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Master Degree Project in Innovation and Industrial Management

# Digitalization explained in a fast-technological environment:

## Main challenges and solutions from a consulting point of view

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**Abstract:**

Companies currently find themselves in a rapidly changing technological environment due to the changes driven by digitalization. Those changes are shaped by the IT development and its shift towards the core role of a typical corporation.

The main purpose of this Master thesis is to understand what is digitalization, what the main challenges are and how it should be approached. In order to do so, this study is supported by 11 semi-structured interviews with mainly management consultants in Helsinki, Finland. The interviews are analyzed with qualitative content analysis and the results are presented in the empirical findings' paragraph.

The main results are an extensive definition of digitalization explained contextually in a Nordic country. The main challenges are the necessity of reinvention from traditional companies, the changes driven by automation, formation of ecosystems and drawbacks of internet as based infrastructure for digital businesses. According to the results of this study all corporations, except the ones that have tight regulations, should start to boost the Lean startup approach, foster partnerships with actors/businesses likely to improve their own business and small cross-functional teams that develop variety of digital projects.

Furthermore, management consulting is the industry where the changes derived by digitalization are analyzed. It can be highlighted the new business opportunities, the changes in the structure of the industry, new capabilities needed and the powerful tools enabled by new digital technologies as well as improvements in data quality.

**Key words:** Digitalization, digitization, management consulting, digital transformation, IT development

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Carlos Salomon Figueroa

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# 1. Introduction

*The introduction provides the reader a general overview of what is the thesis about. Also a brief theoretical introduction to the topic as well as the the research question and its purpose.*

This Master thesis talks about digitalization, its main challenges and what the perspective of the consulting industry is on this matter as well as insights on how to successfully navigate through it. The help from consultants was required to answer the research question through semi-structure interviews in order to gather data for the empirics. The data is analyzed with qualitative content analysis.

Consultants were chosen as they tackle constantly different industries, and thus have a general overview of all of them. They also provide knowledge services such as helping to implement digital solutions for corporations. Moreover, in order to give an example of the effects of digitalization, management consulting industry was chosen not only in terms their customers but also in terms of how affects its sector and how they are affected internally.

It is really interesting how digitalization is changing industries in major way as well as the economic environment and thus the way of competing. A part from fully describing digitalization in a rapid technological environment, this study focuses on the main challenges of digitalization for corporations as well as suggestions in terms of what should be done in the short to medium term based on consultants' opinions and relevant literature.

The literature about digitalization is quite broad and widespread, nonetheless there is not literature clarifying boundaries between the beginning and the end of the phenomenon, challenges and not enough theory about how digitalization affects consulting industry. In addition, the literature of digitalization in general terms or from a general angle is limited.
This study will help to understand it contextually in a Nordic country. It will also help to give a simple definition, classification, challenges and solutions to overcome successfully digitalization that was not found in the literature.

On the other hand, according to (Brennen & Kreiss, 2014) 'digitization' and 'digitalization' are two conceptual terms that are closely associated and often used interchangeably in a broad range of literature. The definition of digitization is the technical process of converting streams of analogue information into digital bits whereas digitalization is "the adoption or increase in use of digital or computer technology by an organization, industry, country, etc" (ibid). In this Master thesis, both concepts are interchangeable but the meaning is the one described as digitalization.

## 1.1 Background

The major economic cycles in human civilization are identified into three ages of economic evolution: the agrarian age, the industrial age, and the information age (Hope & Hope, 1997; Toffler, 1990). According to (Hartmann & Vaassen, 2003) the industrial age saw an overlap with the information age over several decades, so that we presently find ourselves in a transitional stage between the industrial and the information age.

The industrial era may be characterized by a considerable concentration of power in centrally controlled corporations that are mainly involved in production activities, and so called the typical traditional companies. In contrast, the information era is characterized by the emergence of new organizational forms that go beyond industry boundaries, national borders and markets, and that new scenario seems to challenge the well-established central control. Thus, one can expect that the competition is tougher. The information era also focuses on people's collaboration as well as learning from each other (ibid). We currently live in an era where decision-makers are concerned about the effective representation of strategic and technological interdependencies so as to enable managerial decisions that align with present-day organizational realities Bhimani (2006).

The idea of strategy and technology interdependency is reaffirmed by (Bughin et al., 2017) as they found for instance many leading companies closely tie their digital and corporate strategies. Some authors such as (Berman et al., 2016) can include operations of the firm to this interdependency, or some others such as the article of EY in 2011 states that companies need to rethink even their business models accordingly. The rate of technology adoption should continue to accelerate so that each new technology outpaces the adoption of its predecessor. For example, it took more than 70 years for telephones to reach 50% household penetration whereas for internet only 10 years, and now for a media tool of Google only 16 days were needed to reach 10 million users. This reality should have consequences in the sense that companies should aim for flexibility and adaptability to this dynamic (ibid).

## 1.2 Purpose and research questions

The idea behind doing this research is to understand the concept of digitalization and to find answers to the phenomenon through the consulting point of view. The research will be exploratory due to broad and widespread literature exists about digitalization. Once done the interviews, the main ideas will be developed through further research in the relevant theory in order to compare the main findings.

The research is intended to serve business and academic audiences. By reading this Master thesis the author aims to let understand the digitalization as a present phenomenon and corporations will understand the importance of applying digital technologies quickly as well as suggestions by consultants in how to proceed.

The research questions of this study are:

- ***How is digitalization defined in a rapidly changing technological environment? What are the main challenges and how should it be approached?***

In this study in order to answer those questions at first is reviewed the literature in terms of digitalization, its challenges and the solutions suggested to successfully overcome the changes produced by digitalization of industries. Then, once an idea is formed the questions are developed in order to prepare the questions for the sample, which in this case are semi-structured interviews of 11 consultants, and provide data to do the qualitative content analysis. The results are concluded into four main categories that answer to the research questions: Definitions, Context, Challenges and The way of approach.

## 1.3 Research outline

This Master thesis is divided into 5 chapters in addition to the introduction. The first one, the literature review is where the author collects knowledge about the topic. The second one is the methodology where the author explains the methodological approach, technique used and presentation of the data. The third, the analysis whereby the empirical data is exclusively analyzed. The fourth, the analysis of the research where both relevant theory and empirics are compared. And the fifth, the conclusion where the main findings of the thesis are summarized as well as recommendations for future research are given.

# 2. Literature review

*In this paragraph the author will present the theory of this thesis that is based on digitalization, IT development, automation, business models, changing economic environment, and management consulting firms. The author will define the concepts and give an overview about the topics. The literature review is approached by looking for relevant theory in databases such as Google scholar, Web of science, and Scopus. The key words used for this research are: digitalization, digitization, digital transformation, management Consulting, consulting industry.*

## 2.1 Digitalization

(Gartner, 2016) defines digitalization as "the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business" Just to clarify what is understood as digital technologies and value-producing opportunities, a good definition can be extracted from the survey (Siemens AG, 2015) where software, apps, mobile applications, connectivity/Internet of Things, big/smart data and analytics, cyber-physical systems, smart factories and grids, among others as main representation of digital technologies nowadays. The benefits of these technologies (value-producing) are visualization, data reader out of machines/sensors, resource optimization, automation of manufacturing, connected interfaces to suppliers, customers among others (ibid).

As (Sassen, 1998) points out: "The digitalization and globalization of the economy has subsequently eroded national sovereignty, reshaped conceptions of materiality and place, and facilitated new circulations of culture, capital, commodities, and people". Due to the change provoke by digitalization in terms of more competition and advances in technology, (Simons, 2005) adds that "markets became more customer focused, the managers realized that they had to delegate decision making to front-line employees because they were the ones that were closest to the customer and had the most information about them". The Ministry of Employment and the Economy of Finland (2015) also states that digitalization is rapidly globalizing many service markets while also enabling a significant increase in productivity.

Companies should aim to create transformation through technology or they will face destruction at the hands of their competitors that do. Although the world is getting extremely interconnected, facts such as only 15% of companies interviewed were in their digital maturity (Fitzgerald et al., 2013) or "despite the relatively deep penetration of technologies, on average, industries are less than 40 percent digitized" (Bughin et al., 2017) One can see that the literature agrees upon a not high level of digitalization worldwide.

### 2.1.1 Stages of digitalization

The level of digitalization varies greatly depending on the region of the world. (Sabbagh et al., 2012) classify the digital development into 4 main categories: Constrained, Emerging,

Transitional and Advanced. Being Norway an example of an Advance stage of digitization, Estonia an example of Transitional, Brazil and example of Emerging, Ethiopia an example of Constrained, and more countries available in the table below. (Sabbagh et al., 2012) take into account the next following attributes to compound the digital score by country: Ubiquity, Affordability, Reliability, Speed, Usability and Skill.

| Constrained<br>Less than 25 | Emerging<br>25 to 29.9 | Transitional<br>30 to 39.9 | Advanced<br>40 and higher |
|---|---|---|---|
| South Africa 23.8 | Lebanon 29.9 | Kuwait 38 | Norway 63.7 |
| Bolivia 17 | Brazil 28.5 | Estonia 37.9 | Sweden 54 |
| Bangladesh 12.9 | Venezuela 27.1 | Philippines 33.5 | Finland 52.2 |
| Benin 8.1 | Panama 26.9 | Colombia 31.7 | Spain 48.2 |
| Ethiopia 1.9 | Georgia 25.3 | Jordan 30.1 | UAE 34.6 |
| Total: 65 | Total: 19 | Total: 28 | Total: 38 |

*Table 1 Stages of Digitization. Aprox. Numbers (Source: Sabbagh et al., 2012)*

### 2.1.2 The approach towards digitalization

(Degryse, 2016) argues that "business strategies in the digital era must be seamlessly interwoven with ever-expanding digital strategies that address not only the web but also mobile, social, local and whatever might come fast". According to (Fitzgerald et al., 2013; Bughin et al., 2017) digital transformation needs to come from the top management and the organization should lead the steps to follow in terms of technology and not in the other way around. In the same aspect, (Fitzgerald et al., 2013; Berman et al., 2016) adds that "top management should promote small digital projects, via pilots and skunkworks, which should refine and update the digital vision of the organization accordingly".

(Berman et al., 2013) give another approach for companies towards digital reinvention. They believe that should be carried out by: 1. Open up to external influences 2. Connect to new ecosystems and partners and 3. Invest in digital mobilization across the organization. From the same source, 3 years later, (Berman et al., 2016) states that companies should also pursue a new focus where they aim to find new ways to monetize customer interactions. Furthermore, corporations should build new expertise by applying predictive analytics, Internet of Things among other new technologies, in order to create an agile operational environment necessary to support and enable deep experiences for customers. And finally, establishing new ways of working: seeking new forms of partnering and new ways to build value. However, it is true that already in 2013, Ban & Marshall found out that in the C-suite executives already knew that technology future of corporate openness, customer individualization and innovation partnerships are key points in order to navigate through the digital transformation. Nonetheless, by

investigating recent studies on the actual development of digitalization, it is possible to conclude that this awareness did not mean that corporations know how to do it, and thus it could be considered that there is some slowness in this transformation.

### 2.1.3 Benefits and opportunities of digitalization

Next it will be presented the opportunities and benefits of applying digital technologies into everyday life. According to (Fitzgerald et al., 2013) adapting digitalization into your organization allows you to have a better customer experiences and engagement, streamlined operations that improve sharply the internal communications, and it also creates the possibility of new lines of business or business model. According to (Bughin et al., 2017) the more aggressively they respond to the digitization of their industries, the better the effect on their projected revenue and profit growth. Indeed, there are plenty of opportunities of taking advantage from digitalization challenge. For instance, (Berman et al., 2013) predict that the value chain fragmentation and industry convergence will begin to support formation of ecosystems, which will typically cut across multiple organizations, functions and industries, providing a foundation for new, seamless consumer experiences and camouflaging functional complexity. Corporations should take advantage of this situation and aim to adapt the right position in the formation of those.

### 2.1.4 Problems of digitalization

In terms of the problems, (Bughin et al., 2017) states that companies are not sufficiently bold not only in the magnitude but also in the scope of their investments in digitization of their industries. Inevitably, as (Berman et al., 2013) remark "Digital technologies will drive drastic changes in the economy: value chains will fragment, industries will converge and new ecosystems will emerge. As a result, the mechanics of value creation and value allocation will also change". If it is planned and meditated it could also be seen as an opportunity as in the previous point, 2.1.3, is explained. However, this can be considered a problem because this transformation means radical changes that most likely companies are not ready to face.

It seems that companies do not speed up on adapting quickly those digital technologies. However, it might me recommendable to do so, as (Bughin et al., 2017) state that current levels of digitization have already taken out, on average, up to 6 points of annual revenue and 4.5 points of growth in earnings before interest and taxes (EBIT). In other words, as digitization penetrates more fully, it will decrease profit and revenue growth. The integration of digital technologies enables competition beyond borders easily and regardless the competitor's location.

### 2.1.5 Future of digitalization

The Ministry of Employment and the Economy of Finland (2015) states that digitalization will reduce the labour needed in many current sectors and will support growth and create new jobs in other, sometimes entirely novel areas of the economy not known yet. (Berman et al., 2016) states that digital reinvention rethinks customer and partner relationships from a need-, use- or

aspiration-first perspective. This new scenario is due to the maturation of social media, mobility, analytics and cloud are motivating a transition from an individual-centered to an everyone-to-everyone (E2E) economy. (Berman et al., 2013.)

A good example of what digitalization could mean is the next SWOT analysis developed by (Degryse, 2016) whereby he studies digitalization of the economy and its impacts on the labour market. It is interesting to highlight from the strengths achievements in productivity and efficiency. In terms of opportunities, one can emphasize the new high-level jobs as well as the new ways of productivity gains. In the weaknesses, the jobless growth due to the automation of predictable jobs. And from the threats, the massive destruction of medium-skilled jobs due to computerization, the increase use of computer technology.

| Strengths | Opportunities |
|---|---|
| 1. Connected world, open systems, knowledge economy<br>2. Networks, exchange, sharing and collaboration, with access based on functionality rather than ownership<br>3. Integration of industries and services: intelligent factories, energy systems, mobility, transport and cities and "optimized governance<br>4. Automation, robotisation, learning machines<br>5. Productivity, efficiency and profitability gains | 1. New jobs (computer engineers and scientists, network experts, etc.)<br>2. More "agile" work organization, new forms of more flexible and more autonomous work<br>3. Abolition of repetitive and routine tasks<br>4. Possibility of new ways of distributing productivity gains (working time reduction)<br>5. New forms of collaboration and cooperation among workers |
| **Weaknesses** | **Threats** |
| 1. Jobless growth, jobless future<br>2. Emerge of super powerful oligopolies, new world data masters<br>3. Concentration of power and wealth in value chains (equivalent losses for other companies, sectors and countries) | 1. Massive destruction of medium-skilled jobs<br>2. Loss of control by workers of their own expertise and know-how and free will (becoming the tool of a machine)<br>3. "Digital Taylorism" and emergence of |

| | |
|---|---|
| 4. Protection of personal data exposed to intrinsic risks<br><br>5. Under-investment and under-utilization of digital tools for the social emancipation of low-income sections of society | a class of digital galley workers (crow sourcing); world competition among workers for all jobs not requiring face-to-face contact<br><br>4. Skills and training/labour demand mismatch<br><br>5. Weakening of collective action and industrial relations |

*Table 2 SWOT Analysis of Digitalization (Source: Degryse, 2016)*

## 2.2 IT development

"Information Technology (IT) is playing a fundamental and key role in almost every business, and has reshaped the basics of business. IT has supported the entire business adaptive and ready for change by connecting people, processes, and information, leading to transformation in the nature of work" (Lee& Choi, 2014). (Penttinen & Palmer, 2007) stress that IT enables deeper customer relationships, as well as the achievement of complex service offerings such as use-oriented, result-oriented, and use-oriented product service system.

(MacKechnie, 2017) also argues that IT has become a vital and integral part of almost every single business plan. There are 5 reasons for companies to increase IT in their businesses. First, it increases the communication within the corporation as well as with customers. Second, the inventory management improves with technologies such as point-of-sale (POS) which creates real time information for all departments. Third, the data management allows companies to store documents in digital format, thereby employees benefit from immediate access to the documents they need. Fourth, companies can use data as strategic planning as well as tactical execution of that strategy, and so are benefiting from Management Information Systems (MIS). By doing so, companies can track sales data, expenses and productivity levels which in turn allows them to maximize return as well as identify areas of improvements. Fifth, IT investments allow the Customer Relationship Management (CRM), whereby companies can use IT to improve the way they design and manage customer relationships (ibid).

It is also important to highlight, thanks to (Voloudakis, 2005), how IT and business strategy is evolving jointly. First companies have a reactive approach. The IT leader develops an IT strategy which is compared with a business leader's strategy. In those situations, the area of focus as well as the opinions have significant differences. In order to improve these defects many companies have decided to follow the alignment model. In that model, IT and business leaders work together to develop IT strategy that supports the business visions of a particular business strategy. The third approach is the blended strategy whereby business and IT leaders work together to develop a strategy for the organization, taking full advantage of technology's

capabilities and understanding its limitations. With this approach, it is possible to easily gain technologies capabilities that reach faster a potential strategic opportunity for the company and thus be more ready for this era (ibid).

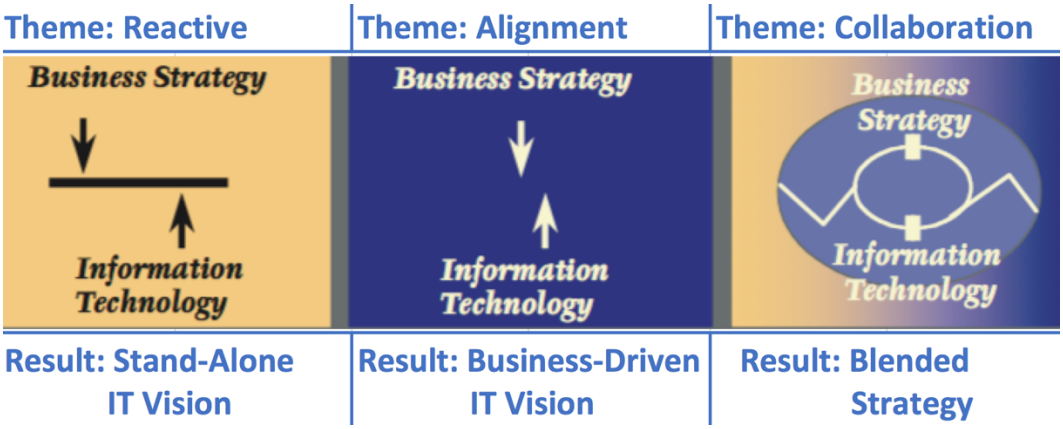


*Figure 1 Evolution of Business and IT strategy (Source: Voloudakis, 2005)*

### 2.2.1 Cyber-security

The digitization of societies offers businesses opportunities, but also possesses risks (Stol, 2016). Modern hackers use increasingly sophisticated methods to attack a variety of targets that occupy nearly every spot of the society: corporations, governmental entities, private persons among others. Apart of that, (Brockett et al., 2012) also add the negative effects on organizational information systems, reputation and loss of stakeholder's confidence. The damage of these cyber-attacks is alarming. Consider the following statistics in an article from the Boston University Law Review from 2010. "In a sample of fifty larger-sized U.S. companies 41 that were victims of cyber-attacks, the median annual cost of harm inflicted from those attacks was $5.9 million" (Kelly, 2016). In order to have an European example, according to another study carried out in The Netherlands (Stol, 2016) more than a quarter of Dutch businesses are confronted with cyber-crime. What's more, victims rarely contact law enforcement, but instead take action to prevent and solve cyber-crime problems in their own. "Thus, when accounting for the variety of both perpetrators and targets of cyber-crime along with the magnitude of harm, the urgent concern of legislators for securing our nation's cyber-security becomes obvious" (Kelly, 2016).

Likewise, the development of IT and internet also has affected all sectors to some extent (Gordon et al., 2003). Although internet has mostly improved the communication and conduction of doing business, widespread interconnectivity has increased also the vulnerability of important infrastructures of information security. For instance, in a study of (Arcuri, Brogi & Gandolfi, 2017), they found that the announcements of cyber-attacks affect the stock market returns, and thus harming the company.

According to a report of (IBM, 2016) "New frictions like cyber-crime threaten to cripple even the most successful organizations. many business transactions remain inefficient, expensive and vulnerable". Fortunately, new technologies beyond internet as based infrastructure for digital business such as distributed ledger started to arise. For instance, for business networks Blockchain technology for business networks has the potentiality to eliminate cyber-crime. "Blockchain is shared and write business transactions to an unbreakable chain that is a permanent record, viewable by the parties in a transaction" (ibid). In addition, IOSCO's reports in 2016 states that "in a highly interconnected and interdependent financial ecosystem, cyber-attacks may have systemic implications for the entire financial system, and also affect over time the trust on which financial markets are built. For these and other reasons, regulators, market participants, and other stakeholders must work together to enhance cyber-security in securities markets".

### 2.2.2 Big data

Digitalization has enabled huge volumes of data. (Degryse, 2016) states that Big data can be defined, schematically, as being the combination and sum total of the data (personal, commercial, geographical, behavioral) available on digital networks. Giant-sized corporations such as Google "produce, accumulate and manage a huge volume of data on their clients and use algorithms to convert this data into exploitable information". This situation leads the explosion of digital data and the robotics market. Digitalization continues to expand and accelerate, translating into some absolutely stupefying statistics'. The learning machines, fed by this data, are now beginning to perform tasks that were formerly unimaginable: diagnosing sicknesses, driving vehicles, drafting press articles, forecasting epidemics, restoring sight to the partially blind, and much more (ibid).

The exploitation of big data leaves two interesting points. The first one, (Manville, 2016) argues that there will be competitive battles in the future about data ownership and value as ecosystems are essentially subsidizing the collection and learning of data as they participate in platform work. Corporations, benefiting from that issue, will have more pressure for sharing the benefits of aggregated data. The second one, (Berman et al., 2016) suggest that corporations will start to apply more predictive analytics based on data generated by people and thus predicting more precisely the next move of its customers and the potential one's.

## 2.3 Innovation

(Edison et al., 2013) give the best definition of innovation according to Organization for Economic Cooperation and Development (OECD). "Innovation is production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. It is both a process and an outcome".

One of the primary dimensions used to distinguish types of innovation is the differentiation between radical versus incremental innovation. (Schilling, 2012) states that radical innovation is an innovation very new and different from prior solutions. Whereas, incremental innovation is an innovation that makes a relatively minor change or adjustment from existing practices. The example of the first one could be the evolution of a car, and the second one is the introduction of iPhone for mobile phone industry.

### 2.3.1 Approach towards innovation

There are two types of approach towards innovation. The first one, closed innovation is when the company invests more heavily in internal R&D than their competitors and they aim to hire the best and the brightest people to manage internally. This, in turn, enabled them to reap most of the profits, which they protect by aggressively controlling their intellectual property (IP) to prevent competitors from exploiting it (Chesbrough, 2003).

The second one, in open innovation, firms commercialize external (as well as internal) ideas by deploying outside (as well as in-house) pathways to the market. Specifically, companies can commercialize internal ideas through channels outside of their current businesses in order to generate value for the organization. No longer a company locks up its IP, but instead it should find ways to profit from others' use of that technology through licensing agreements, joint ventures and other arrangements (ibid).

### 2.3.2 Digital innovation

The main focus of innovation in information system is about how IT innovations have been adopted successfully by corporations and how those can act as organizational and business development (Lyytien & Rose, 2003). (Fichman et al., 2014) define digital innovation as product, process business model that is perceived as new, requires some significant changes on the part of adopters and is embodied or enabled by IT.

According to (Lund, 2015) two main topics can be recognized from the information system scholars. The first idea concerns about the heterogeneity of actors in digital innovation as a result of the characteristics of digital technology. This includes challenges such as mobilization and involvement of actors in innovation networks who have different interests. The second topic interests about the networked and ambiguous digital innovation processes where malleable digital innovations are developed. (Lund, 2015) states that “Digital innovation as a process that is often described to be a networked achievement involving many actors, including user communities, often with different interests and intentions”. Finally, “the network activities typically include heterogeneous actors from different fields with diverse knowledge bases. As a result, actors with heterogeneous knowledge that spans over organizational borders need to collaborate in order to successfully innovate” (ibid).

Contextually, according to (Cärlstrom, 2016) the Nordic countries are the most innovative nations in the EU (European Union). By innovation area, Finland is leading in financial framework conditions and Sweden in human resources and quality of academic research.

## 2.4 Changes in the economic environment: Co-creation

According to (Berman et al., 2013), from the IBM Institute for Value Business, we are moving from an individual-centered economy, which is characterized by product differentiation and individualized market segmentation targeted at deriving value for the consumer, towards E2E (everyone-to-everyone) economy.

The E2E economy is due to the maturation of social media, mobility, analytics and cloud. In this new context, this economy is characterized by hyper-connectedness and collaboration of consumers, organizations and other partners across the gamut of value chain activities: co-design, co-creation, co-production, co-marketing, co-distribution and co-funding (ibid). The same study, 3 years later, (Berman et at., 2016) add that E2E economy is orchestrated, and based on business ecosystems which are at once collaborative and seamless. This new economy is characterized by data-enabled self-supported learning and predictive capabilities. In the traditional conception of process of value creation, consumers were "outside the firm". Nowadays, consumers can choose the firm they want to have a relationship based on their own views of how value should be created for them. It is sought to co-create value with customers through an obsessive focus on personalized interactions between the consumer and the company. Allowing the customer to co-construct the service experience to suit his context. Co-constructing personalized experiences. Experiencing the business as consumers do in real time. The change that is described is far more fundamental (Prahalad & Ramaswamy, 2004).

(Chandler & Vargo, 2011) propose a framework called Resource integration. This one is designed to be more holistically in terms of value creation. It aims to go beyond and firm-customer duality to a network orientation which in turn makes value creation and determination contextual issues. (Vargo & Lusch, 2011) stress that normalizing the parties in networks as "actors" rather than "producers" and "consumers" as they will be doing the same things such as co-creating value with each other through resource integration and mutual service exchange. It is simply moving the conceptualization of networks to ecosystems.

### 2.4.1 Traditional vs contemporary organizations

According to Grant (2010), the changes in the industry environment is driven by the forces of technology, consumer need, politics, economic growth and a host of other influences. According to him management main focus is to facilitate that enterprise adapts to the changes occurring within its environment. As earlier mention, we are currently moving from the industrial age to the information age, and thus the changes in management also incur from this transition. (Serifi & Dasic, 2012) make an excellent display of what are the main characteristics between a traditional and contemporary model of organizational structures.

| Characteristics of the model | Traditional (classical) model | Contemporary model |
|---|---|---|
| Organization | Centralization and concentration | Decentralization |
| Shaping | Deep organizational structure | Shallow organizational structure |
| Range of control | A narrow range of control | A wide range of control |
| Adaptation | Rigid (hard) structure | Flexible structure |
| Task (conception) | Static organization | Innovative organization |
| Organizational structure | Bureaucratic (mechanistic) structure | Organic (adaptive) structure |
| Communication (authorization) | Authority of individual | Teamwork |
| Relationships | Disrespect of people | Respect of people |
| Processes | Management with people | Management of processes |
| Culture | Inexistance of a corporate culture | Existance of a corporate culture |
| Changes | Unwillingness to organizational changes | Readiness for organizational changes |
| Regulation | Federal structure | Confederation of enterprise |
| Management | Functional decentralization | Federal decentralization |

*Table 3 Essential Differences between Traditional and Contemporary Organizations ( Source: Serifi & Dasic, 2012)*

Modern organizations are facing different types of organization, processes where hierarchy is completely erased and introduce multidisciplinary teams, with the new information technologies and economies, knowledge as a resource of organization, adaptation to changes, the process of networking(Ibid). The organizational structure is a dynamic element that has the task of tracking the targets of companies arising from the strategy development of the firm. The influence of internal and external factors is very crucial for the formation of the enterprise structure. The instability of the environment in which the company operates, very often requires a change of organizational structure (ibid). As Grant (2010) states, the outcome is an industry environment that is being continually recreated by competition. Only those one that learn how to adopt and use the rapidly and continually changing technologies will succeed according to (Lee & Choi, 2014).

### 2.4.2 Product development vs customer development

The product development is the normal development that traditional companies followed before launching a product. However, the customer development model goes more related to the typical startup approach. (Blank, 2005) states that the problem with the product development is that the product arrives to the customer only when the management thinks that the product is finished. However, this approach does not mean that the company understands its customers or how to sell it. So the alternative approach that startups have been developing is the customer development model. In that approach, the intention is to learn about customers and their problems as early in the development process as possible. This approach has an iterative approach which means that unlike product development it will fail continuously until it reaches right customer and market. In the product development model going backwards is considered a failure whereas in the product development going backwards in the stages of the development is a natural and valuable part of learning and discovery (ibid).

(Blank, 2005) suggests that customer development model should be aligned in the product development as customer development is as important as the product development. This alignment should be done in early stages of the company's setup.

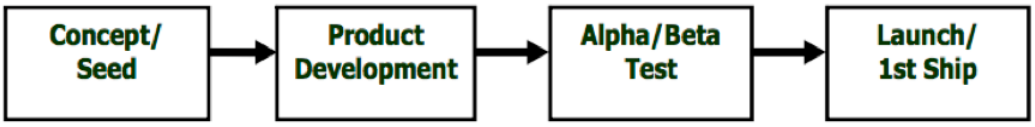


*Figure 2 The Product Development Diagram (Source: Blank, 2005)*

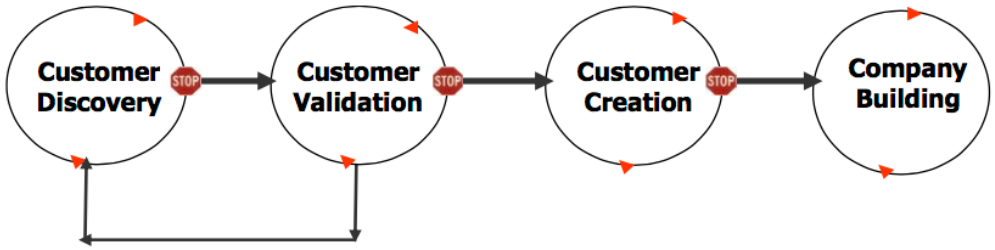


*Figure 3 The Customer Development Model (Source: Blank, 2005)*

The customer development model goes in the same line with the Lean startup approach. The dynamics are basically the same, "The methodology aims to shorten product development cycles by adopting a combination of business-hypothesis-driven experimentation, iterative product releases, and validated learning. The central hypothesis of the Lean startup methodology is that if startup companies invest their time into iteratively building products or services to meet the needs of early customers, they can reduce the market risks and sidestep the need for large amounts of initial project funding and expensive product launches and failures" (Adler, 2011; Penenberg, 2011).

### 2.4.3 Business models

According to (Morris, Schindehutte, & Allen, 2005) the concept of business models has been increasingly discussed in academic literature since the proliferation of internet and thus the e-businesses last century. (Osterwalder & Pigneur, 2010) suggest that business models consist of four primary components. The first one is the strategic choice for the market to market to attend, second the value proposition, third is the value creation, and fourth the commodification of the value created, i.e., value capture. According to (Johnson, Christensen, & Kagermann, 2008), establishing partnerships is recognized as a core-competency as the formation of them is a feature of new business models. (Zott & Amit, 2010) add that business models apart of partnership-focused, it should be value driven and value creating system that goes beyond traditional boundaries of the industrial age. (Ding, Ng, & Yip, 2012) state that new business models are more business focus, they take on new types of collaboration for value creation with

holistic approach. And finally the elimination of boundaries that in turn changes the value creation tactic.

(Täuscher, 2017) also gives an interesting classification of the main characteristics of business models in the digital world as next: 1: High levels of connectivity between actors as digital technologies serve as connectors between parties. 2: Low geographic limitations as a result of the reduction of physical boundaries enabled by digital technologies. 3: Low switching costs as customer can switch businesses easily due to low search costs through accessible and comparable information. 4: Transparency of customer behavior because of the better data collection and analysis and this lead to high information about customers. 5: High transparency of firms thanks to the information of companies can be retried and traced through digital channels easily.6: Low transaction costs due to reduced coordination costs, high information levels and low geographic barriers. 7: Low menu costs as digital media allow changing prices at almost no cost. 8: Opportunities for price discrimination as digital business charges different prices based on a consumer's willingness to pay.

Different business models started to arise such as platform firms. According to (Moazed, 2016) a platform business model "creates value by facilitating exchanges between two groups. These groups are usually consumers and producers and platform companies help them to interact and transact. The platforms make the exchange happen for example by creating scalable networks of users and resources that can be accessed when needed. These platforms create markets and communities for consumers and producers where they can find each other's". For example, Airbnb is one example of this type of platform firm as connect people interested in renting short-term lodging and people looking for accommodation. (Degryse, 2016) adds that all data must be accessible on the platform, all communication from the groups should go through the platform.

### 2.4.4 Ecosystems

According to (Berman et al., 2013) an ecosystem refers to a complex web of interdependent enterprises and relationships directed towards the creation and allocation of business value. According to them, new ecosystem will emerge due to functional specialization, value chain fragmentation and industry convergence. Ecosystems will typically cut across multiple organizations, functions and industries, providing a foundation for new, seamless consumer experiences and camouflaging functional complexity. Ecosystems will be very dynamic and able to deliver more complex experiences or activities than single as it is characteristic of value chains. The manner in which value is created and allocated changes as organizations evolve from participating in traditional value chains to participating in ecosystems. There is a significant opportunity for organizations to introduce themselves within emerging ecosystems (ibid).

However, one of the current challenges is the strong position of current ecosystems, almost monopolistic position, maintained by large financial resources and innovation capacity of companies such as Google or Apple (Degryse, 2016). The financial power of those companies leading the ecosystem enables to buy all the startup likely to improve their own businesses. They

also have the tendency to expand into diversified sectors and also have the situation to gain productivity benefits of capturing economic rents on a world scale. Furthermore, they also operate on the limits of legality. For instance, Uber and the assumed illegal exercise of passenger transport or Apple and its online publications of music service without paying musicians among others. (Jain, 2015) states that the nature of their strategy was growing the installed base first and then trying to deal with problems might appear further on. So far it has worked quite well, they manage to invest in lobbing, litigation and public relations power to mitigate legal and political issues may arise (Degryse, 2016). Finally, the author concludes that European regulations do not seem equipped to face the digital issues yet (ibid).

### 2.4.5 Automation

According to (Rifkin, 1995) automation "is the use of various control systems for operating equipment such as machinery, processes in factories, boilers and heat treating ovens, switching on telephone networks, steering and stabilization of ships, aircraft and other applications and vehicles with minimal or reduced human intervention". (Sheahan, 2017) states that the Federal Reserve Bank of San Francisco argues that information technology improves your company's efficiency by developing automated processes to take burden off your staff. In fact, according to one article of (Grant Thornton, 2015), "a survey of more than 2,500 executives across 36 economies, 56% of firms are either automating processes or plan to do so over the next 12 months". Furthermore, due to the post financial crisis trauma firms continue to strive for greater efficiency and productivity, and machines seems the most cost-effective solution. Growing labour costs and the necessity for productivity are main reasons why corporations look for automation. Finding new roles for redundant workers due to automation will be the next challenge (ibid).

According to (Palamarchuk, 2015) there are also four challenges of automation to test. The first one is receiving the acceptance from management. Automation takes time and effort, so convincing them to do the investment should imply convincing the company that there will be increase in productivity and accuracy in terms of business and IT benefits. The second one is related to selecting and using the appropriate tools. The most common scenarios are the lack of expertise to use certain tools, or that the tool do not offer 100% coverage. There are also situations where the tools exceed the budget, managers do not invest further, and thus the right usage of tools is hindered. In this respect, according to the World Quality Report 2014/2015, "54% of IT leaders indicate that their organizations lack suitable tools for automation while provisioning test environments to their teams". The third challenge is identifying a starting strategy, the organization should figure out what and how to automate and thus have a thinking process about the idea. Fourth, the final challenge suggested is setting a realistic expectation of automation. There are some tasks that cannot simply be automated and also one cannot expect that automation will solve many issues at once (ibid).

## 2.5 Management consulting firms

Management consulting is the professional service performed by specially trained and experienced persons in helping managers identify and solve managerial and operating problems of the various institutions of our society. This professional service focuses on improving the managerial, operating, and economic performance of their customers (Werr, 2012). In nowadays society many major decisions in a wide range of organizations and sectors are made with the assistance of management consultants without the final consumer even noticing (ibid).

Management consulting assumes that knowledge is a strategic asset to management consulting companies and that knowledge management is the way to capitalize on this asset (ibid). Through the interaction with customers, consultants gain access to both problems and solutions in different contexts. This gives them a unique position to transfer knowledge between different actors but also to combine this knowledge in new ways or move it to new places and thereby support innovation (ibid).

(Nadler & Slywotzky, 2005) state that management consulting can be divided into three broad categories of consulting: strategy consulting, organization consulting and change consulting. The first one is related to a top down approach whereby the top executives solely dictates a strategy by only announcing to the organization. The second is more based on psychology which set up all resources available by organizing them in the most logical way. The third one is related to the effective control of the implementation of the new ideas in which the company will be transformed.

According to (Turner, 1982) management consulting companies have 8 fundamental tasks. 1: Providing information to a client, 2: solving a client's problem, 3: Making a diagnosis, which may necessitate redefinition of the problem, 4: Making recommendations based on the diagnosis, 5: Assisting with implementation of recommended solutions, 6: Building a consensus and commitment around corrective action, 7: Facilitating client learning that is teaching clients how to resolve similar problems in the future and 8: Permanently improving organization effectiveness.

(Simon & Kumar, 2001) argue that companies require consulting for many issues, but the main ones are information technology, strategic consulting, training and development, organizational change and marketing. Also the five main reasons consultants are hired are:

1. Insufficient expertise in-house.
2. Independent/objective advice.
3. Gaining additional help/resources.
4. Insufficient manpower in-house.
5. Quick resolution of issue.

(Sheth & Sobel, 2000) present a typical stages of relationship between client and consulting firm. The first, expert for hire is a punctual service request. As you develop the client base the relationship grows, the client starts to contact more the same consultancy firm without creating a close relationship. And finally, the consultancy firm becomes a trusted-partner and the collaboration and interaction increases. The closer to that position, the more professionally and personally the work is and thus the more effective the consultancy become with the client. The consultancy firm penetrates the client value zone. However, it is true that the trusted-partner is based on years of partnership and not always consulting arrives to this stage.

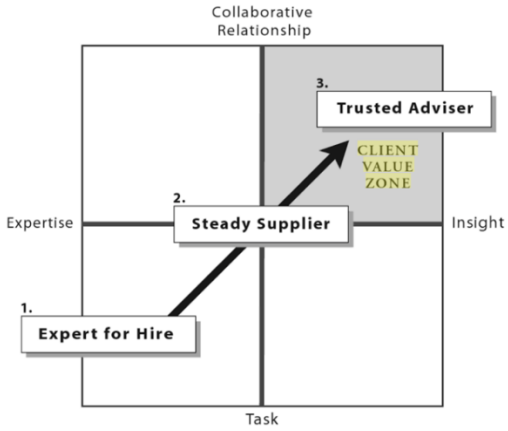


*Figure 4 Moving into the Client Value Zone (Source: Sheth & Sobel, 2000)*

### 2.5.1 Evolution of consulting firms

(Gautier, 2014) states that the evolution of the consulting industry has evolved over the past 60 years from studies to implementation to managed services:

- Research – academic studies of management as a discipline
- Strategy – assistance to position product/service to markets
- Advisory – organizational design & optimization
- Process Re-Engineering – large-scale cost reduction
- IT Design, Delivery & Support – outsourcing, SaaS
- Ecosystems – bundled product and service offerings

(Adams, 2013) argues that traditional consulting firms will be forced to compete against business models that threaten their historical margins and streamline their processes with technology and automate many of their traditional activities. The change away from the traditional management consulting model is being accelerated by technology as any other industry in major or lower degree. Digital technology has automated a lot of the research, modeling and analysis processes traditionally provided by consulting firms. There is greater need for synthesis of large amounts of data. Management consulting firms will need to reinvent and reorganize their own intangible capital. They will need to develop new competencies, processes and value propositions. They

will also need to use new digital tools in order to please the new customers' issues. Ultimately, it is expected that this will conclude in a new business model for consulting industry (ibid).

(Deragon, 2013) also argues that the internet will be disrupting the management consulting industry's business and mental models because an increasing number of companies are seeking wisdom meaning understanding principles while many consulting firms are still trying to sell knowledge meaning understanding patterns. This change is due to the connectedness of society that produces larger volumes of data which changes the needs of companies. With that regard, knowledge has become a commodity in digitization because it is easier to access than in previous times. The best example is that some traditional companies such as The Walt Disney Company have adventured to stablish its own consulting staff (ibid).

Another major trend is that "The consulting world is undergoing a shift. Over the last four years, consulting firms have been rapidly launching new digital consulting divisions. What started off as an infatuation with product design and more engaging web interfaces has become a full blown movement towards digitalization" (Desai, 2016). In great manner, what it was an improvement of visualization of data, and eventually ended up in a current shifting transformation of the whole consulting industry.

# 3. Methodology

*The methodology provides the reader the explanation of the research process and the method used to answer the research questions. The explanation why this method is chosen as well as the strategy and design are explained next.*

## 3.1 Research strategy

The empirical part of the research is based on having a qualitative research with inductive approach where consultants are interviewed. The answers from interviewees are analyzed and compared to the theoretical part so they will validate, refuse or even complement the main concepts obtained from the theoretical research. This Master thesis follows a qualitative research collected through semi-structured interviews with consultants of different consulting firms. It is intended to have an exploratory approach towards the research questions because the author is interested in the variety of descriptions about the subject.

A qualitative research as it is intended to focus on answering "how" and "why" the research topic. Furthermore, the author cannot manipulate the behavior of those involved in the study, the boundaries are not clear between the phenomenon and context and the author intents to cover contextual conditions as he believes they are relevant to the phenomenon under study (Baxter & Jack, 2008). Once said that, the main idea of that thesis is to generate or complement new theory about the research topic. This Master thesis follows an inductive approach which according to Bryman & Bell (2011) is the normal procedure for qualitative research method. Also, the inductive approach of the grounded theory forms strong connections and parallels between empirical evidence, theory and empirical analysis (ibid). In that sense, there are two literature reviews in this study. The first one, whereby the author can collect knowledge about digitalization and form the research questions and structure the interview guide. The second, the concepts that are discussed in the interviews are added to the theoretical part in order to compare with the main findings of the empirical research.

The idea of having consultants for the research arises first, from the interest of the author in consulting industry. Second, as a service industry, consultants constantly tackle with companies' issues, and thus they have a broad understanding of a wide range of industries. The author believes that targeting different types of consultants, for example IT Consultant, Management Consultant, Strategy Consultant among others, will help to tackle digitalization from different perspective, and thus making ample the approach of this research. Also, (Werr, 2012) states that there are vague boundaries between business and IT consulting (and even outsourcing), and thus all consultants from both fields are relevant for this research. The idea of not revealing the interviewees' identity is based on two ideas. First, the author is not interested on displaying the consultants' companies but rather on gathering a holistic answer for the research questions. Second, as consulting industry is based on Non Disclosure Agreement (NDA), and so the author aimed to anonymize the identity of the participants in order to them to speak freely and to not

jeopardize customer's information. In that sense, the author aimed to create trust in addition to the nature of the qualitative method in terms of creating trust by itself Bryman & Bell (2011).

## 3.2 Research design

According to Yin (2011) the analysis of qualitative data usually moves through 5 phases, compiling data into a formal database, calls for the careful and methodic organizing of the original data. Compiling data into a formal database, calls for the careful and methodic organizing of the original data. Compiling data into a formal database, calls for the careful and methodic organizing of the original data. The last two steps, are interpreting and concluding the data. In that sense, the author follows these instructions for the research design.

From the interview #4, the author started to see a pattern of key words such as automation, ecosystem and labour among others, which the author used to foster the conversation of the next following interviews. While doing the interview, the author proceeded to have a memo containing notes about each interviewee. Those notes included key words. Once transcribed the interviews, the author proceeded to skim the most relevant information from 45 to 35 pages while having some comments referring to patterns within the transcripts.

The topic of this Master thesis is about digitalization explained by consultants as well as the main challenges of it. The empirical part follows a qualitative research, where consultants are interviewed to discuss the topic. The data is collected in Helsinki, Finland and the consultants belong mostly to top consulting firms. Two of these consultants currently are free-lancers but they count with a significant experience in the field. It followed a semi-structured interview, anonymized, recorded and transcribed for the following analysis of the data.

Out of 13 interviews, only 11 were transcribed and coded for the research as the author did not want to mix the data collection from different countries Spain and Finland. However, the main ideas of the two interviews carried out in Spain were taken into account to reinforce main points discussed in the interviews in Finland. This fact should not distort the results as Finland and Spain are considered in an advance stage of digitalization according to (Sabbagh et al., 2012).

People were contacted through the professional social network LinkedIn, and personal email deducted from company's webpage. Also, some of the contacts were reached through the Aalto management consulting association's events. Furthermore, some were straight from via-via approach. From LinkedIn were contacted exactly 9 people which 3 accepted the interview or forwarded to a relevant person for the interview. And finally one accepted but unfortunately the meeting was not possible to arrange. One person was contacted through twitter, and successfully interviewed. Three people were reached through via-via friend. And two people were interviewed through a management consulting event. And 4 out 5 people were reached through email deducting from their official webpage's company.

| Interview # | Position | Time | Date | Location |
|---|---|---|---|---|
| 1 | Management Consultant | 16' | 14/03/17 | Helsinki FI |
| 2 | Partner | 41' | 16/03/17 | Helsinki FI |
| 3 | B. & IT Senior Consultant | 1:07' | 16/03/17 | Helsinki FI |
| 4 | Business Developer | 23' | 16/03/17 | Helsinki FI |
| 5 | Senior M. Consultant | 26' | 20/03/17 | Helsinki FI |
| 6 | Partner | 20' | 21/03/17 | Helsinki FI |
| 7 | Digital Senior Consultant | 44' | 23/03/17 | Helsinki FI |
| 8 | Partner | 35' | 27/03/17 | Helsinki FI |
| 9 | Principal | 34' | 28/03/17 | Helsinki FI |
| 10 | Managing Director | 21' | 29/03/17 | Helsinki FI |
| 11 | Senior M. Consultant | 15' | 29/03/17 | Helsinki FI |
| Average | | 36' | 14/03-29/03 | - |
| 12 | IT Manager | 27' | 20/04/17 | Barcelona ES |
| 13 | Digital Consultant | 20' | 20/04/17 | Barcelona ES |

*Table 4 Interviews' Information*

All the interviews were semi-structured form. First part, it had a broad approached of digitalization for all types of industries as well as all sizes of corporations. Second part, it was focused more on consulting industry.

The main structure of the interview was followed by the next questions:

*First part: Their input about how digitalization is affecting corporations*

1: Definition of digitalization.
2: Main challenges of digitalization
How it should be approached digitalization. How much corporations have integrated digital technologies up to date.
3: Risks and benefits about digitalization.
4: Opportunities of digitalization.
5: Future of digitalization and for example if labour would be affected.
6: Opinion about whether corporations should speed up to adapt digital technologies.
7: If corporations are innovative enough to cope with the digitalization challenge.

*Second part: Opinion how digitalization is affecting consulting industry.*

1: What role do consulting firms play in providing steps towards digitalization.
2: How does digitalization affect their industry.
3: Anything else to add by the interviewee.

## 3.3 Reliability and validity

The author takes into account both parameters in order to avoid biased thoughts as well as misinterpretations of the interviewees. It is not possible to assure the repeatability over time of this study, as the answers are focused on 11 consultants in a Nordic Country, and it is not possible to generalize the results if one changes country or change the consultants interviewed. Even more in those times where the speed of changes has increased and the technology develops fast which in turns affects the research topic heavily as the main findings might not be accurate for long time. Nonetheless, in order to foster the reliability of this research, Greener (2008) states that the researcher should clearly explain the method used in order to still confidence in the reader that the results were not fudged in anyway. In that study that was the idea behind explaining clearly the method.

Moreover, (Guba, 1985; Patton, 2001) argue that there cannot be validity without reliability; reliability is a consequence of the validity in a study. Lincoln & Guba (1985) argue that sustaining the trustworthiness of a research report depends on the issues, quantitatively, discussed as validity and reliability. In the same line (Golafshani, 2003) argues that trustworthiness can replace reliability and validity in terms of discovering the truth. This idea is justifiable for (Johnson, 1997) and Lincoln & Guba (1985) argue that this establishes confidence in the findings. Once said that, the trustworthiness was aimed constantly in this research and thus this could be seen as one step closer to validity. Bryman & Bell (2011) explain that there are two types of validity, internal and external. The first one, as there is good match between researchers' observations and the theoretical ideas it can be concluded that there was internal validity. Moreover, the semi-structured interviews help with the avoidance of misinterpretations by clarifying and re-stating the question, and thus fostering internal validity. Furthermore, in terms of external validity this study cannot be generalized as the sample is too small and the results could change from country to country.

# 4. Empirical analysis

*This chapter includes exclusively the findings from the empirics. The second part is the empirical analysis from the 11 interviews which answer the research questions through 4 main categories. Those were formed by 20 sub-categories, which in turn were formed by 116 codes.*

The first two categories *Definitions* and *Context* answer the first research questions: How is digitalization described in fast-technological environment? Then, what are the main challenges? It is answer by the category *Challenges*. And how should it be approached? It is answer by *The category the way of approach.*

| CODES | SUB-CATEGORIES | CATEGORIES |
|---|---|---|
| Simple definitions<br><br>Extensive definitions | Pure definitions | **DEFINITIONS** |
| Phases of Digitalization<br><br>Simple and New Digitalization | Categorization | |
| Faster path of change: x4<br>Temporary fad: x4<br>Not a new concept:x3<br>Changes in the game: x2<br>The way value is created:x2<br>Cost focus:x3<br>Currently badly done: x5<br>Digital as perception of real world<br>First experience count: x2 | Main characteristics of digitalization | **CONTEXT** |
| IT importance:x4<br>Transition of IT:x1<br>Characteristics of IT:x2<br>different uses of IT:x1 | IT development | |
| Internet of Things, automated technologies, artificial intelligence, deep-learning | Digital technologies | |

| | |
|---|---|
| Platform companies<br>startups<br>New types of digital industry | New business models |
| Baby steps<br>Size company<br>Learning curve<br>Sectorial question<br>Maturity variation<br>Minimum digital solutions<br>C-suit executive awareness<br>Dragging effect<br>The Current reality of integration<br>Typical behavior of companies | Integration of digitalization up to date |
| New-comers<br>Cheap technology<br>Behind competition<br>Timing adapting new technology with customer<br>Strategic decision<br>Waste of money<br>Same technology providers<br>Long term customers<br>Attracting talents | Risks |
| Being alive<br>Internal processes:x8<br>Customers:x6<br>Better performance:x3<br>Improvement in productivity: x2 | Benefits |
| value chain role:x3<br>Optimizing operations<br>Role in the new ecosystems<br>Higher return on investment<br>Use of analytics:x2 | Opportunities |
| Plan needed:x7<br>Depends on industry<br>First mover or follower | The speed of this adaptation |

| | | |
|---|---|---|
| Curiosity | | |
| Innovation as driver force<br>Corporate culture<br>Kind of paths | Innovation to cope with digitalization | |
| Structure of the industry:x2<br>new business opportunity:x6<br>Internal efficiencyx2<br>New capabilities:x3<br>tools:x7<br>Data quality up:x2 | How it affects to consulting | |
| More qualified work:x4<br>Automated work:x5<br>Overcoming technological changes:x5<br>Quality of your digital technologies:x3 | Automation | **CHALLANGES** |
| The unknown known: x9<br>Find the right focus:x2 | Focus | |
| Necessity of reinvention from traditional companies:x7<br>Reputation issue<br>Analogue people<br>New type of culture needed:x3<br>waterfall vs agile development<br>Necessity of networking<br>Key provider removal of the equation<br>Silos<br>Companies not used to technology | Traditional companies | |
| Security of Existing infrastructure<br>New IT concept:x2 | Infrastructure | |
| Legislation<br>Strong current ecosystem<br>Competition of ecosystems<br>Reality in the role taken in the ecosystem | Ecosystems | |

| | | |
|---|---|---|
| Rethinking:x2<br><br>external help:x4<br>Open sharing of ideas:x1<br>High level sponsorship:x4<br>holistic execution:x3<br>Small cross-function teams:x5<br>Trial-error approach:x6<br>Projects characteristics:x2<br>Quick actions:x2<br>Internal competitor:x2<br>Risking<br>Requires investments:x3<br>Target audience<br>Digitalized product on continuous learning based | Actions | THE WAY OF APPROACH |
| typical dynamic advisor-clients:x3<br>Strategic thinking:x6<br>Help with the implementation:x5<br>Step changes:x2<br>Smart investments<br>Capability:x3<br>Operational model and organizational processes<br>Temporary work force<br>External view<br>Agile development<br>Road map<br>Effective service and autonomous operation of work size<br>Cyber-security plan<br>Startup matcher<br>Different activities<br>Forefront thinking<br>Futuristic approach<br>Spread new learnings | Role of consulting towards digitalization | |

*Table 5 Categorization of Codes*

The X and a number in the table mean the times that in total that code was repeated during all the interviews. Example, in the category *Context*, sub-category *How it affects consulting,* the code *new business opportunity* was repeated 6 times during the interviews.
Next it is explained how the author ended up on those sub-categories by analyzing each of them.

## 4.1 Definitions category

The definitions category consists of two sub-categories that are pure definitions and categorization. The first sub-category, **pure definitions** consist of *simple definitions and extensive definitions*. In the interview simple definitions can be identified for example:

> *"at the end is every industry turning into tech-industry"*

> *"there are computers somewhere in the very deep, because everything important is handled in a digital format"*

Then extensive definitions are described as:

> *"The increased use of digital technologies and the resulting changes in consuming behaviors and business models in the way that companies and individuals interacts"*

**Categorization** is the second sub-category that consists of *phases of digitalization* and *simple and new digitalization*. One of the consultants made an important clarification between simple and new digitalization as well as other made about the phases:

> "L1: *Digitizing what is not digital, so it is converting things in digital format. So that is part of digitalization. L2: Digitalization of existing processes: So there are certain things you are doing right now, and you are trying to do the whole process on a digital format. For example, I get paper invoices from company. Instead they could send me an email invoice, that is digitizing, but then if I can do the whole transaction on the internet, where I get an email invoice and then go back to the bank and do it online a bank transfer that is the whole digitalization, still an existing process, but where we are right now is moving towards. L3: New business models in a digital world: So to do things that earlier are impossible"*

It is an interesting classification because the author understands a clear classification of stages that companies have to go through in order to digitalize themselves.

Simple and new digitalization is described in the interview in the following way:

> *"if we think about digitalization as word simplified: define as manual work being replace by electronic work. Everybody has some degree of IT system and those kind of things. But if we look from new digitalization point of view, of things being connected and internet of things and robotics and artificial intelligence then probably 30% would be too much"*

## 4.2 Context category

The second main category is the Context category that includes eleven sub-categories: *Main characteristics of digitalization, IT development, Digital technologies, New business models, Integration of digitalization up to date, Risks, Benefits, Opportunities, the speed of this adaptation, Innovation to cope with digitalization and How it affects to consulting.*

The first sub-category is **Main characteristics of digitalization** that consist of *Faster path of changes, Temporary fad, not a new concept, Changes in the game, the value is created, Cost focus, Currently badly done, Digital as perception of real world, and First experience count*. It is interesting how consultants describe the main characteristics of digitalization, which starts by a clear classification of the stages of digitalization.

The faster path of change is explained as following:

> *"digital means that the strategic situation means in any business can shift very rapidly, it also means that the tactical situation in any business can change very rapidly just because how quickly new businesses can be set up, digital is very closely connected to the emerge of what we call agile organizations".*

Also consultants describe digitalization as a temporary fad:

> *"digitalization process, not an internal thing, it is a project, should have a begging and end at some point"*

Connected to this point they also see that digitalization is not a new concept*:*

> *"So another point is that digitalization has been going for decades, there was e-commerce, do ERP Yes, that also was a part of digitalization, but in a different perspective"*

Also, the way of competing has changed as one the consultants points out:

> *"changes the game in a way that before you had clearly the supplier, the competitor, customer, now all of those starts to exist at the same time. So your competitor is your partner, in some cases your supplier, so that changes the way the system works and I guess the whole point of the ecosystem".*

The way value is created is changing:

> *"the way which value is created, the way that businesses are done, going through a change, that change will be known and called as digitalization"*

Many consultants also see that digitalization hits the cost side:

*"digitalization tends to affect on the cost side of things, so you try to cut cost and make things more efficient"*.

The interviewees point out digital as perception of real world:

*"If you are not able to make your product with your digital environment, you are failing because everybody is expecting. The digital world gives you the perception of the real world, if you are not there, in the digital world, you are not here, you do not exist at all"*

As a result of that, the first experience count:

*"the first experience count, if it is a bad experience, if the app is bad, the coffee must be bad, we do not have time to test, you want to see everything immediately. The tools that are presented towards people has to be such that they are constantly improving, and using the intelligence, using different metrics of behavior"*

In digital world, the expectations are also higher and customers expect a constant improvement from your product/service you provide to them.

Last but not least, it is significant the actions that currently are badly done, examples:

*"Mismatch how is seen usually and what real potential is and that is the gap there. They have organizational setup to look after specific KPI and specific business goals"* and *"the budget is allocated with specific units, other reason is that companies, the closest to digital is still IT in one way. But IT organizations are not really focused on creating new values, they are not really business focus to understand the whole picture"*

The second sub-category is the **IT development** that consists of *IT importance, Transition of IT, Characteristics of IT,* and *Different uses of IT.*

One of the main points to understand digitalization is the importance of IT:

*"In traditional industries IT has often been considered as a support function, similar like accounting or HR, whereas now in the digitized world if you want to succeed you either have to bring the technology or classic IT more into the core role"*

Managers tend to think about IT as a business unit to minimize risks and not as business development. Example of characteristics of IT:

*"in IT you tend to form this kind of silo living very independent into the organization, often the IT organization has had priority around minimizing risks"*

Of course the proliferation of IT also is evolving. Transition of IT:

> *"we cannot deal with the IT in the sense that there are billions of items that need to communicate in real time, we are moving from cloud to fog computer"*

Different uses of IT:

> *"IT systems and capabilities of those are in a such a level that the really can make use of them in different business processes"*

The third sub-category is **The digital technologies** that consist from *Internet of Things, Automation technologies, Artificial intelligence,* and *Deep-learning***.** One cannot understand the proliferation of digitalization without them:

> *"artificial intelligence, and the machine-learning and the machines that are pretty impressive in while they do something they learn more and more..."*

> *"I would say so in terms of having equipment interfere equipment, with sensors with IoT, capability, getting the data"*

> *"Digital technologies are learning from deep-learning of artificial intelligence and dealing with very complex problem"*

The fourth sub-category that digitalization has allowed in the development of **New business models.** This sub-category consists *of Platform companies, Startups, and New types of digital industry.* Platform companies:

> *"platforms companies, new scenario possible, as example Airbnb new kind of business model in that service"* or *"Let's say what Uber did for taxis, if you were prepared for the chance of something like this happening in your industry, then it would not catch you as surprise"*

The proliferation of startups:

> *"a huge potential for a lot of startup activities, so they are part of the ecosystem working with a lot of companies so you will have the possibility for many many small companies to go on"*

And finally technology applied in different industry:

> *"For instance: the payment thing, not the whole bank but this department who handles cash management has to be aware of new Fintech players will come and grab market share from them"*

The fifth subcategory is **The integration of digitalization up to date**. This sub-category consists of *Baby steps, Size company, Learning curve, Sectorial questions, Maturity variation, Minimum digital solutions, C-suite executive awareness, Dragging effect, The current reality of integration,* and *typical behavior of companies.*

Consultants mention that we have done the first steps but still a long way to go. Baby steps:

> *"We have taken first steps, baby steps, there is a long way to go, there are a lot of opportunities and possibilities for companies, but we still are at very early stage*". However, they confirm that all companies have a minimum of digital solutions*: "I guess every company have some digital solutions, because very few where you would not have phone or laptop".*

They also mention that depends on the size of the company:

> *"the digitalization between large customer is ideal but then what is lacking is the digitalization of middle size and small customers"*

Maturity variation:

> *"but the maturity varies a lot, some are extremely advanced almost like at the same stage as a classic technology company and some are more kind of starting"*

Minimum digital solutions:

> "*I guess every company have some digital solutions, because there are very few companies where you would not have phone or laptop"*

Learning curve:

> *"I supposed there is a big difference. There are different companies in the maturity learning curve and some are more digital and some not"*

And also it is a sectorial question:

> *"and partially it is also a sectorial question, on how deep is the impact on digital in the sector. Given your both cost structure, serving your customers and then the competition. And many of the industrial companies, are somewhere in between, so they are not as far as banks or as late as pharmaceuticals but starts to be the time If they are not clear about what they want to do both internally and externally in terms of digital products, then fairly soon they will be late"*

Another interesting point towards the adaptation of digital technologies is that companies are aware especially the C-level, in other words top management:

> *"I would say every company that I know have digitalization on their agenda to certain degree, I think is changing in the last 2 to 3 years, below C level, but last 1,5 is C level"*

Furthermore, there exists a dragging effect from big companies to smaller companies:

> *"Then they are customer who struggle with the old way of doing things. There is a huge difference between low performance and the high performance in this country, but thanks to the fact that high performer is really well known and have been followed up quite closely, they are most of them open to the market explaining what they are doing, attracting followers, and exchanging information, because they also understand that they alone cannot survive, they have to make sure that the whole ecosystem needs to survive not only them"*

In short, as one of the consultants perfectly summarized the thoughts of vast majority of the sample as the typical behavior to follow from corporations:

> *"If you see from a maturity perspective you need to have a strong foundation of doing this: L1(From analogue to digital format). New kind of startup jump directly to L3(new business models in digital world). But for existing companies typically what I have seen is that they go the whole process. They started to do L1 many years ago, more and more of the transaction are recorded, and connected more and more to the internet, so IoT, gathering data, but nothing is happening, this is only digitizing things, and the last 2 years they are doing a lot more of this L2 (Digitalization of existing processes), from their marketing, factory, and so forth. But many existing companies are not yet starting new business models L3"*

The sixth sub-category, **the risks** that digitalization imply. This sub-category is formed from *New-comers, Cheap technology, behind competition, Timing adapting new technology with customer, Strategic decision, Waste of money, Same technology providers, Long term customers, and Attracting talents*.

As earlier explained, the faster path of change has increased, and thus the potential entrance of new-comers too:

> *"Then there is the risk side, what if this Uber comes to your industry and changes the rules of the game, will you be agile enough and ready enough to respond that risk and turn it in to an opportunity for yourself?"*

It also means risks in terms of any strategic decision:

> *"they are pretty much similar to any other strategic decision you are incurring. So for example if you look at the value chain and you are deciding what role do I want to play when the value chain of the industry is changing, due to the opportunities opened up by digital technology"*

However, the largest risk you incur is the waste of money. Although as another consultant points out:

> *"The risks, obviously the technology is getting pretty cheap, and as such the risk of big failure is very minimal".*

Nonetheless, if you do not invest then you take this dangerous risk:

> *"I think the biggest risk is you fall behind the competition; if they go faster than you are"*

In addition, the timing of adoption the technology is vital:

> *"There is always, with any new technology or idea, if you are too early you can loose money because you need something and you were too early nobody buy it. But if you are late, then you look stupid, I should have seen and then you are behind the competition. That sort of balance, is the biggest risk"*

According to some consultants, some companies are so much used to same technological providers:

*"but the largest downsize is that the companies are used to use existing technologies providers, XXX, or in Finland is XXX. And they will expand some of the services towards having more digital services but without having a clear vision"*

In the long term, another big risk is to retain the customers in digital world:

*"In digital world one can find short term customers but creating sustainable business is a very different story"*

Attracting talents:

*"attracting talents. fundamental problem with sort of current employment, current employees in a way to move them to this new world, and get new talents on board"*

Cheap technology:

*"The risks, obviously the technology is getting pretty cheap, and as such the risk of big failure is very minimal"*

The seventh sub-category is **the benefits** that are formed from *Being alive, Internal processes, Customers, Better performance, and Improvement in productivity*.

The first one is being alive*:*

*"First benefits are coming from the fact that, principally you are still alive, because of the competition, new-comers who do not have the old way of doing, they can go directly to new ways of attracting business, or identify the niches and needs quickly, without anything old, therefore company needs to act fast"*

There is also consensus with regards the improvements of internal processes:

*"you can do the cost-reduction with the digitalization, you can increase the compliance, the quality. So internal process there is a lot that you can achieve"*

Another benefit of digitalization is straight away customers, as for example:

*"you can change the life of the consumer, by providing more versatile more augmented services, you probably make some money while you are doing it, if you can bring more value to the consumer, typically translate into euros at some point"*

In general, enterprises can achieve better performance*:*

> *"if done well, I can really boost the health and the performance of my organization by giving people more resources more autonomy"*

The use of analytics helps corporations to optimize the use of capital:

> *"Digitalization brings data and analytics, data mind is in general the hopefully expected results there is a lot of optimization on the use of capital, pretty good on return for investor"*

Of course, better performance is due to improvements in productivity:

> *"of course it will integrate the vertical and horizontal value chain meaning for example that companies will link to their suppliers electronically and then they will do the same with their customers, and then there will be less need for any manual typing errors and that will increase productivity considerably"*

The eight sub-category is **opportunities** which is formed from *Value chain role, Optimizing operations, Role in the new ecosystem, Higher return on investment, and Use of analytics.*

In that section, the first idea highlighted by consultants is the opportunity to rethink the role of corporations' value chain*:*

> *"what I can do about my value chain, focusing my operations on the parts of the value chain where the margin are higher and profit pools are bigger, and maybe offloading some of the lower margin less important activities in my value chain to other players"*

Because digitalization enables the disaggregation of the value chain as explained:

> *"the strategic implication of digitalization which is focus on the point that digitalization often enables the disaggregation of the value chain meaning that different activities in the value chain which used to be integrated can now be performed by different organization and they can be performed in different location"*

Not only in the value chain, but also corporations should think the role they want to play in the ecosystem:

*"business idea, building link. So then you will also have business partners that can be here as innovation partners, so actually help you with the business case, or they can play a role here as builders, then business partner to take it to the market, so they could be the route to make so depending on where you can have different ecosystem roles across phase. So you could take many roles over the ecosystem"*

Moreover, investors can get higher return on investment:

*"As far as creating new completely new business which is going to be much larger than existing because there are no physical limits anymore, example before in order to have a book you needed to go to library, now online. The same technology can be used in France or Singapore. Example a sensor in a truck, the software and services will not have any negative impact if used in Australia. The level of potential vs the investment in digital world a huge and large than in physical world"*

Besides, another opportunity is the optimization of your operations:

*"the tactical level, there of course it means a lot bunch of things from optimizing operations, digital has amplified in individual productivity, digital means that there are new ways in which we can measure outcomes, to give more autonomy to individuals within organizations"*

Indeed, most of these opportunities is due to the emergence of the use of analytics:

*"Digitalization brings data and analytics, which you have to understand what is going on, 1: to protect yourself, 2: to make use of it as part of business, 3: to improve"*

The ninth sub-category is **the speed of this adaptation** that contains *Plan needed, Depends on industry, First mover or follower, and Curiosity.*

The vast majority of consultants agrees that more than speed up the adaptation of digital technologies, the most important is to have a plan:

*"I think the key part is to have a plan, so it is not just going with the flow, but you are choosing deliberately what is the path I want to take, you have a rational fact based, logic of doing something today or not, because the worst thing is just go with the flow and then realize that something is happening when something is too late to change"*

First mover or follower:

> *"there are a good number of companies who have been first movers and succeed on being first movers and then there is other companies essentially being followers but have being simply followed better"*

Curiosity:

> *"being more curious, On the other hand, you can look internally, in your internal operations to make the changes, make it more efficiently, more compliant, increase the quality and so on"*

As explained in the adaptation of digitalization up to date, it depends a lot the industry whether the company can speed up or not:

> *"if you are in pharmaceutical not that much has changed and not that much will change in the next few years given the tight regulation. But if you are in banking and you haven't moved ahead and sort of push digitalization already you will be out of business fairly soon"*

The tenth sub-category, **innovation to cope with digitalization**, is formed from *innovation as driver force, corporate culture, and kind of paths.*

in that sense innovation is seen as the driver force:

> *"the innovation drives digitalization if you don't put enough weight, thinking, resources, and why not money into the innovation then there will not be digitalization"*

But also the innovation is seen boosted in the corporate culture:

> *"It depends a lot on the corporate culture, companies based on technologies, they are more agile and fast moving. are very fast in reacting to new trends and new ways of doing things, then we have slower firms that are more traditional and more like old school, that they require more effort and time to respond"*

To conclude this sub-category, there are kind of paths to follow in innovation:

> *"Again, it is changing, but the innovation intersection is not yet. It does not have the limits in place yet. They take too long to take the minds up, they take to long to secure partners, they take too long whether they want to continue with something or not. But*

*there are some companies, who started the race early and I think if I just look at the Nordics I can categorize 3 kinds of path or speed. High, medium and low speed. The bulk of them are sitting between medium and low, and then there few in the medium and high"*

The eleventh sub-category is **how it affects to consulting industry.** To this sub-category belongs *Structure of the industry, New business opportunity, Internal efficiency, New capabilities, tools, and Data quality up*.

Consulting cannot be different and many consulting firms also have to rethink their proposition in the value chain, and thus it changes the structure of the industry*:*

*"the structure of the industry, so some players are actually going into more execution of digital. So design thinking, digitalization, or even some sort of close to digital market or concept design. Others preferred to start to build the capability internally and then in addition to thinking about whether you move in the value chain, there is the question of how do you change your own internal operations so how do you eat the digital issue yourself. So you how you utilize other digital technology internally, and then serve your customer in a different way"*

For this sector it also means a new business opportunity as many consultants argue:

*"clearly there is a demand for serving our client on digital topics, so I would say anything around 20% of the work that we do right now is somehow related to digital. Be digital strategy, or understanding the technology and helping our customers to act upon those"*

Moreover, digitalization also improves their internal operations:

*"however of course if you are smart partner and optimize your return, you want to have digital solutions or automation or digital service for your employees as well"*

They also mention the need of new capabilities:

*"capabilities of the advisors as well as to the time-work that the advisor do so for example you know the major management consultancy are stablishing their digital arms".*

Consultants give a high importance that digitalization brings tools:

> *"from a tool perspective of course a lot of things that has not been possible previously are now possible, there is a lot more with the help of big data analysis and machine learning and artificial intelligence we can find an analytical solution"*

> *"the fact that we can finally move away from excel and start to work on more hard-core data analytic tools and algorithms and programming the hard mathematics"*

Last but not least, data quality goes up:

> *"Consultants need to have argument based on data. And they use facts to drive conclusions, very important. The way data is gather today on the majority of client I have is extremely poor, and digitalization enhances data quality"*

## 4.3 Challenges category

Challenges category contains five sub-categories that are Automation, Focus, Traditional companies, Infrastructure, and Ecosystems.

The first sub-category is **automation** that is formed from more *Qualified work, Automated work, Overcoming technological changes, and Quality of your digital technologies.*

Automation will bring more qualified work:

> *"the labour that requires definitely and specialization of the work force in generic terms, you cannot have people completely generic like very low education there will most likely be redundant by these types of technologies"*

The work step by step will get automated:

> *"the basic dummy work will disappear, the automation is learning from deep-learning of artificial intelligence and dealing with very complex problem"*

However, some consultants believe that the societies always overcome the technological changes:

> *"so many changes during last 25 years. We are still around and still having work. So digitalization will bring a lot of good and the good stuff will outweigh the bad stuff. Technology may have made some existing jobs redundant but it has also created more jobs than destroyed, and this has always been historically true"*

What's more, the quality of your digital technologies must be high because:

> *"The quality of your digitalization, IT system, your, robots, artificial intelligence, is on an adequate level because of course the machine make errors if it is stupid machine. If one of the robot is learning, it can share it with the other guys, means that all the robots in the world know the same thing, this can be dangerous, they do not know what they learn, it deducted itself even nobody was teaching, it created this kind of reasoning itself, nobody how it works because it is created this capability based on basic game, connected and reconnected. Because it is network, so you cannot reverse engineers anymore, that is why is so complex"*

The second sub-category is **focus** where belongs the *Unknown known, and Find the right focus***.**

Consultants have a great consensus on the point that companies know the importance of digitalization but they do not know how to do it:

> *"In summary, I think companies are waking up and they want to do something, but people are struggling about how to take it forward and they are still wondering how to do it"*

Moreover, it might be that some of them also have internal clarity in terms of finding their right focus:

> *"find the right focus. That is always when I am working with clients on digital there are a lot of things going on, but no clear guidance this is what we want to achieve by utilizing digital. Also the overflow of information, that is the problem, not that aware where to focus"*

The third sub-category is **traditional companies**. This sub-category is formed from *Necessity of reinvention from traditional companies, Reputation issues, Analogue people, New type of culture needed, Waterfall vs agile development, Necessity of networking, Key provider removal of the key equation, Silos, and Companies not used to technology.*

Consultants really remark the necessity of reinvent traditional companies:

> *"Old companies they have to reinvent themselves, into creating new kind of products and services and new kind of business models, if they do not change they will die"*

Those changes include the different approach towards waterfall vs agile development:

*"Waterfall development is about doing things sequentially, first you specify a product design the product more in detail based on the specification then you implemented, then you tested this specification, and then you give to your customer. The agile methodology is more interactive in nature, so you won't have frequent cycle, weekly or daily cycle, where you always a working product from day 1. This relates to minimum valuable product, kind of doing development of digital products, because if you compare 3 month doing specifications, vs working 3 months into the product, kind of checking what it came out of it, this is pretty close but we want to change this thing you are going to be much more efficient. That is the fundamental issue in classic approach governance, operational, then to have towards the waterfall models implemented in silo departments"*

Also the change of people in top management:

*"it is a slow change and capabilities has been built from a very analogue world perspective, and it has been extremely successful, and do not get me wrong, you need those people in the future, but in traditional companies you then often have, I would say politely, analogue people as the leader, with this mindset in that side, they might have myopia or blind spot in kind of understanding what kind of capabilities they would need, what talents they might have"*

Reputation issue:

*"So the biggest thing at least in this part of the world is taking the risk, because you are risking your position and then problem of reputation"*

Silos:

*"They see okay we need to do digitalization of course we need to put more money into it, it goes to IT department or the existing silos"*

So it is clear for them that a new type of culture is needed:

*"you have impact on headcount, on the culture of the firm, the way of working. The culture of doing more technology oriented stuff, the focus on starting this culture"*

In the same line, some consultants remark the necessity of networking:

*"So digitalization it is a more networking thing, than everybody just only doing they own things. Anyway, to make so fast changes you buy in some expertise in some certain IT*

*area or programs or software or some new knowledge, design or marketing or internet capabilities that you do not have in your own core business. It will require to be agile and fast. You use external networking in different ways"*

To some extent, it is understandable the necessity of profound change from traditional changes, they are just not used to technology:

*"These companies that are now impacted by the changes in technology and the opportunities they open around them; they really aren't used to these kind of stuff. They typically lack the operating model, capabilities, they do not have it in their DNA"*

To conclude, traditional companies should be prepared for the disappearance of key providers as trust. As one of the consultants pointed out:

*"Now there are many service where they key provider is the trust. In the bank, if we do remove bank out of equation we will have completely new services, and they have to do with capabilities and technologies directly on trust"*

The fourth sub-category is **infrastructure** that contains *Security of existing infrastructure and New IT concepts***.**

A problem that some consultants indicate is the current security of the existing infrastructure:

*"Another worry about digitalization, cyber-security, which is a major issue, because it is not built, we did not study as we studied math at school but is essential. Existing infrastructure: IP networking, internet as based, it is not really based and design for moving secure"*

There are already new IT concepts such Blockchain arising to solve this problem:

*"there are new technologies such a Blockchain that are meditating that existing infrastructure"*

The fifth sub-category is **ecosystems** that contain *Legislation, Strong current ecosystems, Competition of ecosystems, and Reality in the role taken in the ecosystem.*

The current situation about them is first the strong position of the current ecosystem nowadays:

*"they do not have a motive to destroy their business because the core, the power of google which they earned it they have a data which is essential. Large companies which*

*are in the center of the ecosystem and the data is kind of fragmented so there are fundamental challenges to solve"*

However, EU legislation tries to mitigate this through new regulations:

*"EU legislation is pushing for getting sort of ownership back of data. The law slowly changes and most cases starts from legislation because the companies have to innovate but around their systems (big players), having google and apple creating new ecosystem but we are now at the point they are stopping further developed innovation because they are in the center of the system which they own it vs us consumers. (So all the innovations are towards their interests)"*

As a result of that, there are many companies that do not have a clear sense of which is the role they play in the ecosystem:

*"many companies think that they are at the center of the universe, they sort of own the ecosystem. So they need to think about what is my role, which partners I need, and what is the ecosystem that I want to play in but not thinking I am the center of ecosystem"*

In addition, companies have to understand that the competition in the medium term is not anymore between companies but ecosystem:

*"new ecosystems, more and more important because the competition will be ecosystem against ecosystem, not just company again company. It will be for example apple ecosystem against google ecosystem. And a lot of companies are part of that ecosystem"*

## 4.4 The Way of approach category

The fourth and the last main category is called The way of approach. This main category consists of two sub-categories that are actions and the role of consulting towards digitalization.

The first sub-category, **actions** to approach the challenge**,** is formed from *Rethinking, External help, Open sharing of ideas, High level sponsorship, Holistic execution, Small cross-function teams, Trial-error approach, Projects' characteristics, Quick actions, Internal competitor, Risking, Requires investments, Target audience, and Digitalized product continuous learning-based.*

The first thing they recommend is to rethink about your company itself:

*"It is not only adding some digital tool but it is rethinking how you run a whole company, and they way you try to handle the business and the capability of your people, presence of your brand, so you have shorter releases, you put efforts depending where is the need, but step by step move the whole company towards the target"*

In terms of digital, consultants think :

*"about digital is basically 3+1 areas. 1. sales and marketing, how do you make the interaction easier. 2. You will think about your products, how do I either digitize my existing products or create completely new digital products, 3. Your digital operations, how do you digitalize your internal operations and processes. +1 is How do I sort of compact all of this, how do I make sure there is a clear governance clear guidance around, where do we want to focus, where do we want to do when it comes the digital"*

In order to do that, many consultants agree that companies need external help:

*"at the moment some external knowledge is necessary. Bringing some knowledge in, about the concepts and then making internally people understand. Then be consultants, be startup, some other players who have done it on a different way, it is sort of good to bring the fresh thinking in. But then whether you do the actual sort of defining the ambition make sure the focus"*

In the case that the help is from a long-term consultancy, it is followed by the typical relationship between advisor-client:

*"Consulting relationship are not transactional but relationship over the years where there is an open exchange between the advisor and the specific leader of that company, where you know there is an open sharing of ideas, there is a joint discussion where is discussed the management agenda and the strategic agenda of the company, and there the advisors sharing what they have learnt from their resources and what they learn from the market"*

As many consultants agree digitalization should be boosted by top management:

*"Digitalization is not a technical thing, it is a header, a head line, for the mandatory paradigm shift, mandatory transformation of how business is contacted in general, and therefore is responsibility of top management. Keep sponsorship high level but the action is down"*

Those actions need to have a holistic approach:

> *"how I will make this happens of course bring things together in the same direction and get scale around it, how I execute to make it happen"*

Cross-functional teams:

> *"Sure, I think companies that are very successful, playing in the digital world are able to mix the teams, so you have truly cross-function teams"*

Trial-error approach:

> *"you can create strategy by going out there and testing good works and then that becomes your strategy as opposed to be a linear process where you first put the work and plan based on a market study and then you go and build what you want to build, but it becomes much more a dynamic system of testing, learning, implementing, scaling up or closing down"*

You need more quantity projects than only few because:

> *"Instead of spending 10 million in one thing, they are spending 10 million on 1000 things, because the ecosystem is sorting out the most feasible by itself. And also to foster is the learning by doing and not being afraid of failing, because they do not have the culture to allow any failure, okay if you have 100 projects maybe only 20% will succeed, but it also means you learn from each of them, you take the learning and bring them forward".*

All of these actions need to be quick:

> *"But all it needs to be quick"*

It is true that in order to achieve that you need to create an internal competitor:

> *"if they kind of cannibalize their own business no external threat then they should do it, but if they still know what they will do if this threat emerges. Let's say what Uber did for taxis, if you were preparing for the chance like something like this happen in your industry, then it would not catch you as surprise"*

Of course this needs to have a culture of risking:

> *"the big problem about the ability to take the risk, thinking big and really having the ambition of what can be so still at the moment all around existing services vs it could be really very different scale, much larger and different businesses. vision cannot be around existing projects, and solutions and just adding the digital sort of ticker is very limited approach, it needs to be much wider"*

Those projects in digitalization need obviously investments:

> *"And digitalization usually night need maybe they are investing heavily to some IT processes. Right investments, example: platforms (to make things happen), consulting services (to build new business models under development technologies but)"*

Your digitalized products you launch need a continuous learning-based:

> *"also measuring your experience, chat how can I help you, the consumer cannot be left alone, if there is a path, that you think the customer should be following, if it seems that him is not progressing in the path, means that there is something wrong, you have to be in touch immediately otherwise they will drop this case. And next week the app is better because is learning my behavior, so this the expectation, the intelligence, what is the huge network behind, the only thing is that it serves my purpose, and if I know what I am doing, better"*

To conclude, have a target audience:

> *"you need to focus, on a particular audience, limited market, limited demand and pull those, learn to fulfil those first step by step, get constant feedback and make a promise that you can keep"*

The second sub-category is **the role of consulting firms in providing steps towards digitalization**. It contains *Typical dynamic advisor-clients, Strategic thinking, Help with the implementation, Step changes, Smart investments, Capability, Operational model and organizational processes, Temporary work force, External view, Agile development, Road map, Effective service and autonomous operation of work size, Cyber-security plan, Startup matcher, Different activities, Forefront thinking, Futuristic approach, and Spread new learning*.

The first idea that arises from consultants in those topics is that is the typical relationship between advisor-client:

*"Exchange of ideas, what is happening, what is emerging, strategic agenda, and shaping that agenda together. I mean the basic dynamics in the advisors and the clients are the same really"*

Within this typical relationship advisor-client there are some companies that are in the front-side of this process of thinking about where you need to go and how to get there. Then you have other players which help much more to execute and make them happen. So the first one would be the strategic thinking:

*"It can be a cost effective way to develop a competence that you do not have. What exactly to digitize and what not. This discussion consulting can think we help corporations to build their digital strategy and bringing innovative ideas on what it could be"*

And then the other players that focuses on the implementation:

*"They can also help you to figure out how the transition of digital process to business model, and then help you to take it to the market"*

Or it depends on the consulting firm both:

*"Some consulting firms also want to encompass the strategic thinking and the implementation, everything"*

It is true that always step changes are needed consulting firms are desired:

*"When corporations want step changes, instead of going normal then you use consultants taking new information, new thinking, best practices so you do step changes, so it is definitely a good business driver for us"*

Because the external view is vital according to them:

*"So I think is about of finding the way of this outside view as very valuable but I mean also the key is very difficult to implement the change internally because of internal obstructions"*

Furthermore, consulting firms can help you with smart investments:

*"a big role, for me is hard to see company would internally be able to do things like this, for instance, make smart digitalization investment"*

Capability:

> *"Consulting can be seen as trigger, so they help to organize and bring capability to a firm or competence that they are not use on having that"*

Operational model and organizational processes:

> *"And then comes helping them to do the changes in their operating model and organization processes where understanding what tends to work in different organization where we can help really really much classic big corporation change"*

Temporary work force:

> *"Consultants help very well in providing this temporary work force for developing that concept, and executing that kind of tasks"*

Agile development:

> *"to also to operating model program of how to move from more traditional waterfall focus hierarchical organization, to more modern agile network based organization"*

Road map:

> *"the next step is how you get there. We help them to create a road map. What are things you need to do right now, what are the things you need to do next year, year after towards that vision?"*

Effective service and autonomous operation of work size:

> *"We want to utilize digital to become the most effective service company and we want to utilize digital to have completely autonomous operation of work size whatever is the vision"*

Among many activities that they realize, it is important to remark cyber-security plan:

> *"how to ensure that you have extraordinary good cyber-security plan. also we are building some analytical super engine figuring out your cyber-security, something that is*

*very much about expertise and capability based, and it will be extremely valuable for our clients"*

And the startup matcher:

*"also for finding this kind of startup companies that could fit in in a corporate level"*

Other activities:

*"Consulting firms can do all of this: learn exec sponsorship, platforms, technology to help you. They can do, set up studios, design studios in garages to develop solutions very quickly"*

Consulting firms possess forefront thinking:

*"So it not very different, whenever whatever news stuff come in, because the consultants always have to be in the forefront and digging in new stuff, so they can help their clients. So this is what we do globally what we do regarding digitalization"*

Futuristic approach:

*"consultants because they have to think the edge very open, but it can be very scary to be consultant because these guys who are running these kind of companies they are very clever, they can look beyond 10 years"*

And spread the best learnings:

*"we spread the information, we copy best practices, we bring to other companies we spread between industries, so we are the messenger in between them"*

Those characteristics are what it makes this industry important for the others.

## 4.5 Nvivo software: Most frequent words

When doing the analysis, the author used partially the software NVIVO in order to look for the most frequent words. The results are as following:


*Figure 5 Nvivo Most Frequent Words in the Interviews*

The following words are extracted from the software NVIVO together with the elimination of words the author considered not relevant:

*new 256, need 267, Business 248, change 225, people 184, now 164, different 186, IoT 141, customer 152, data 98, innovation 91, development 90, operations 82, ecosystem 77, technology 74, strategy 68, learning 64, artificial intelligence 62, automation 57,*
*robots 52, project 52, machine 50, process 48, culture 44, efficiency 40.*

# 5. Analysis

*This chapter examines the empirical findings together with relevant theory. The analysis is based in the four main categories found in the empirical findings: Definitions, Context, challenges and the way of approach digitalization. The author only includes the most relevant points of each category based on the conversation with consultants and relevant theory.*

## 5.1 Definitions category

In that section, both the empirics and the findings follows the same line in terms of definitions. Perhaps the empirical findings make it simple to understand the meaning of digitalization in a simple way: *"at the end is every industry turning into tech-industry"* while in the research theory the definition is more extensive and formal as (Gartner, 2016) states "the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business". However, it is important to mention that in the empirics many consultants also give good definition of digitalization such as: *"traditional industries adapting technologies in part of their value chains all their operations. technology industry and telecommunication always, so I think in the modern sense is about bringing those technologies to play across all of the industries".*

In that section is relevant to include a relevant differentiation that a consultant make which distinguishes simple and new digitalization: "*If we think about digitalization as word simplified: define as manual work being replaced by electronic work. Everybody has some degree of IT system and those kinds of things. But if we look from new digitalization point of view, of things being connected and Internet of Things and robotics and artificial intelligence then probably 30% would be too much"* This citation is interesting because there is no clarification as such in the literature. There is not clear classification in the literature on the concept of digitalization. As such, digitalization remains a popular buzzword perhaps because as another consultant points out: *"Of course we now say that this is the era of digitalization, you know, but on the hand has been going on for so long time, so in 2000 there was e-commerce, that was part of digitalization, what about when we started to do ERP in the big way? Yes, that also was a part of digitalization, but in a different perspective".*

## 5.2 Context category

### 5.2.1 Main characteristics of digitalization

The way value is created is definitely changing. (Berman et al., 2016) state that companies should also pursue a new focus where they should find new ways to monetize customer interactions. Moreover, In the empirics consultants corroborate that indication *" the way which*

*value is created, the way that businesses is done, going through a change, that change will be known and called as digitalization"* In addition they add the consumer point of view, in which by augmenting services you clearly focus new ways of monetize your customer interactions: *"by providing more versatile more augmented services, you probably make some money while you are doing it, if you can bring more value to the consumer, typically translate into euros at some point"*

Another major characteristic of digitalization is the faster path of change. Literature and empirics highlight that the cycle developments have speeded up. For instance, the literature review of (Blank, 2005; Adler, 2011; Penenberg, 2011) recognize that the product development cycle has speeded up. In the empirics is found *"typical business development initiative would be 6,9 12 months now a business development initiative can be 3 months"*.
Not only the product development but also as the sample also points out *"new business models can emerge at much faster path"*.

Something really interesting highlighted by consultants are the ideas that first experience counts and that in the digital world becomes as perception of the real world. The first one *"if the app of a cafeteria is bad, the coffee must be bad, we do not have time to test, you want to see everything immediately"* And the second, *"If you are not there in the digital world, you are not here in the real world, you do not exist at all"* These two points are explained by the high competition currently exists in markets in terms of price, customization among others.

The change in the game in terms of new economic environment. As the sample points out *"changes the game in a way that before you had clearly the supplier, the competitor, customer, now all of those starts to exist at the same time. So your competitor is your partner, in some cases your supplier, so that changes the way the system works and I guess the whole point of the ecosystem"*. This point is corroborated by the theory established of the report of IBM whereby they named a new economy called E2E where all the actors are hyper-connected and they can take almost any role within the ecosystem. Many consultants agree that digitalization is a temporary fad; it has a beginning at and end. In the same line the research literature of (Degryse, 2016) states "Digitalization of the economy is not a new phenomenon. Yet even though it has been underway for several decades, there is today a consensus that it has reached a tipping point. The marriage between Big Data and robotisation heralds a new economy and, hence, a new world of work"

Last but not least, digitalization tends to affect the cost side of things, so one tries to cut costs and make things more efficient. This idea can be closely related to automation of processes. Actually, according to one survey of (Grant Thornton, 2015*), "56% of firms are either automating processes or plan to do so over the next 12 months"*.

### 5.2.2 IT development

In that aspect both, literature and empirics agree that IT has become an important piece for the development of companies as well as changing business's logics. *"Information Technology (IT) is playing a fundamental and key role in almost every business, and has reshaped the basics of business. IT has supported the entire business adaptive and ready for change by connecting people, processes, and information, leading to transformation in the nature of work"* (Lee& Choi, 2014) In the empirics one can find similar answer towards the point *"IT is no longer in the supporting role now they are in the core role of all engagement"*. The proliferation of IT explains the development of digitalization. Nowadays, companies must think business strategy together with IT if they want to succeed in the digital era as IT cannot longer be placed in a silo. As one consultant states what corporations are doing wrongly *"you tend to form this kind of silo living very independent into the organization, often the IT organization has had priority around minimizing risks.* Therefore, IT should be treated as priority in any business who aims to succeed in the digital world.

### 5.2.3 Risks

The first risk that can come from digitalization is that a new-comer such as Uber did in the taxi industry but in your field and grab suddenly your market share. Will you be agile enough to respond that risk and turn it into an opportunity for yourself? Only organizations that learn how to adopt and use the continually and rapidly changing technologies can be successful. (Lee & Choi, 2014). As any other strategic decision, you incur risks. So for example if you look at the value chain and you are deciding what role do you want to play when the value chain of the industry is changing, due to the opportunities opened up by digital technology. Also, as it is seen in the empirics and theory digitalization is about partnership with actors of the ecosystem you want to play in. The problem is that companies only trust big suppliers, thereby not really benefiting of the partnership beyond your current scope. Furthermore, in digital world one can find customers, but creating sustainable business is very different story. To conclude, as any other investment, the digitalization of the company has the risk of losing money if done wrongly. For example, investing in wrong automation process, or not investing enough in a digital technology that requires heavy investment of money.

### 5.2.4 Benefits

When it comes the benefits of digitalization there is no novelty towards the empirics and the academic literature. In both cases, it is highlighted the clear improvement in relationship with customers as well as in internal processes. A clear example in the empirics: *"if you are able to attract your customer who is using your product, to the services, if you can link it to their life-cycle, then you have a lot more opportunities to sell more along the journey, so you know the data"* and *"they get easier gather information, and some help to support their own processes so they could implement some part internally and not only to the customer"*. In the research theory is proved by the affirmation of (Fitzgerald et al., 2013) *"adapting digitalization into your*

*organization allows you to have a better customer experiences and engagement, streamlined operations that improve sharply the internal communications"*. The improvements in internal processes boost the improvements in productivity in corporations. In the academic literature it is even possible to find studies that support a correlation between IT and customer satisfaction as (Sharma & Baoku, 2013) state that companies with better IT development are effective to improve customer service and customer relationships as well as suggest significance of this fact through other studies such as (Rathnam et al., 1995; Karimi et al., 2001). Customers in that sense indirectly benefit from, again, the high competition existing in the market. Finally, it is important to mention that adapting digital technologies to corporations is a matter of survival; as one of the consultants point out *"principally you are still alive, because of the competition, new-comers who do not have the old way of doing, they can go directly to new ways of attracting business, or identify the niches and needs quickly"*.

In short, it is better to adopt digital technologies now than later because the world will be digitalized anyway and thus it is better to start benefiting from it as well as if you do not do it will be done by your competitor meaning that you also might incur the loss of market share in his behalf.

### 5.2.5 Opportunities

There is a clear agreement in terms of the opportunity enabled by disaggregation of the value chain due to the elimination of physical barriers. As one consultants clearly states *"digitalization often enables the disaggregation of the value chain meaning that different activities in the value chain which used to be integrated can now be, performed by different organization and they can be performed in different locations, no necessity of physical proximity in many cases, and that for most companies miss the opportunity of rethinking the value chain and supply chain"*.

Also in the relevant theory one can find this important opportunity as (Berman et al., 2013) predict that the value chain fragmentation and industry convergence will begin to support formation of ecosystems. So now is the time, as well as a good opportunity, to start thinking which role you want to play in the new ecosystems are formatting as well as within your value chain in which part you should play, i.e., where the profit pools are bigger. Of course, in that section can be also included the opportunity of trying to sell more by applying analytics on the data and sell more, as well as improve internal processes and gain productivity. What's more, one can see that there are not more physical limits in the digital world and thus there is more competition. However, this situation also enables an interesting point that a consultant points out *"as creating new completely businesses which are going to be much larger than existing because there are not physical limits anymore. For example, you create a sensor for the engine of your truck in order to advice you when to replace a piece. The software of this sensor can be used in in Australia without any negative impact, and thus The level of potential benefit vs the investment in digital world is larger than in physical world"*.

### 5.2.6 Digital technologies

Digitalization has enabled digital technologies such as Internet of Things, which means every device connected to the internet. Furthermore, artificial intelligence which is a technology that could think closely to a human being thanks to using deep-learning that bases its final answer on the study of repetition of many similar cases. Digitalization brings a lot of data which leaves place for analytics to take benefit from this information. To sum up, the new digital technologies are coming stronger than ever with the potential of doing a qualitative task at same or better level than human being.

### 5.2.7 New business models

Digitalization enables the possibility of creating totally new business models. As some consultant mentions, *"a huge potential for a lot of startup activities, so they are part of the ecosystem working with a lot of companies so you will have the possibility for many small companies to go on"* This comment suggests the idea of a lot of startup activities due to that the world have become customer-focus and startups starts targeting limited segment of customers which fulfill limited specifications. The theory adds an interesting point referred previously: *"establishing partnerships is recognized as a core-competency as the formation of them is a feature of new business models"*.

Not only different types of business models have been created, but also the emerging of new industries such as Fintech which is a combination of new technology and traditional finance. As one of the consultants warns: *"not the whole bank but this department who handles cash management has to be aware of new Fintech players who will come and grab market share from them"*. (Täuscher, 2017; Zott & Amit, 2010) among many characteristics of new business models in digital world, highlight the importance of the elimination of physical boundaries that go beyond the traditional approach in the industrial age. This leads them to have a more holistic approach for value creation through new types of collaborations.

In terms of new business models, the platforms economics have become the factory of the 21$^{st}$ century (Degryse, 2016). Constantly in the sample of the empirics is mentioned the importance of them by giving example of platform companies such as Uber, Airbnb, Facebook etc. The same characteristics of leading companies of ecosystems can be said about platform companies: strong power due to financial resources that allows them to invest on lobbying, legal aspects as well as acquiring any business likely to improve their own.

### 5.2.8 Big data

The author believes that big data should be included within the Context category as digitalization enables large amount of data that in turn is changing the way of doing business. Although it is softly mentioned in the sample or widespread in other categories, it is an interesting characteristic of digitalization according to the literature. (Manville, 2016) states that data is new

oil of this century. (Berman et al., 2016) confirm this idea by telling that E2E economy is cognitive, characterized by data-enabled self-supported learning and predictive capabilities.

In the empirics is not that important nonetheless one can find examples of data importance through the legislation and EU trying to get back ownership of data and that digitalization brings data quality up. Yet, not mentioning data in the analysis would be a great mistake since one can conclude that it will change the way of doing business.

### 5.2.9 Speed of digitalization

According to (Fitzgerald et al., 2013; Bughin et al., 2017) the organization should lead the technology and not in the other way around. This idea goes in total agreement with all consultants' interviewees summarized in that sentence: *"I think the key part is to have a plan, so it is not just going with the flow, but you are choosing deliberately what is the path I want to take, you have a rational fact-based, logic of doing something today or not, because the worst thing is just go with the flow and then realize that something is happening when something is too late to change"*. Regardless the speed of adapting digitalization, the most important is to have a plan, and thus you decide how to approach it calculatingly. On the other hand, the speed is also a sectorial question. As one consultant points out: *"if you are in pharmaceutical not that much has changed and not that much will change in the next few years given the tight regulation. But if you are in banking and you haven't moved ahead and sort of push digitalization already you will be out of business fairly soon"*.
Essentially, one should plan the digitalization of the company taking into account the speed that the industry requires.

### 5.2.10 Integration of digitalization up to date

Although the literature argues that the Nordic countries are in the advanced stages of digitalization out of 4 possible categorizations: constrained, emerging, transitional and advance level. The lowest level of the Nordic countries in that study by (Sabbagh et al., 2012) is Finland with 52.2 points. On the contrary, in the sample consultants agree that the level of digitalization is medium-low. In the exact words of the speakers: *"We have taken first steps, baby steps, there is a long way to go"*. However, this inconclusiveness could be due to that there are different companies in the maturity learning curve and some are more digital and the majority way behind. It also depends on the type of sector as in the speed of digitalization is explained. Furthermore, the size of the company may influence because *"the digitalization between large customer is idealized but then what is lacking is the digitalization of middle size and small customers"*. With this regard, the author believes this mismatch can be also explained by different parameters taking into account between the sample and the relevant theory. For example, in the study of (Sabbagh et al., 2012) one parameter is speed of internet and the sample might not even think about this point as in Finland the internet speed is granted as fast whereas in other countries still struggle with it.

Another interesting point is that as one of the consultant mentions: "*There is a huge difference between low performance and the high performance in this country, but thanks to the fact that high performance is really well known and have been followed up quite closely they are most of them open to the market explaining what they are doing, attracting followers, and exchanging information, because they also understand that they alone cannot survive, they have to make sure that the whole ecosystem need to survive not only them"* In that sense, it is aligned to relevant theory of open innovation. With regards to that, (Chesbrough, 2003) states companies can commercialize internal ideas through channels outside of their current businesses in order to generate value for the organization. Having said that, high performance companies making sure that their ecosystem survive indirectly means that they are benefiting from open innovation as followers need to survive in order to survive themselves. There is also clear agreement between empirics and theory with regards the idea that digitalization has arrived to the concern of C-suite executives, in other words top management, which means that they are aware of the need of attention of digitalization but not necessary that they know how to do it as it is explained later on in the challenges. Besides, it is also important to mention that is moving from a fad to a revenue generating business.

### 5.2.11 Innovation to cope with digitalization challenge

It is clear that by any company who wants to compete in the long term is necessary to innovate. As one consultant mentions, innovation drives digitalization, *"if you don't put enough weigh, thinking, resources, and why not money into the innovation then there will not be digitalization"*. Although Finland is placed as one of the most innovative nations of EU (Cärlstrom, 2016), consultants are not so convinced about the innovation development. *"They take too long to take the minds up, they take to long to secure partners, they take too long whether they want to continue with something or not. But there are some companies, who started the race early and I think if I just look at the Nordics I can categorize 3 kinds of path or speed. High, medium and low speed. The bulk of them are sitting between medium and low"*. In this respect, the literature in digital innovation concerns about the heterogeneity of actors as they might have different interest in innovation networks (Lund, 2015).

So this lack of trust between actors might bring slowness in digital innovation and speed is a key factor in digitalization. What it adds the literature in this regard is that partnership is important in Digital innovation as *"the process is often described to be a networked achievement involving many actors, including user communities, often with different interests and intentions"*. As another consultant points out, people still have a strong dispute of competition vs cooperation and that issue hinders the development of partnership. Of course one can understand they very innovative in their own fields, but they do not have the capabilities or understanding always to be certain towards how to innovate in the digital world. In addition, the sample adds that it depends a lot on the corporate culture, for instance: *"companies based on technologies, they are more*

*agile and fast moving. Are very fast in reacting to new trends and new ways of doing things, then we have slower firms that are more traditional and more like old school, that they require more effort and time to respond".*

### 5.2.12 How it affects consulting

In this point is important to start by mentioning that digitalization brings for consulting powerful tools as *"we can finally move away from excel and start to work on more hard-core data analytic tools and algorithms, or with the help of big data analysis and machine learning and artificial intelligence we can find an analytical solution".* This also means the need to develop new competences as (Adams, 2013) points out *"They will need to develop new competencies to provide new services that customers demand"* In respect they can develop in-house or as (Desai, 2016) suggests acquiring, in the case of consulting firms, design companies that focuses on product design and more engaging web interfaces.

Also, digitalization brings new business opportunities as many of consultants agree on the idea the demand with regards this topic has increased. With regards to internal efficiency, both literature and empirics would agree with (Adams, 2013) *"streamline their processes with technology and automate many of their traditional activities"* So there is an important potential improvement internally, however it is important to remark what consultants think in this sense and is not found in the literature *"The more you have tailor-made and qualitative thinking the less you can automate those processes"*. Consulting is a lot about tailor-made, and thus one can conclude that is not the most affected industry as there is not much one can automate in tailor-made approach.

Moreover, as any other industry, digitalization provokes the concern of in which part of the value chain you want to play, more in the strategic aspect, or more in the implementation. However, it is also important to mention that in some cases some consulting companies want to span all the value chain, from the strategy, to the final implementation. This might be for two reasons. First one, one consultant mentions *"the boundary between strategy and implementation is becoming much more fluent as the actual implementation is in many cases becoming strategy"* So one can think that consulting firms are applying the lean startup approach with their customers. And second, in the literature (Sheth & Sobel, 2000) state that if done well, consulting companies goes from temporary expert for hire to trusted advisor where they actually reach the client's value zone. Therefore, those consulting firms must be constantly interacting with customers and try to find a solution for every issue as (Turner, 1982) mentions that one of the main tasks of consulting is problem solving.

In terms of data, many consultants highlight the positive impact of getting better quality of data. In this sense, they can get more information available and thus do better analysis.

Some ideas are found in the literature and not in the empirics as *"The change away from the traditional management consulting model is being accelerated by technology. Digital technology has automated a lot of the research, modeling and analysis processes traditionally provided by consulting firms. Knowledge has become a commodity because of digitization"* (Adams, 2013). This can be understood as digitalization has made more accessible knowledge and to some extent they also have to reorganize their own intangible capital. Furthermore, some corporations have built their own internal consulting staffs. For instance, Walt Disney Company has created a consulting unit called The Disney Institute which is teaching other firms how to better engage their customers (ibid). As any other industry, one can conclude that they also face an increase of competition.

## 5.3 Challenges category

### 5.3.1 Automation

Although historically one can see societies have overcome technological changes, there is not clear consensus among consultants with regards the labour's future and so in the academic literature. The emergence of automated work will lead to the increase of the work force's specialization in generic terms. However, it is not possible to say how many works will be created, displaced or destroyed neither how the transition will be nor which sector will be the most affected (Degryse, 2016). In that line, both in the empirics and literature this challenge remains with not clear answer. The quality of the digital technologies is another challenge pointed out by the sample and the literature: *"quality of your digitalization, IT system, your, robots, artificial intelligence, is on an adequate level because of course the machine make errors if it is stupid machine"* and *"selecting and using appropriate tools. Lack of expertise to use certain tools, or that the tool does not offer 100% coverage"* respectively. In this context, if not done on appropriated level automation can create drastically damages to corporations.

### 5.3.2 Traditional companies

The most important challenge according to consultants is the necessity of reinventions of companies in all sense, new kind of business model, new offering for the market place, and new culture within the company where existing silo departments are removed. Especially, it is clear that companies are not used to technology, and digitalization is bringing IT into a core role. *"IT is playing a fundamental and key role in almost every business, and has reshaped the basics of business"* (Lee & Choi, 2014). So as interviewees point out, the challenge of not being used to technology is making that many businesses struggle how to take it forward. (Fitzgerald et al., 2013) go even further, *"Companies succeed in creating transformation through technology, or they will face destruction at the hands of their competitors that do"*.

Furthermore, there two major points aligned in the theory and empirics: The challenge of making understand corporations the necessity of having a kind of Lean startup approach and the real necessity of networking in order to successfully navigate in the digital world. Back in 2013, (Blank, 2013) states that *"The Lean start-up movement hasn't gone totally mainstream, however, and we have yet to feel its full impact"* and still in 2017, the sample of this Master thesis suggests the necessity of having this approach, and thus one can conclude that corporations haven't made the approach mainstream yet. On the other hand, as the IBM report of 2013 suggests we are getting into a new type of economy called E2E whereby one of the main characteristics is the necessity of collaboration as *"a lot of digitalization activities requires several individual entities to work together"*. Additionally, consultants stress three important challenges. The two of them are related to people and the about trust in some corporations. Employees have not motivation to innovate because in case of failure, they have more to lose than to potentially win, and thus they would lose reputation and in some cases their jobs.

The second one, as one of the consultant suggests "analogue people" in the organization: *"analogue people as the leader, with this mindset in that side, they might have myopia or blind spot in kind of understanding what kind of capabilities they would need"*. Those analogue people have been extremely successful in previous years yet the new trends require more "updated leaders" fulfilling the necessities of the digital world. The third one is related to remove key provider of the equation based on trust. By saying so, the consultant means *"if we do remove bank out of equation we will have completely new services, and they have to do with capabilities and technologies directly on trust"*. Are those entities prepared for these changes? Continuing in the banking example, there are already companies such as Transferwise or Paypal charging less fees for money transfer. Is the banking ready to overcome? Or will it happen what Uber is doing to the taxi's industry? It is a banality that if they were prepared, it would not harm as currently is happening.

### 5.3.3 Focus

One of the major challenges is the need of focus from companies. They do not know how to do it, how to bring it forward, how to implement it. They know about the importance, the benefits but yet not significant improvements. In that sense in the literature there is little or nothing said about it although is clearly important. Perhaps as consultants say *"clear guidance this is what we want to achieve by utilizing digital"* or perhaps *"overflow of information, that is the problem, not that aware where to focus"*. (Berman et al., 2016) also agree about the necessity of focus but more in terms of finding new ways to monetize customer interactions. There are many factors preventing companies to focus and if they are not fast enough competition could be.

### 5.3.4 Infrastructure

As one consultant points out *"IP networking, internet as based, it is not really based and design for moving secure"*. In that sense, the cyber-security of entities, both private and public, are

highly vulnerable. In the same line the literature also states that for instance more than one quarter of Dutch businesses are confronted with cyber-crime. Not only that, but also that the victims rarely contact law enforcement which in turns also hinders the awareness of legislators of the real damage is causing. However, new technologies beyond internet infrastructure as based such as Blockchain technology started to arise. Nonetheless it still remains unknown the acceptance and the awareness within entities of this technology.

### 5.3.5 Ecosystems

The first challenge within the ecosystem subcategory is the strong position of current ecosystem in digital world. The literature points out as *"almost monopolistic position",* the financial power enables them to buy any startup like to improve their businesses and the characteristic to diversify their businesses. They also operate on the limits of the legality, and as pointed by one consultant, they innovate around their own interests and not in favor of consumers. They are in the center of the ecosystem and the data is fragmented so there is a challenge to solve. As a result of that, legislators slowly try to get ownership of data back. An example is that in May next year EU approved a data legislation which allow consumers to request banks, or different providers, consumer's personal data information.

Yet, (Degryse, 2016) states that all efforts legislators do is mitigated by the lobbing, litigation and public relations to defend their interests that strong ecosystems apply to defend themselves. The strategy of growing the installed base first and then trying to deal with problems might appear has been working well so far. Consultants adventure one more thing. Competitions will be between ecosystems and not companies, the best current example is the battle between apple and google ecosystem. As such, the best tip corporations can get *"many companies think that they are at the center of the universe, they sort of own the ecosystem. So they need to think about what is my role, which partners I need, and what is the ecosystem that I want to play in but not thinking I am the center of ecosystem"*. It is difficult to know if companies will be able to do that.

## 5.4 The way of approach category

### 5.4.1 Actions

The first important thing according to (Fitzgerald et al., 2013; Bughin et al., 2017) is that digital transformation needs to come from the top management" In the same line the vast majority of consultants agree upon that point as example "with any change management initiative, the changes needs to come from inside". The second important point is to rethink how to run the whole company and not just add digital products. This point goes in the same line with literature as the article (EY 2011, Berman et al., 2016) state that companies need to rethink their business models, customer and partner relationships. As it has seen previously, corporations do not know how to take it forward due to digitalization is about technology and corporations do not have the

capabilities to proceed. However, consultants recommend to take some external help. Somebody who is already experienced, it can be consultants, entrepreneurs, freelancers, startups… In the literature (Berman et al., 2013) corroborate this idea by recommending to open up to external influences.

In terms of what it needs to be done in corporations, it is needed to fail-fast learn-fast when approaching the projects, trial error approach. Or what is well known in the literature as the Customer Development Model or the Lean startup approach. Those projects must take into account two important things that a consultant points out: *"need to focus, on a particular audience, limited market, limited demand and pull those"* This recommendation is important because as earlier mention in this thesis, competition is tougher and if you do not fulfil your customer's needs they will not come back as there many options out in the market. In order to avoid so, *"your product or service needs to be in continuous learning-based of the customer because the expectations are that high"*.

It is also important to have a holistic approach in terms of compacting all the ideas developed, clear governance, clear focus and sort scale around it. (Ding, Ng & Yip, 2012) add that is needed collaboration for value creation with holistic approach as well. (Fitzgerald et al., 2013; Berman et al., 2016) add that top management should promote smaller digital projects, via pilots. In agreement with that idea, empirics suggests: *"Instead of spending 10 million in one project, it is better to invest 10 million on 1000 projects, because the ecosystem is sorting out the most feasible by itself. Okay if you have 1000 projects maybe only 20% will succeed, but it also means you learn from each of them, you take the learning and bring them forward".* It is also important to foster the cross-functional teams as digitalization is not only a task of the IT department, but also the sales, marketing among others department since the input of all them together is needed. In the literature this idea is supported by (Voloudakis, 2005) which suggests that a blended strategy is the combination of business and IT leaders who work together to develop a strategy for the organization, taking full advantage of technology's capabilities and understanding its limitations.

Consultants also agree that it is needed to create an internal competitor within the firm otherwise the competition will beat you. Digitalization requires also heavy investment in IT and (Bughin et al., 2017) add that the investment in digitalization should not be only bold in magnitude, but also in scope. Of course all of those investments also means that companies are risking since it is not granted that all these actions will work.

The literature, besides the points already explained, through (Berman et al., 2013; Berman et al. 2016) also add that companies should connect to new ecosystem and partners, new focus to monetize customers' interactions helped by the creation of expertise in applying predictive

analytics, Internet of Things and all new technologies which help to stablish agile operational environment necessary to support and enable deep experiences for customers.

Last but not least, all of these actions should be done fast as (Bughin et al., 2017) state that current levels of digitization have already taken out, on average, up to six points of annual revenue from corporations. This situation explains the real need of adapting fast to digital technologies.

### 5.4.2 Role of consulting towards digitalization

The role of consulting towards digitalization does not differ much towards any other areas the do. As one of the consultants point out *"exchange of ideas, what is happening, what is emerging, strategic agenda, and shaping that agenda together. I mean the basic dynamics in the advisors and the clients are the same really"*. This could be accepted by the literature through the 8 fundamental tasks (Turner, 1982) suggests. Main tasks that consultants help with, the strategic thinking: what to digitized and what not. Some companies also help with the implementations: *"we are doing the implementation of digital solutions"* Bring an extra capability *"and bring capability to a firm or competence that they are not use on having that"*. In some cases, they behave as a temporary work force. In addition, the external view, the holistic approach, is very valuable because is very difficult to implement the change internally because of internal obstructions. Moreover, there are many more activities that consultants do to help corporations. However, the most remarkable in digitalization are cyber-security plans and startup-matcher that suits best corporations.

In general, the role of consultants, or the reason why they are approached, is because they spread the new learnings and new trends, they are always in the forefront digging for the freshest ideas and finally they have a futuristic approach because they have to think in the edge very open and look tend years beyond approximately.

# 6. Conclusions and discussions

*This chapter aims to answer the research questions based on the empirical findings together with the relevant literature. In addition, a small summary is given, through Nvivo software, based on most frequent words repeated based on interviews. Finally, it is presented the managerial and theoretical implications as well as the limitations of this study and recommendations on further research.*

## 6.1 Answering the research questions

This Master thesis aims to understand digitalization in a fast-paced technological atmosphere as well as the challenges and the way this challenge (or opportunity as one consultant suggested) should be approached. In order to do so, this study combines the knowledge acquired in the theoretical reach with views from consultants on the matter. The empirics were gathered through semi-structured interviews, anonymized and recorded with the sole purpose of carrying out qualitative content analysis.

The research questions by parts are as follows:

### *6.1.1 How is digitalization defined in a fast-technological environment?*

In this study the answer for this question is through two categories: Definitions and Context.

The first category is Definition. Digitalization is technically defined as the adaptation of digital technologies into the everyday activities of corporations. Yet, the simplest way of understanding the concept would be each industry turning into a tech industry. The differentiation between simple and new digitalization is also remarkable. The simple is transforming analogue format to digital, and the new is things connected to the internet, the Internet of Things, robotics and artificial intelligence of the digital technologies. Another interesting point is the phases of digitalization, where one can find L1: as digitized what is not digital, L2: Digitalization of existing processes and L3: Business models in the digital world. The traditional companies have to go through the three stages and currently the vast majorities are between L1 and L2. L1 is basic transformation (Example: Booking time slots of spinning lessons through internet and not the customer booking physically in the sport center). And L2 all processes possible to complete online (Example: Getting an invoice through mail and paying it through the internet). On the other hand, new business models such as startups set up businesses directly to L3 and thus they are adapted to what currently the market is soliciting.

The second category is Context.

The context is explained by the transition from the industrial age to the information age. This situation implies many ways of doing things, as the premises are different and thus it does not mean a friendly transition. The first thing to take into account is IT development as in this age takes a relevant position at any corporation. This situation can be summarized that any business decision has to be made together with the IT point of view, as this unit has switched from a supporting to a core unit of any digital company. In this digital world, the path of change has become faster, both for business projects and setting up a new company. The way that value is created is changing in the sense that it is not as simple as producing goods/services by yourself, but through an ecosystem.

Furthermore, digitalization tends to affect to the cost aspect, which is associated with automation of processes due to the important reduction costs this allows. The integration of digitalization depends on many factors such as the size of the company and the position in the learning curve. It also depends a lot on the sector. For instance, there is not much to gain in the pharmaceutical sector due to the tight regulation, whereas banking has become one of the most digitized sectors. In addition, what it is clear is that C-suite executives (top management) are aware of the current situation and thus digitalization is on the agenda. The positive point is that the high performers are interested in pulling the low performers forward as they need to make sure that the whole ecosystem survives in order to survive themselves. To some extent, this can be recognized as pursuing open innovation.

The context is also explained by the new business models from which one should highlight the startups due to the Lean startup approach is changing the way of competing. The power of platform firms or the leading companies in ecosystems is tremendous and even new industries, such as Fintech, have arisen. The competition has increased due to the elimination of physical barriers, and there is a need for corporations to form partnerships as well as the use of predictive analytics. As previously mentioned, the new digitalization as Internet of Things, Artificial Intelligence, deep-learning, robotics are technologies that will definitely shape the future world due to the potential use as well as the almost perfect outcomes.

In terms of risks, the first is whether you are unprepared for a company that quickly break your sector such as new-comer Uber did to taxis (a company that totally changes the rules of the game and grabs your market share heavily). As worth any other strategic decision, adapting digital technologies also incurs risks in terms of wasting money. Digitalization is about partnering, but with many different actors such as startups, entrepreneurs among others and not always with the same technological supplier, you might be losing the opportunity to enhance your own scope of strategy.

The beneficiaries from digitalization are without any doubt the customers. The competition has become so intense that they can really choose the products that best fit their needs as well the

transparency for them to choose the product with best price and characteristics, among others. Another benefit is the internal process of almost any corporations as digitalization helps to improve internal processes and thus productivity and efficiency. In general, the benefits can be summarized as better performance as well as adaptation to the needs of the market.

The opportunities are due to the fragmentation of the value chain which in turn will support of the formation of a new ecosystem, whereby one should think strategically where one wants to be within the value chain or more specifically where the largest profit pools are. There is also the opportunity to apply predictive analytics in order to sell more as they are able to tell you the exact number required with high precision.

Although in the empirics, big data is touched upon briefly, one cannot think about digitalization and its opening of huge amounts of data due to the transformation from analogue to digital format. This transformation is changing the context in which we live as that data can be used through predictive analytics which in turn means more options to boost businesses. Therefore, big data enabled by digitalization is changing the economic environment.

The speed of the adaptation of digitalization starts with first having a plan and choosing deliberately the steps you want to follow in technology and not in the other way around. The speed also depends on the type of industry you operate in.

It is clear that innovation drives digitalization. Yet, the corporate culture of the firm determines the direction of the company. Although for consultants there is not much innovation boost, for the literature the Nordic Countries are within the top 3 of Europe in the innovation ranking. Concretely, in terms of Digital innovation, IT innovations that act as organizational and business development, is required to partnership with different author. Nonetheless, the slowness of securing partners explained by the sample might bring slowness in the development of digital innovation and speed is a key factor in digitalization. There might be still a strong dispute between competition vs cooperation that might also have an effect.

In consulting sector digitalization has enabled the opportunity for more businesses for them. Better tools to analysis data and give more accurate service as the quality of data has gone up. In addition, they also have the possibility of improving the internal processes although there is not the potentially to do so as there is not much predictable job in consulting but rather more tailor-made, and thus less automatable. Of course all of these changes also mean that consultants need to acquire new skills in order to fulfill the new standards. For instance, top consulting firms have acquired design companies in order to deliver more design for their end service. As any other industry, consulting firms also need to rethink where they want to play within the value as some companies have moved more towards the strategy, other more towards the implementation, and some others trying to span all the main tasks consulting does from the beginning to the end.

### *6.1.2 What are the main challenges?*

The main challenges are answered by the category Challenges. The first challenge found in this Master thesis is the necessity of reinvention of traditional companies. Digitalization requires new types of business models, new offerings to the market, new cultures in the company and new types of leaders that understand the capabilities are required today. It is also important that corporations understand that the approach towards business projects is not necessary waterfall development but more agile development or lean startup approach, whereby you test the develop of the product meanwhile the product is in the market already and getting real data of customer's response. The budget and silo departments still hinder the full development of digitalization. An example of a silo is one that treats IT as one department to minimize risks and not in the core strategy of the company. This can be because companies are not used to technology and in the end digitalization is every company becoming into a tech-company. Another important challenge is whether companies that are based on trust, such as banks, are removed from the equation, whether they can anticipate this and be prepared as this situation will open up many businesses due to the hyper-connectedness of the new E2E society that is coming and is coming fast.

The focus of the company is another major challenge as they really do not know how to do it. Although corporations are aware, it is difficult for them to achieve what they want by utilizing digital strategies.

Another challenge found in this thesis is automation. Despite the fact that historically societies have overcome technological changes there is no clear consensus what it will happen with labour. This inconclusiveness can be answered by the high level of new digital technologies that are coming. Nonetheless, the quality of those digital technologies has to be on an adequate level because if the machine is not good enough the results can be terribly bad.

Another major challenge is the infrastructure. Internet as based infrastructure is not really designed to move secure. This is a big problem as cyber-crimes increasingly start to take importance. Hopefully new technologies such as Blockchain start to arise, yet it remains unknown how it will develop.

Ecosystems are also considered an interesting challenge or if pursuit it well an interesting opportunity. Normal corporations should not think that they are in the center of the ecosystem but rethink which role they want to play, in which ecosystem they want to be and which partners to choose. Indeed, in the near future the competition will not be between companies but rather between ecosystems. The current strong position of ecosystem, which they definitely earned, is challenging as they have financial power and will do anything necessary to improve their own businesses. With that regards, legislation is trying to get back for users the ownership back of data as it is currently fragmented and it is an important challenge to solve.

### *6.1.3 How should it be approached?*

This question is answered by the way of approach:

The actions that corporations should follow in order to successfully navigate through digitalization are explained next. It should come from top management initiative and rethink slightly about how to rerun the company in terms of business model, customer focus and partner relationships and not just by adding digital products. As it is likely the company lacks the capabilities needed, it is good to ask for some external help. It is also very recommendable to have a Lean startup approach in terms of business cycles by having in mind that the focus must be on a particular audience as if the customer does not fulfil his necessity will not come back as the competition has increased due to the elimination of physical barriers. In order to avoid so, corporations must offer their products or services with a continuous learning-based since the standards for customers have increased importantly.

The holistic approach is also required in terms of compacting all the ideas developed, clear governance, clear focus and sort scale around it. Top management should promote smaller digital projects in a wide variety whereby the ecosystem will sort it out more feasible. Besides, digitalization requires cross-functional teams as digitalization is not only a task of the IT department, but also the sales, marketing among others department as it is needed the input of all them together. Digitalization requires investments in IT and those one should not only be bold in magnitude but also in scope. Companies should connect to new ecosystems and partners, focusing to monetize customers' interactions through digital technologies that establish agile operational environment necessary to support and enable deep experiences for customers. In fact, all of this need to be done fast as the more digitalization penetrates, the more revenue from corporations takes.

Consulting firms are a good option to start the journey of adapting to digital technologies. The role that they perform does not vary from any other type of area they are knowledgeable for. The typical dynamic advisor-client: exchange of ideas, what is happening, what is emerging, strategic agenda, and shaping that agenda together. There are many activities that consulting firms can do for corporations, from strategic thinking to lately startup matcher and cyber-security plans. In general, the role of consultants, or the reason why they are approach, is because they spread the new learnings and new trends, they are always in the forefront digging aiming for the freshest ideas, they have a futuristic approach because they have to think in the edge very open and look ten years beyond, and the external view is very important as enables the positive points of a holistic approach.

A good conclusion can be also drawn from the most frequent words of the interviews extracted from the software Nvivo. New: Constantly new digital technologies enabling improvements. Need: People need to adapt digital technologies because they are necessary for corporations. Now: Because it needs to do the sooner the better or at least have a plan for it. Change: of course

digitalization is a change, new type of management, new game, and new business models. People: In terms of networking and partnership among actors of ecosystems. They still do not know how to do it, although they know the importance it is not fully mainstream yet.

## 6.2 Managerial implications

From this Master thesis, companies can learn more about the importance of digital technologies, as well as the need to speed up on its adaptation. It has been proved in this Master thesis that investing in digitalization is a win-win situation for corporations as this change will come sooner or later to organization that have yet to adapt it. The benefit of doing it early is that you avoid that your competitors do it in your place, thus grabbing your market share.

It will also help to understand the importance of IT in companies, indeed, the need to invest heavily in IT together with the focus of combining IT and business strategy if corporations want to overcome satisfactorily digitalization era.

It will show the need to have a plan, the importance of having a holistic approach from the whole organization rather than silo departments, and the learning of how digitalization era is changing the way of working as well as the need of combining teams in order to adapt to the changes in the economic environment of present times. Furthermore, the lean startup approach has gained importance in the typical dynamics of digitalization context because it is the closest approach up to date that fulfil customer's needs. This idea is closely related to the need to replace analogue people with new leaders adapted for that era. Additionally, there is a pressing need for any business to aim for partnerships with interesting actors that are likely to improve their businesses as the future competition will be between ecosystems and not companies.

## 6.3 Theoretical implications

There is literature available of digitalization but it is very widespread and not much, or very limited literature of digitalization from a general angle.
There are not clear boundaries in the sense that one could distinguish the beginning of digitalization as it is a vague term as it is encompassed everything that includes transforming it to the digital format. Now the term is hitting the tipping point but the limits remain unclear. However, in general terms the literature is aligned to the empirical findings, except from some disagreements of the level of digitalization. Furthermore, there is not much theory about how digitalization affects consulting industry nor its challenges.
The answers of this Master thesis are important because they add to the academic theory of simple definitions as well as classifications of the level of digitalization in the context of an advanced economy in terms of digital levels. Nonetheless, it is still needed to create further theory about a clear classification. In addition, this Master thesis also adds to the academic research how digitalization affects the consulting industry.

## 6.4 Limitations of this study

In this study, all the interviews were carried out in Helsinki (Finland). According to (Sabbagh et al., 2012) there are different stages of digitalization: from constrained, emergent, transitional and advanced, which might condition the results of this research since all the interviewed consultants belong to countries categorized as advanced. Thus, their perception about digitalization might be focus on their local context. The degree of digitalization varies from country to country, so being all the interviews carried out in Finland may be an important factor to take into account and those results cannot be replicated worldwide due to different stages of existing digitalization in different countries.

Another issue, according to the article of (EY, 2011), is that the pace of technology change is increasing exponentially**:** it took more than 70 years for telephones to reach 50% household penetration, compared with 28 years for radio, and 10 for internet access. So digitalization should take less than 10 years if one follows the trend. Once said, that it is important to take into account that some theoretical data is from 2013 or even 2011 which in the pace of technology changes could mean a lot of development in few years. In addition, the author recognizes the general approach towards digitalization, and thus the drawbacks of a general approach meaning that digitalization could be approached differently for industrial or for pharmaceutical companies. In the same regard, as earlier mention digitalization is a broad theme and the results of this thesis are focused and guided by the results from the consultant interviews and thus consulting input. Therefore, this approached could be potentially influenced by that fact.

## 6.5 Further research

Due to limitations in time and theory, this Master thesis focuses on the main findings of the sample. The author believes that future studies in new digital technologies such as artificial intelligence, deep-learning, Internet of Things are examples that natural following studies after digitalization.

A study of digitalization by industries would highly be recommendable as it would limit the research scope, and thus being more specific research. Therefore, the approach should be more focused on the industry rather than how to describe digitalization generally. In that sense, this Master thesis is focused on the consulting industry's perspective, yet with the main intention of helping to describe digitalization in the fast-paced technological environment we currently live in.

On the other hand, it also would be interesting to compare findings of digitalization in different countries with different stages of digitalization. For instance, digitalization in different

subsidiaries of a multinational company, or similar characterizes of companies in different continents. In that sense, the digitalization importance could be proved. Furthermore, it is also interesting how corporations see digitalization, divided by small, medium-sized and large corporations, in order to have the comparison between providers of digital services and customers. By doing so, one could see the mismatches and areas of agreements form both sides and thus digitalization could be explained profoundly.

Last but not the least, what it could be done next in order to answer the research questions is to focus on different industries as well as to investigate the point of view from the different entities mentioned in this Master thesis such as: legislators, startups, traditional companies, platform companies, and in general the consulting representatives' customers that were invited for the interviews. In this respect, the concept of digitalization could be covered as a whole as well as seeing the different thoughts of the actors in the same context, digitalization era.

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