405

Moen, Ø., Aspelund, A., & Koed Madsen, T. (2008). The importance of the internet in international business-to-business markets. *International Marketing Review, 25*(5), 487-503. doi:10.1108/02651330810904053

Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. *Journal of Business Venturing, 29*(1), 1-16. doi:10.1016/j.jbusvent.2013.06.005

Muzellec, L., Ronteau, S., & Lambkin, M. (2015). Two-sided internet platforms: A business model lifecycle perspective. *Industrial Marketing Management, 45*, 139-150. doi:10.1016/j.indmarman.2015.02.012

Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *The Academy of Management Review, 23*(2), 242-266. doi: 10.5465/amr.1998.533225

Nguyen, H. N., Rintamäki , T., & Saarijärvi, H. (2018). Customer value in the sharing economy platform: The airbnb case. In A. Smedlund, A. Lindblom & L. Mitronen (Eds.), *Collaborative value co-creation in the platform economy* (pp. 225-246). Singapore: Springer Singapore. doi:10.1007/978-981-10-8956-5_12

Opsahl, T., Agneessens, F., & Skvoretz, J. (2010). Node centrality in weighted networks: Generalizing degree and shortest paths. *Social Networks, 32*(3), 245-251. doi:10.1016/j.socnet.2010.03.006

Österle, B., Kuhn, M. M., & Henseler, J. (2018). Brand worlds: Introducing experiential marketing to B2B branding. *Industrial Marketing Management, 72*, 71-98. doi:10.1016/j.indmarman.2018.04.015

Ottosson, M., & Kindström, D. (2016). Exploring proactive niche market strategies in the steel industry: Activities and implications. *Industrial Marketing Management, 55*, 119-130. doi:10.1016/j.indmarman.2015.08.003

Park, C. W., Jaworski, B. J., & Maclnnis, D. J. (1986). Strategic brand concept-image management. *Journal of Marketing, 50*(4), 135-145. doi:10.2307/1251291

Paulk, M. C., Curtis, B., Chrissis, M. B., & Weber, C. V. (1993). Capability maturity model, version 1.1. *IEEE Software, 10*(4), 18-27. doi:10.1109/52.219617

Paulssen, M., & Roulet, R. (2017). Social bonding as a determinant of share of wallet and cross-buying behaviour in B2B relationships. *European Journal of Marketing, 51*(5), 1011-1028. doi:10.1108/EJM-07-2014-0433

Paulssen, M., & Roulet, R. (2017). Social bonding as a determinant of share of wallet and cross-buying behaviour in B2B relationships. *European Journal of Marketing, 51*(5), 1011-1028. doi:10.1108/EJM-07-2014-0433

Pfoertsch, W., & Kotler, P. (2007). Being known or being one of many: The need for brand management for business-to-business (B2B) companies. *Jnl of Bus & Indus Marketing, 22*(6), 357-362. doi:10.1108/08858620710780118

Phillips, D. J., & Zuckerman, E. W. (2001). Middle-Status conformity: Theoretical restatement and empirical demonstration in two markets. *American Journal of Sociology, 107*(2), 379-429. doi:10.1086/324072

Rahman, M. (2014). Differentiated brand experience in brand parity through branded branding strategy. *Journal of Strategic Marketing, 22*(7), 603-615. doi:10.1080/0965254X.2014.914061

Rangan, S. (2000). The problem of search and deliberation in economic action: When social networks really matter. *Amr, 25*(4), 813-828. doi:10.5465/amr.2000.3707731

Riffe, D., Lacy, S., & Fico, F. G. (2005). *Analyzing media messages: Using quantitative content analysis in research,* (2nd ed.). Mahwah, N.J.: Lawrence Erlbaum Associates, Inc.

Rowley, J., & Cawsey, T. (2016). Social media brand building strategies in B2B companies. *Mrkting Intelligence & Plan, 34*(6), 754-776. doi:10.1108/MIP-04-2015-0079

Sako, M. (2006). Does trust improve business performance. In R. M. Kramer (Ed.), *Organizational trust* (1st ed., pp. 267-294). Oxford: Oxford University Press.

Salo, J. (2017). *Social media research in the industrial marketing field: Review of literature and future research directions, 66*(1), 115-129. doi:10.1016/j.indmarman.2017.07.013

Seaton, K. A., & Hackett, L. M. (2004). Stations, trains and small-world networks. *Physica A: Statistical Mechanics and its Applications, 339*(3), 635-644. doi:10.1016/j.physa.2004.03.019

Sen, P., Dasgupta, S., Chatterjee, A., Sreeram, P. A., Mukherjee, G., & Manna, S. S. (2003). Small-world properties of the Indian railway network. *Physics Review E, 67*(3). 36-106. doi:10.1103/PhysRevE.67.036106

Sommerville, H. (2019, May 9). **The answer to uber's profit challenge? it may lie in its trove of data**. *Thomson Reuters* Retrieved from https://www.reuters.com/article/us-uber-ipo-profit/the-answer-to-ubers-profit-challenge-it-may-lie-in-its-trove-of-data-idUSKCN1SF0O5

Stokburger-Sauer, N. (2010). Brand community: Drivers and outcomes. *Psychology & Marketing, 27*(4), 347-368. doi:10.1002/mar.20335

Stokburger-Sauer, N. E. (2011). The relevance of visitors' nation brand embeddedness and personality congruence for nation brand identification, visit intentions and advocacy. *Tourism Management, 32*(6), 1282-1289. doi:10.1016/j.tourman.2010.12.004

Suddaby, R., & Foster, W. M. (2017). History and organizational change. *Journal of Management, 43*(1), 19-38. doi:10.1177/0149206316675031

Tan, J., Shao, Y., & Li, W. (2013). To be different, or to be the same? an exploratory study of isomorphism in the cluster. *Journal of Business Venturing, 28*(1), 83-97. doi:10.1016/j.jbusvent.2012.02.003

Tarafdar, M., & Zhang, J. (2008). Determinants of reach and loyalty — A study of website performance and implications for website design. *Journal of Computer Information Systems, 48*(2), 16-24. doi:10.1080/08874417.2008.11646005

Theodorsson, E. (2015). Resampling methods in Microsoft excel® for estimating reference intervals. . *Biochemia Medica, 25*(3), 311-319. doi:10.11613/BM.2015.031

Tichy, N. M., Tushman, M. L., & Fombrun, C. (1979). Social network analysis for organizations. *The Academy of Management Review, 4*(4), 507-519. doi:10.2307/257851

Tremayne, M. (2004). The web of context: Applying network theory to the use of hyperlinks in journalism on the web. *Journalism & Mass Communication Quarterly, 81*(2), 237-253. doi:10.1177/107769900408100202

Tsai, W., & Ghoshal, S. (1998). Social capital and value creation: The role of intrafirm networks. *Academy of Management Journal, 41*(4), 464-476. doi:10.5465/257085

Tse, C. K., Liu, J., & Lau, F. C. M. (2010). A network perspective of the stock market. *Journal of Empirical Finance, 17*(4), 659-667. doi:10.1016/j.jempfin.2010.04.008

Uzzi, B. (1996). The sources and consequences of embeddedness for the economic performance of organizations: The network effect. *American Sociological Review, 61*(4), 674-698. doi:10.2307/2096399

Uzzi, B., & Gillespie, J. J. (2002). Knowledge spillover in corporate financing networks: Embeddedness and the firm's debt performance. *Strategic Management Journal, 23*(7), 595-618. doi:10.1002/smj.241

Van Dijck, J. (2013). Facebook and the engineering of connectivity: A multi-layered approach to social media platforms. *Convergence, 19*(2), 141-155. doi:10.1177/1354856512457548

Vasileiadou, E. M., & Missler-Behr, M.Virtual embeddedness and social media as a basis for the relational capital management of new ventures. *The Electronic Journal of Knowledge Management, 9*(3), 188-203. Retrieved from https://issuu.com/academic-conferences.org/docs/ejkm-volume9-issue3-article291/16

Virtsonis, N., & Harridge-March, S. (2009). Brand positioning in the B2B online environment: A case from the UK print industry. *Journal of Brand Management, 16*(8), 556-570. doi:10.1057/bm.2008.9

Vismara, S. (2016). Equity retention and social network theory in equity crowdfunding. *Small Business Economics, 46*(4), 579-590. doi:10.1007/s11187-016-9710-4

Wasserman, S., & Faust, K. (1994). *Social network analysis: Methods and applications*. Cambridge: Cambridge University Press. doi:10.1017/CBO9780511815478

Watts, D. J., & Strogatz, S. H. (1998). Collective dynamics of 'small-world' networks. *Nature, 393*(6684), 440-448. doi: 10.1515/9781400841356.301

Wirtz, B. W., Schilke, O., & Ullrich, S. (2010). Strategic development of business models: Implications of the web 2.0 for creating value on the internet. *Long Range Planning, 43*(2), 272-290. doi:10.1016/j.lrp.2010.01.005

Xu, Y. (2017). Modeling the adoption of social media by newspaper organizations: An organizational ecology approach. *Telematics and Informatics, 34*(1), 151-163. doi:10.1016/j.tele.2016.05.002

Zacharakis, A. L., Shepherd, D. A., & Coombs, J. E. (2003). The development of venture-capital-backed internet companies: An ecosystem perspective. *Journal of Business Venturing, 18*(2), 217-231. doi:10.1016/S0883-9026(02)00084-8

Zahay, D., Schultz, D., & Kumar, A. (2015). Reimagining branding for the new B2B digital marketplace. *Journal of Brand Strategy, 3*(4), 357-372. Retrieved from https://www.scholars.northwestern.edu/en/publications/reimagining-branding-for-the-new-b2b-digital-marketplace

Zhang, L., Moore, M., & Moore, R. (2011). The effect of self-construals on the effectiveness of comparative advertising. *Marketing Management Journal, 21*(1), 195-206. Retrieved from http://www.mmaglobal.org/publications/MMJ/MMJ-Issues/2011-Spring/MMJ-2011-Spring-Vol21-Issue1-Zhang-Moore-Moore-pp195-206.pdf

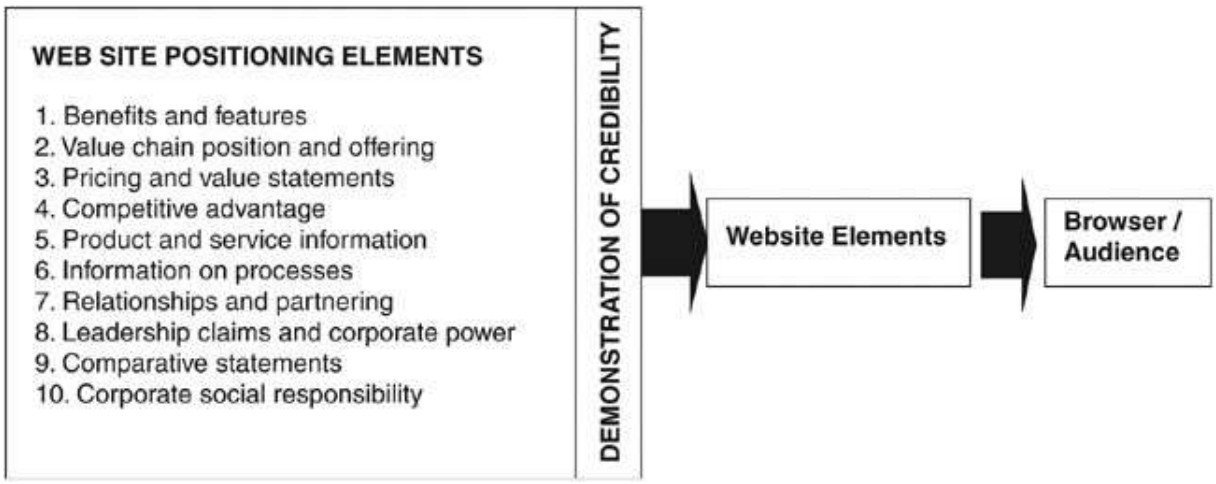
7. Appendix

1. Quantitative Content Analysis Guideline

For the second part of my thesis, I have to conduct quantitative content analysis. To make sure this is reliable, 10 % has to be coded by someone else. The framework of the content analysis is from Virtsonis and Harridge-March. There are 10 categories, these can be seen in the included image. I will also provide one example or a short summary of the categories. From every website two webpages will be looked at: the front page and the page about the company.

How does the coding go?

Every sentence has to be evaluated to see in which category it belongs. Per sentence more categories are possible. There are also sentences that don't belong in any category and can be left out. Each text document is one line in the excel sheet. The 10 categories are in the columns, it shows how often a sentence or topic is present in the text.



Categories:

1. Benefits and features

The benefits and features of using the service of the company. This also includes the names of the services they offer.

"Get up and running in a few weeks, no lengthy setup needed"

2. Value chain position and offering

The set of activities a company performs in order to deliver a value product or service for the market. How the company can help prospective clients.

"BlueVenn is the award-winning Customer Data Platform and Omnichannel Marketing Hub for marketers to unify customer data from every online and offline source into a Single Customer View and to orchestrate consistent, integrated and personalized campaigns through every available marketing channel."

3. Pricing and value statements
Talking about price or how it helps reduce costs for companies. This includes sentences with words like revenue and investors.

4. Competitive advantage
Claims of competitive advantages are used by print suppliers to substantiate their claims or superiority. "This is why we are better"
Example: "Is developing a self-driving supply chain to respond to market opportunities faster and serve patients and customers better."

5. Product and service information
Description of the platform or services.
Example: "Aera understands how your business works, makes real-time recommendations, predicts outcomes, and takes action autonomously."

6. Information on processes
What steps they take for their clients. → How are we going to help you. What steps are we taking for our customers.

7. Relationships and partnering
Who they are working with and or integrations with other platforms.
Example: "1,000+ Leading Brands, Over a thousand of the world's best-loved brands trust Medallia to help them become truly customer-obsessed."

8. Leadership claims + corporate power
Sentences that show that they are 'leaders' in a field, or the best. "We are the best in this field"
Example: "BlueVenn is the award-winning Customer Data Platform and Omnichannel Marketing Hub for marketers to unify customer data from every online and offline source into a Single

Customer View and to orchestrate consistent, integrated and personalized campaigns through every available marketing channel."

9. Comparative statements

Comparing what they do to different companies. "We do this better than our competitors"

10. Corporate social Responsibility

How it helps the environment or how they talk about privacy, GDPR, or the security of their data.

Left out:

- descriptive sentences about the digital space
- Or general statements

Example: "More and more data is being gathered daily from instruments, sensors and devices. How can you turn real time data into real time performance optimization?"