Industrial investments' transformation and sustainability in Sweden

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By

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Industrial investments’ transformation and sustainability in Sweden

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Supervisor Kristina Nyström
Abstract

The purpose of this thesis is to examine if the sector of industrial investments has been transformed over the last decade and if so, in which ways this transformation has happened. Digitalization has changed the business environment in a revolutionary manner and this phenomenon needs to be explored since it is new and rapidly growing. The author will attempt to connect the industrial investments’ field with sustainability and find out in what ways sustainability is affected by the transformation mentioned above. The study was performed in Sweden and refers to the Swedish market. The research concludes that industrial investments have been significantly transformed and have become more opportunistic. Short-term profit drives the majority of investment decisions as the main decision makers are continuously being replaced by others while sustainability is not taken under consideration. This situation will likely change either by ambitious governmental initiatives or by a change in the masses’ everyday behavior towards consciously sustainable choices.

Key-words: Industrial investments, industrial change, sustainability, ICT, Swedish market
Foreword

Before I proceed forward to the main findings of my research, I feel obliged to warmly thank everyone who made my master’s studies possible and filled me with inspiration and motivation to succeed.

Additionally, I want to thank my family and friends for supporting me in this endeavor and providing all they could in order to make this journey meaningful and less painful.

Next, I want to thank my supervisor Kristina Nyström, associate professor at the KTH Royal Institute of Technology who patiently guided and helped me achieve the best result possible.

Ioannis Ntalianis

12th of June, 2018
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List of abbreviations

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<th>Description</th>
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<tbody>
<tr>
<td>DPP</td>
<td>Discounted Payback Period</td>
</tr>
<tr>
<td>FROI</td>
<td>Financial Return on Investment</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communications Technology</td>
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<tr>
<td>IRR</td>
<td>Internal Rate of Return</td>
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<tr>
<td>NPV</td>
<td>Net Present Value</td>
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<tr>
<td>PE</td>
<td>Private Equity</td>
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<tr>
<td>R&amp;D</td>
<td>Research and development</td>
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<tr>
<td>ROI</td>
<td>Return on Investment</td>
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<tr>
<td>SROI</td>
<td>Social Return on Investment</td>
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<tr>
<td>S-ROI</td>
<td>Sustainable Return on Investment</td>
</tr>
<tr>
<td>WTP</td>
<td>Willingness To Pay</td>
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1. Introduction

1.1 Industry and investments

Every day companies need to solve a variety of problems and the decisions to be made influence their course of action towards the future. Every corporate decision has financial consequences so it should be considered a financial decision thus it should agree with the company’s planned targets (Szóka, 2015). Investment is a core activity for every enterprise and it is a way of growth for both the company and national economy. An investment means that a capital is spent in order to bring future profits or other benefits but it entails an amount of risk. Investment appraisal is an exceptionally complex procedure and by definition, it entails a serious amount of risk and uncertainty (Soldatos and Rozakis, 2013). The decision making for the potential industrial investments happens in several hierarchy levels, depending on factors like urgency, importance and cost. For that reason, industrial investments can be segmented into two categories: regular and strategic (Soldatos and Rozakis, 2013). Regular investments are usually low cost and do not need approval from the upper management. Typical examples are new office equipment and machinery annual maintenance. Strategic investments that require approval from the top executives are usually high cost and define the company’s path for the years to come.

1.2 Industry and change

“All failure is failure to adapt, all success is successful adaptation.” - Max McKeown, strategy and innovation researcher

“Move fast and break things” – Mark Zuckerberg, Facebook co-founder

“Intelligence is the ability to adapt to change” – Dr. Stephen Hawking, theoretical physicist

“It is not necessary to change. Survival is not mandatory.” —Dr. Edwards Deming, author and management consultant

All of the above quotes have been said during the last three decades and they prove the significance of change in the business world and the importance of being able to adjust to new circumstances. Heraclitus was the one who said that panta rhei (everything flows), which means we live in a dynamic world of constant, ever present
change and transformation. He said that around the 5th century BC and lately big companies are working more and more on how to change and adapt quickly. This study will examine the ways that industrial investments have been transformed over the last decades and if this transformation has any effect on society’s sustainability.

1.3 Industry and sustainability

Sustainability has received a lot of attention in recent years and this has driven companies to attempt sustainable development (Olawumi and Chan, 2018). Presently, the industry focuses on implementing greener and more efficient practices in order to decrease the environmental and societal impact (Gbededo, Liyanage and Garza-Reyes, 2018).

Sustainability is a relatively new concept and its definition is still debatable. One of the first references ever to sustainability was back in 1987. (Brundtland, 1987, page 16) talked about the emerging need of companies to start “meeting the needs of the present generation without compromising the ability of future generations to meet their own needs”. According to (Axelsson et al., 2011) sustainability is “a policy vision of the society with primary purpose of preventing the depletion of natural resources” (Olawumi and Chan, 2018, page 232). As said before, there are experts stating that this definition is not sufficient as it does not take into account concepts like biodiversity and ecological integrity (Parrotta et al., 2009). Sustainability or holistic sustainability is composed of three parts: environmental, social and financial (Olawumi and Chan, 2018). Specifically:

Environmental sustainability: it is mostly about limiting the human needs according to the local ecosystem’s capacity (energy, water, food etc.). The main goal is to improve the quality of life (health, clean air).

Social sustainability: it refers to the equality between the members of society who should be able to satisfy their needs and accomplish their goals while the community needs are also being satisfied.

Financial sustainability: it is concerned with using efficiently the company’s resources and strengthening its position in the market. Additionally, it focuses on recycling and reusing materials in order to decrease the costs.

In January 2018, Larry Fink, the chairman and CEO of BlackRock Inc. (the largest asset management firm which manages around 1.7 trillion dollars) sent a letter to the CEOs who run the Fink’s clients’ firms. In this particular letter, he recognizes that companies have for a long time been focusing on quarterly results and annual board
voting (Fink, 2018). The social aspect has been undervalued and as a result, many individuals face the problem of insecurity regarding their work and retirement. He states that this is no longer acceptable and companies should not only focus on financial performance but contribution to the society as well. In order to accomplish that, he asked for a specific, long-term plan from the CEOs that describes exactly what they will do to fulfill the above requirements. He also stated that he will use his shareholders’ voting rights so as to push the company to adopt more sustainable plans and focus on long-term growth while he aims to diversify the board (mix of ethnicities, genders, work experiences) to avoid group thinking; diversity is a crucial factor in social sustainability. As he says, CEOs should “demonstrate the leadership and clarity that will drive not only their own investment returns, but also the prosperity and security of their fellow citizens” (Fink, 2018, page 4).

Naturally, many experts have their doubts (Gandel, 2018; Sorkin, 2018 and Winston, 2018). This letter has been criticized by many who claim that he speaks from a position of power and safety and it is easy for him to focus on something different than financial return. Others complain that this letter was just a marketing trick and that nothing will eventually change. As Winston (2018) observes, the four previous annual letters to CEOs also contain pitching about sustainability and long term thinking. Specifically, he mentions “long term” over twenty times in each of these letters. Even if it was a marketing trick, it is important that a businessman of this status and magnitude spoke so extensively about social sustainability and long term growth but CEOs do not seem to change their behavior by solely reading the letter. Either, their companies are already focusing on more sustainable goals or the rest (the most profitable ones) seem confident that their stock won’t be sold since they produce significant income for BlackRock Inc.

1.4 Research question

Research has shown that the market is changing towards a more digitalized future (Girish, 2018). At the same time, sustainability is becoming more and more popular. This situation leads to the main research questions of this specific thesis and a sub-question which regards sustainability.

_How have the industrial investments been transformed during the last decade in the Swedish market?_

_How is this phenomenon connected with sustainability?_
The data used was acquired through one-on-one interviews with individuals who have over a decade of experience in industrial investments and their appraisal. The research and interviews were conducted in a period of three months (from March until May 2018) and they refer only to the Swedish market since the author and the interviewees reside there permanently.

1.5 Delimitations

This specific study does not include private equity investments transformation at all (stocks, derivatives, bonds and similar) despite the fact that they are slightly mentioned in the results section for comparison reasons since the second interviewee has extended experience in that field. Moreover, this study refers to industrial companies which are based in Sweden but are not necessarily Swedish and their size is considered big. The two interviewees work for companies with annual revenue of 356 and 201 billion SEK for fiscal year 2017 and their employees are 155,000 and 92,000 accordingly.

1.6 Contribution to research literature

There is extensive literature on industrial investment appraisal, both from financial and sustainability perspective. However, there are a few studies that “touch” the investments’ transformation over the last decade (Edquist and Henrekson, 2017, Szóka, 2015, Freiberg and Scholz, 2015) but no one examines this phenomenon directly and especially for the Swedish market, hence this is an unexplored territory. This thesis contributes to the better understanding of the industrial investments’ transformation during the last decade as well as the connection with sustainability. Additionally, it focuses to the Swedish market in order to provide deeper insight and more detailed analysis of the specific topic.

1.7 Outline of the thesis

This specific thesis is divided in six chapters. The first one, called “Introduction”, is painting the picture of industrial investments in general as well as their current form. The author attempts to connect industrial investments with sustainability and describes roughly this connection, which leads the forming of the research question. Additionally, delimitations of the thesis and contribution to research are addressed in this chapter.
Next, chapter two called “Theoretical Background” gives a detailed analysis of what industrial investments are, how they can be evaluated using alternative, sustainability-focused methods and examine the importance of digitalization and R&D in the industry today. This specific research regards Sweden so a brief description the Swedish market is given as well. Chapter two prepares and provides the reader with the theoretical knowledge and tools in order to be able to understand the results and discussions part.

The third chapter, called “Methodology” diligently describes the steps that the author followed to answer the research question. It depicts the reasons for choosing the qualitative approach through semi-structured interviews and gives a deep insight on the interview questions; how exactly they were asked and what was the reason behind asking them. Also, the interviewees’ requirements are mentioned which are very important for the credibility and validity of this thesis.

The fourth chapter, called “Results and Discussions” presents the interviewees’ answers and right after that, the author attempts to connect them with existing research ligature, examines if the answers are unanimous and comments on them as well. Usually, “Results” and “Discussions” are two separate chapters, but in this case, the author decided to combine them in order to address every question in depth and at once and not scatter them around different chapters. This way, all the information about one specific topic is concentrated in one place.

Lastly, the fifth chapter is “Conclusions” and the sixth one is “References” where a list of the bibliography used is presented in Harvard citation style. “Conclusions” gives an overview of the results, presents the main takeaways and addresses the limitations of this specific thesis. Based on that, future research topics are suggested.
2. Theoretical background

2.1 Industrial investments’ types and appraisal methods

Today, the most common methods for investment appraisals are Payback Period, Net Present Value (NPV), Rate of Return, Future and Annual Worth, Benefit-Cost Ratio and Return on Investment (ROI) (Saman et al., 2010). Decision making during an investment is a rather uncertain and risky activity. But Adler (2000) states that these “traditional” methods are criticized due to their lack of a broader perspective; they do not take into account the non-financial benefits, they are mainly based on assumptions and lastly, they favor more short-term decisions. At the same topic, Kafuku et al. (2015) claims that in general investment decision makers see things from a narrow point of view, taking a single perspective on the investing activity which leads to not taking under consideration benefits or cost that are external to the company. Quite often, the decision makers lack time or skills so they use less appropriate and informal tools thus a successful outcome is even more uncertain (Jones et al., 1993). Uncertainty is initially caused by the lack of correct and on-time information as well as correct forecasting (Klose, 2001).

The most typical investment appraisal methods are (Williams and Parker, 2010):

- **Net Present Value (NPV):** The net value added to the firm’s value, calculated as the sum of the present value of future cash flows minus the present value of the investment costs.
- **Return on Investment (ROI):** The ratio of the investment’s net value relative to the cost.
- **Discounted Payback Period (DPP):** The period of time required for the return on an investment to recover the sum of the original investment on a discounted cash flow basis.
- **Internal Rate of Return (IRR):** The discount rate at which the net present value of a project would be zero.
- **Benefit/Cost Ration (B/C ratio):** the ratio of the benefits relative to its costs (both of them are expressed in present value terms).

In this specific study, the author focused on the payback period because a transformation in this area is more obvious and easier to be perceived. All of the other appraisal methods were taken into account but payback period was the starting point of the interview. Payback period is the time spent until an investment starts having return. Generally, it is best for an investment to have the shortest payback period possible (Kharitonov and Kosterin, 2017).
2.2 Investment appraisal and sustainability measurement

Concepts like “corporate responsibility” or “social enterprise” created a greater need for measuring social value in the business activities (Emerson, 2003; Zadek and Raynard, 2004). Social value is considered elusive thus it is extremely difficult to be measured. Accordingly, firms that aim at measuring it have come up with complex social auditing and accounting methods (Zadek and Raynard, 2004). For reasons like that, the traditional investments’ appraisal methods are no longer enough; there is a need for a more holistic view that is not limited exclusively to financial benefits. Scientific community has come up with many alternative appraisal methods like i.e. Social Return on Investment or SROI (Watson et al., 2016) and Sustainable Return on Investment or S-ROI (Williams and Parker, 2010) among others. The author chose to work with these specific two alternative methods because there is extensive literature on them and also they are relatively mature; they both exist for over a decade which means that companies had sufficient time to adopt these methods and start using them.

SROI is a methodology that helps companies measure their social impact and show the wider image of their business activities (Watson et al., 2016). It was introduced in the US during 1990s by the Roberts Enterprise Development Fund (REDF) and it works like the ordinary cost - benefit analysis with the difference that it adds a monetary value to the social returns (Watson et al., 2016). This social value is then compared with the investment financial cost and so the SROI ratio emerges. Despite the fact that SROI can collate qualitative with quantitative data in detail, it has been widely critiqued by several researchers. McLoughlin et al. (2009) and Wright et al. (2009) claim that it is not possible to apply a monetary value to the social impact and that the SROI method practically reduces the actual value created. The same happened with the traditional appraisal methods also.

Traditional investment evaluation methods that rely only on financial impact have two main disadvantages:

1. They are not able to quantify the non-financial returns or costs for neither the company and nor society
2. They do not take into account the ever present element of risk (Williams and Parker, 2010)

Oppositely, the other alternative appraisal method, the S-ROI tool investigates the entire scope of costs and benefits both internally and externally. On top of that, it takes under consideration the risk and uncertainty of an investment over its whole life cycle. S-ROI method regards traditional measurements like energy cost reduction or productivity increase as well as quantified environmental impacts like carbon
emission or improved productivity which derives from a friendlier working environment (Williams and Parker, 2010).

The most important feature of S-ROI is that it offers the ability to monetize the social impact while it provides all the traditional financial return metrics or FROI (Financial Return on Investment). FROI offers an internal-wise evaluation while S-ROI offers both internal and external evaluation. The challenge for both SROI and S-ROI tools is how to monetize the non-financial impact. Williams and Parker (2010) claim that there is extensive literature on these topics which can depict in a very satisfying level, what the monetized social value is, depending on factors like geography or market. But, this process is not yet universal and there is not a monetizing model that can be applied in many industries or markets. Deliberately, researchers have proposed certain models that can be applied in specific cases only but in a successful way. Watson et al. (2016) used the Green Book (HM Treasury, 2011) in order to get the monetized value for non-financial objects like lack of noise or green surroundings for buildings. These objects do not have a direct monetary value but they undoubtedly increase the total value of the building and the total value is expressed in monetary terms. So, by finding out how much are UK citizens willing to pay more (WTP) for a house with green surroundings or within a quiet neighborhood, they managed to “translate” social value in monetary terms. This is a valid calculation and it is widely used by the public sector but this does not mean that it can be used directly by other governments or for other similar non-financial objects. The methodology can be applied though; every organization willing to calculate the monetary value of a non-financial object (like equality between society members or a non-stressful work environment) can use the same methodology, adapted on their specific needs and requirements. Many others researchers have attempted similar calculations. Particularly interesting for the industrial investments sector, is the work by Fujiwara and Dolan (2014) who managed to valuate mental health or by Trotter et al. (2014) who proposed a valuation method for well-being. This is interesting for industrial investments since the side effects of a certain investment i.e. in new machinery are usually neglected. For instance, a new machine will be bought if it has a short payback period or high ROI as we analyzed before but the decision maker will not take under consideration other factors like less noise or easier maintenance. However, these two side effects may increase the worker’s performance and productivity thus they create value not considered yet. Watson et al. (2016) used the valuation tools above and presented a table which depicts the value of certain social phenomena per hour. Again, the (annual) willingness to pay for these activities was measured and then the result was divided with 8,760 in order to put it in an hourly basis.
Relief from depression or anxiety  |  4.20 £ / hour  
Being member of a social group    |  0.21 £ / hour  
Participate in local organizations |  0.20 £ / hour  

Table 1: Hourly values for social phenomena (Watson et al., 2016)

It is noted again that these values are not universal nor can be applied in every market. Nevertheless, they indicate that social value can indeed be measured although it is still in the research level. When companies start to show interest on this kind of alternative appraisal and valuation then the specific tools will be optimized and multiplied on several markets and applications.

2.3 Blue and red ocean investments

To answer the research question, it is important to identify where investments’ transformation derives from. So, the author decided to ask similar questions for different types of investments to see if the answer depends on that or on deeper mechanisms like perspective, culture, goals et cetera. “Blue” and “red ocean” investments are two investment types that require entirely different strategies to be successful so if the interviewees’ answers are similar for both types, this mean that other factors influence their investment decisions. Blue and red ocean investments refer to competition; blue ocean regards investments that avoid competition and focus on value innovation while red ocean investments are about offering a better product than the rest of the competitors (Kim and Mauborgne, 2005). To go deeper, the blue ocean strategy is rather dynamic; as soon as the company reveals the product and starts having return then competitors will start making an appearance. So, it is wise for a company to create value for the customers in a way that it not easy to imitate. An innovative cost structure is a way of driving out the imitators (Ibid.). On the other hand, in the red ocean strategy, boundaries are known and created by all the competitors in general so companies compete within a certain frame. In this case, the most crucial factors are price, cost and level of competition (Chang, 2010). These factors concern the company’s survival and because competitors play within certain boundaries, product differentiation is the key and it is high-cost (Katz and Shapiro, 1994). In this way, companies should “bend” the market boundaries and achieve better performance by creating value innovation (Chang, 2010).
2.4 Digitalization and transformation: the importance of R&D in the ICT industry

Research and development (R&D) definition is “creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications” (OECD, 2002).

ICT is fundamental for a company’s growth; Oliner and Sichel (2000) showed that productivity in the U.S business sector grew by 2.6% and ICT accounted for 1.5% of that percentage. There is extended bibliography which depicts that both ICT and R&D investments are crucial for a company’s economic growth and contribute significantly on the value added (Hall et al., 2009; McMorrow and Röger, 2009). An interesting finding by Edquist and Henrekson (2017) is that only the industries who invest in software enjoy the benefits of ICT investments.

Kakati and Dhar (1991) proved that modern manufacturing technology had huge potential benefits, both financially and production-wise, despite the fact that the actual return on investment may be relatively low; lower than 10% which is generally not accepted. Additionally, late technology equipment can offer a significant competitive advantage in a turbulent market environment. When continuous creation of new products is encouraged then fast response to demand changes is required and a wide variety of products (product differentiation) is high. Modern manufacturing technologies offer solutions to deal with this kind of problems (Kakati, 1997). Freiberg and Scholz (2015) collected all the potential benefits of modern production technologies both internally and externally. Internal benefits have to do with cost reduction and productivity or capacity increase while external benefits refer to the position in the market. Indicatively they are shown below:

<table>
<thead>
<tr>
<th>Internal benefits</th>
<th>External benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost savings on personnel</td>
<td>Higher prices</td>
</tr>
<tr>
<td>Cost savings on energy consumption</td>
<td>Ability to offer product differentiation</td>
</tr>
<tr>
<td>Increased capacity utilization</td>
<td>Faster delivery - Shorter lead times</td>
</tr>
<tr>
<td>Increased productivity</td>
<td>Flexibility in market opportunities</td>
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</table>

Table 2: Benefits of modern production technologies (Freiberg and Scholz, 2015)

R&D investments play a key role in firms that would like to star in the ICT market but several uncertainties will form a complex R&D innovation risk (Li and Yu, 2014). Usually, companies prefer endogenous financing for R&D investments in order to mitigate constraints and risk as well as reduce the debt pressure of exogenous funds (Wang et al., 2016). Long investment cycle increases the risk of R&D activities low performance and this leads to even more increased uncertainty for the future which
favors endogenous financing (Wang et al., 2016). Despite the previous fact, this type of investment is so costly that many companies turn to exogenous funds in order to finance their R&D activities. This is a high risk decision since it has proven fatal for companies at many cases. O’Brien (2003) found that companies which failed to pay their debts to their funders were led to bankruptcy by their very funders. Moreover, Huang et al. (2014) state that bankruptcy risk and R&D investments are significantly correlated. For this reason, Wang et al. (2016) claim that generally R&D activities expenditure and especially exogenous financing should be up to a certain level. In this way, the risk will be lower and bankruptcy will not be a threat if the final outcome is not the desired one. Consequently, a reasonable size debt financing does improve the overall company performance.

2.5 Swedish industry

It is clear that Sweden is a country that invests significantly in R&D, more than most of the other countries (OECD, 2015). At 2008, SCB (Statistics Sweden) started officially treating R&D as an investment (SNA, 2009). During 1995-2000, Sweden’s productivity skyrocketed as an investment (Edquist, 2011). For more than two decades, productivity rates and GDP are growing rapidly in Sweden; especially companies related to finance and technology have offered a fertile ground for this economic growth. In the picture below, it is shown that industrial investments are growing constantly apart from year 2008 and the next few years that the global financial crisis influenced significantly the sector.

Computers, electronics and software companies are the ones that have invested more in R&D and ICT during the last years (Edquist and Henrekson, 2017) and (Corrado et al., 2009; Marrano et al., 2009) have proved that capital spent on these investments lead to greater value added as well as higher productivity rates. Sweden is exceptional at this field; when both USA and Europe had a slow increase in productivity and ICT investments, Sweden was at a leading place (van Ark et al., 2008). The secret of success for Sweden is hidden in the “team effort”; when one firm makes R&D investments then all the other players in the same industry will be positively affected (Griffith et al., 2001) and in this way, Sweden managed to overcome the late 00s recession. At the same topic, Edquist and Henrekson (2017, page 3) claim that this type of investments “stimulates growth both directly through innovation and indirectly through technology transfer”.

![Average annual value added growth in the industrial business sector from 1995 to 2015. (Edquist and Henrekson, 2017)](image-url)
3. Methodology

3.1 Research strategy

For this study, the method chosen was the qualitative since it is generally the ideal one for trying to understand why people act as they do and why things are the way they are, while the quantitative research is better for things that can be observed and measured (Hancock, 2002). The number of participants was small so the specific study was carried out as a case study since a survey would require a significantly higher number. Generally, a case has distinct boundaries and Yin (2015, page 194) states that a case study is “an empirical inquiry that closely examines a contemporary phenomenon (the case) within the real world context”. Moreover, a case study gives the researcher the ability to acquire deeper knowledge in a certain area since he/she can concentrate on one or slightly more instances of the investigated phenomenon (Denscombe, 2014). A case has distinct boundaries and it was ideal for a study of this size and scope.

This thesis data were obtained through direct encounter; one-on-one and semi-structured interviews with individuals who have over ten years of experience in the industrial investments sector in the Swedish market. The author’s aim was to explore how industrial investments have been transformed over the last decade, to understand in more detail the reasons that led to this transformation and to show if and how this phenomenon in connected with sustainability.

Several potential interviewees were approached by the author however many of them were not willing to participate. Two interviews were conducted but the credibility and importance of these interviewees offered a fertile ground for a productive dialogue. One of the interviews was carried out via online video conference and the other was conducted in person at the interviewee’s workplace. They were audio recorded and transcribed after the interviewee’s consent. The interviews lasted approximately half an hour and revolved around the exact same questions so that the author can compare the different answers and draw conclusions.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Company 1</th>
<th>Company 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry</td>
<td>Electronics and telecommunications</td>
<td>Electronics and telecommunications</td>
</tr>
<tr>
<td>Annual Revenue (2017)</td>
<td>More than SEK 300 billions</td>
<td>More than SEK 200 billions</td>
</tr>
<tr>
<td>Employees (2017)</td>
<td>More than 100,000</td>
<td>More than 50,000</td>
</tr>
<tr>
<td>Interviewed member</td>
<td>Supply chain and operations executive</td>
<td>Global resource manager</td>
</tr>
</tbody>
</table>

Table 3: Basic stats of the companies that interviewees work for
3.2 Interviewees’ requirements

The author chose the interviewees based on certain criteria. The ideal candidate should fulfill the following requirements:

✓ Over ten years of experience in industrial investments

They should be able to compare these two different times. Someone with i.e. five years of experience is not able to compare the today’s situation with the one ten years ago; this candidate would just provide “second-hand” information by quoting what he/she has heard from elder managers or employees. The goal of this study is to dig deep in the investments’ transformation so “hands-on” experience is a prerequisite.

✓ Managerial position

For the reason stated above, the interview candidate should have experience from a managerial perspective. The one who implements or analyzes an investment is usually following orders. The author’s goal was to provide insight not on how the investment is realized but on the reasons that led the decision maker to initiate the very investment in the first place. These kinds of decisions are taken from mid-level or top-level managers thus the author aimed at these levels.

✓ ICT industry

ICT industry is the frontline of digital revolution so it will be the first to change and show clear signs of transformation. Based on that, the interview candidate should belong in the ICT industry in order to provide more information on the change that takes place. However, this was a soft requirement: someone with experience from i.e. the manufacturing industry would also be a very interesting candidate. This derives from the fact that ICT evolution has direct and instant impact on many other industries like manufacturing or finance so someone who fulfills the other three criteria but does not belong in the ICT industry would be an interview candidate as well.

✓ Reside in Sweden

The specific study focuses on drawing a conclusion for the Swedish market. Because of that, the interview candidate should reside in Sweden, at least for the last decade. Here, it is specified that nationality is not a criterion as long as the candidate works in Sweden.
3.3 Main questions

The four questions below were the core questions of the interview.

First question: The payback time of an industrial investment is reduced over the last decade. Do you agree with this statement and why?

Payback time is among the most popular investment appraisal method so a transformation on industrial investments would be depicted to the payback time. The author asked this question in a “true or false” form so the interviewee will give a straight answer and then will focus on the arguments that support his/her position. This way the author would examine the logic behind the answer and draw deeper conclusions.

Second question: Does the transformation impact only the ICT industry or other industries as well?

With this question, the author tries to understand what the expansion mechanisms behind the transformation are and how they work. It is stated that this question was intentionally vague in order to let the interviewees unravel their thoughts and wander freely around the topic.

Here, it should be mentioned that additional questions were asked in order to specify something or make the interviewee elaborate on a topic but the above four were the main ones and the additional questions orbited around them.

Third question: What do you know about alternative investment appraisal methods like SROI or S-ROI? Have you ever worked with them?

The author asked this question directly without allowing the interviewee to give a diplomatic or politically correct answer. Before the interview, it was clear that no names or companies will be mentioned. Despite this, one could give a diplomatic answer because he/she feels like representing the company but with the question formed that way, there was no space for verbal maneuvers.

Fourth question: Do blue ocean investments make investors act differently? Be more patient maybe?

This question was asked in order to extract information about the investors’ behavior depending on the investment’s type. Red ocean and blue ocean investments require entirely different strategies in order to be successful. So, if the interviewees answer that it does not play an important role in the investors behavior then it is implied that investors’ behavior is determined by other, “harder” characteristics like culture or perspective.
3.4 Ethics

The author ensured the interviewees that he will not disclose any personal data or confidential company information. Before every interview, the researcher informed the participants that the interview will be recorded and that they can avoid any questions they do not feel comfortable with. Additionally, the record files and transcribed interview documents will remain in a safe place, secured by the author. Also, copies from this specific thesis were sent to the interviewees to verify by themselves that everything mentioned in the thesis is in accordance with their answers and that the author does not disclose any confidential information.

3.5 Limitations

The research was limited to ICT and Stockholm-based companies. This did not happen on purpose but due to the research’s restricted timeline and the interviewees’ demanding requirements. It was very challenging to contact this level of executives in companies of this magnitude and that is why only two interviews were conducted. The author approached more interviewees but they were not willing to participate. Nevertheless, this does not mean that research is incomplete or the interviewees’ size is insufficient; they are both top level executive managers with high credibility who presented an honest point of view on how things are. Moreover, they practically gave the same answers and this unanimity implies saturation so it is unlikely for the primary data to change by a higher number of interviews. Here, it is specified that the author did not have any kind of personal relationship with the first interviewee but he is a colleague with the second one; however, he was answering the questions based on his past experience and not on his current occupation which started only a few months ago. The author and the second interviewee are colleagues but in different departments.

The questions asked were very specific and required from the interviewee to have a proper financial background to answer. This means that in case that the interviewee was not familiar with certain terms (Blue and Red Ocean strategies, alternative investment appraisal tools, payback period, sustainable return on investment et cetera) then he/she would answer in a way that hides his/her ignorance on the specific topic. This is even more enhanced from the fact that the author has professional relationship with the second interviewee.
4. Results and discussion

4.1 Payback time reduction

The payback time of an industrial investment is reduced over the last decade. Do you agree with this statement and why?

The first interviewee, who has a twenty-year experience in the industry, claimed that the payback time for a potential investment is significantly reduced over the last decade.

“Today, companies expect a return even during the current fiscal year. [...] Ten or fifteen years ago, if you had an investment plan with a five-year payback time, it was acceptable. Today, you should show that the payback time is one year or two years otherwise it is too long.

He justified this statement by saying that CEOs and upper management have a very short time to prove themselves worthy and show results. The pressure from the owners is so high that they have no other choice but to go for more opportunistic, short-term decisions. This opinion is absolutely the same as Adler’s (2004). He states that the payback period method explicitly expresses impatience towards long term investments and usually requires payback time of two to three years. And the reason for this is that “cynically, there will be a new guy in charge anyway” (Adler, 2004).

The interviewee claimed that this lack of long-term thinking is very common in Sweden and western world in general, but it is in contradiction with the eastern business perspective.

“They are discussing generations when they look at things, not years”.

In our case, in Sweden, all the decision-makers (owners, C-level executives, upper managers) are being driven by impatience. After a few years, no one knows who will be around; maybe the CEO will change or the upper management and as a result, real improvement does not happen. Here, the author notes that this specific interviewee has over two decades of experience within the Chinese and Japanese market so he has based the cultural generalizations he made in a solid basis; however generalizations always include exceptions.

The second interviewee did not directly disagree that the payback time is significantly reduced but he stated that it is not as important as the Internal Rate of Return (IRR), especially for the private equity firms. Usually, the target is 12-15% IRR per fiscal year and if that goal is accomplished then the payback time is not a matter of interest. Here, it is stated that his response may be influenced by his long
experience in the private equity industry. PE firms have different goals, not that much strategic but mostly quantitative thus IRR and NPV are more important than payback time.

4.2 Transformation on other industries

*Does this transformation impact only the ICT industry or other industries as well?*

The first interviewee specified that this does not apply to every kind of investment or in every industry. For example, in heavy infrastructure investments, the payback time may be five or ten years, depending on the occasion. Moreover, when it comes to strategic investments, then again, the investors may be more patient. When a company decides to be in the market with a specific technology or a specific product for strategic reasons, then either the payback time is not taken under consideration or has a very low coefficient. But, with the two exceptions of heavy infrastructure and strategic investments, he believes that industry as such or technology rising is not affecting the payback time phenomenon. It is the western perspective that creates it.

A similar response was given by the second interviewee; investment behavior does not derive from industry’s nature per se. It is driven by market trends in general that have broader influence but definitely, there are exceptions on this rule.

The two interviewees agreed completely on the above topic and their responses are backed by previous research as well. Kells and Swinton (2014) concluded that long term energy investments like biomass fuels take until 10 years to start having return and specifically government institutions prove themselves more patient; payback time can be up to 15 years.

4.3 Alternative appraisal methods for industrial investments

*What do you know about alternative investment appraisal methods like SROI or S-ROI? Have you ever worked with them?*

The first interviewee was familiar with the term of Sustainable Return on Investment (S-ROI) but only from a theoretical point of view; he has never worked or ever heard of someone working with this term in real professional life. He claimed that in the past, some similar approaches were a trend, like human resources ROI: Return on Intangibles (Ulrich and Smallwood, 2005) but they did not have a particular success since in the bitter end, financial return is the main and only goal. But on this specific
case, the S-ROI, he believes that things will evolve differently. He painted the picture of a future where companies have no other choice than complying with sustainability directives since humanity has reached a catastrophic point. He believes that consumers and especially companies will not change their behavior until it is too late. So, alternative investment appraisal methods like S-ROI will not start being in use until humanity reaches a dangerous point and western world habitants’ everyday life is changed. Then, people will be more and truly environmentally sensitive and they will put pressure on politicians to take action and deal with these phenomena.

“People will not change their behavior, until they have to”.

Today, most of the companies have an environmentally friendly facade or a sustainability policy but they do it because they want to look good in the market; they do not actually take sustainability under consideration when it comes to their future decisions. There is a minority of companies that are working honestly towards a greener world but they are the exception. In the future, he believes that the big companies will even have sustainability departments, responsible for measuring company’s performance on sustainability level and having an active role at the company’s strategic decisions.

The first interviewee is clear about the people’s importance. They have to be the first to act because politicians do not make non popular decisions. Thus, they have to change their behavior and put pressure on the politicians to handle things differently from a sustainability point of view. He stated that this situation will affect Sweden as part of the western world. Based on the scientific research of (Guiot and Cramer, 2016) which says that the southern part of Europe will be deserted, he claims that Sweden will become more agricultural, with vast land that can grow food and this will definitely change things for Sweden but not in a bad way. On the other hand, this kind of massive change in southern Europe may cause societal unrest or similar phenomena that will possibly impact the rest of the Europe.

When the second interviewee was asked about the S-ROI, he was categorical; he has never worked with this kind of investment appraisal method and is quite convinced that the finance community will be the last to care about such issues. The only way for this to happen is if the governments intervene; if they fund companies with high S-ROI endeavors then the corporate finance community will start looking at the bigger picture and take their corporate responsibility values more seriously. He claimed that every company has them and may expand them but they use it for marketing reasons without taking them under consideration for their business decisions.
At this point, it is obvious that the two interviewees did not answer in a diplomatic way but they were honest and shared their true thoughts and opinions. They both agree that despite the expanding research literature on the sustainability measurement topics, companies do not even consider using them in the near future. What is interesting though is the solution they proposed; governments should take action. They seem to have no trust that companies will take into account something different than financial return so they turned to governmental initiatives. However, governments should be backed by people in order to take actions like this and people will not put pressure until pollution results are too obvious. These answers agree with previous research on the topic as well. (Olawumi and Chan, 2018) state that public policy is one of the emerging trends in the sustainability research among with water management and sustainability indicators.

4.4 Blue ocean investments and behavior

*Do blue ocean investments make investors act differently? Be more patient maybe?*

When the first interviewee was asked about payback time in blue ocean investments, he stated that it depends on the entrance barriers. If the entrance barriers are low (low entry cost, incomplete legal framework) then the first mover wants to “lock” urgently as bigger market share as possible and start having return pretty soon. But, if it is a high cost entry market, then the investor might be more patient.

Next, the second interviewee was asked if an investor has different behavior for different types of investments and more specifically on blue ocean investments. Here, he showed hesitation on the blue ocean investments in general.

“It is very costly to be alone in the market. It is better with competition because they help you test different behaviors et cetera.”

However, he admitted that “limited” competition is ideal but the most important factor for a successful investment is product differentiation and one cannot differentiate in an empty market or convince the customers to change their behavior in order to create a market.

“We are hesitant with companies that come and say that they are completely alone in the market. Then the question is: why? Is not there another company that believes in the market? That is how you see it from the other side”.
The purpose of this question was to examine if the investors’ behavior is affected by other characteristics of an investment like competition. The results showed that their behavior is not different depending on the competition. Investment decisions focus on high IRR and short payback time.
5. Conclusions

5.1 Main findings and contribution

This thesis purpose was to examine if and how the industrial investments have been transformed over the last decade and how this phenomenon is connected to sustainability. For this research, top-level and mid-level managers were interviewed; their experience was over ten years so they were able to compare the two different periods of time. The focus was in Sweden but the results can be applied in similar markets as well (Edquist and Henrekson, 2017). One main finding is that investment decision makers have become more impatient. The constant change of managers and CEOs leads them to make only short term decisions in order to prove themselves worthy as soon as possible. In addition, the one and only purpose of industrial investments is still the financial return. Despite the fact that the scientific research has proposed and examined several alternative investment appraisal methods that take under consideration a wider range of factors, the investors do not seem to change their behavior at least for the next few years. The traditional investment appraisal methods are being criticized for being narrow and non-holistic but still, they are the only tool that is actually used. It is important to note that governments and institutions have the answer in their hands; both of the interviewees pointed out that government should take initiatives and provide with financial benefits the companies with high S-ROIs and SROIs or else they will never do it by themselves. The reasons for this kind of behavior have to do with the companies’ perspective and culture; eastern cultures have usually longer term thinking. Thus, the type of investment or the industry as such does not play an important role. These findings are of great interest for industrial companies’ managers and entrepreneurs since they offer an honest description of how things work today and consequently, what issues should be solved in order to make a company more sustainable. Problems like constant change of decision-making executives, short term thinking by the board of directors and governmental inactivity are identified so businessmen and researchers of relevant fields are aware of the issues they have to deal with.

5.2 Future research

As mentioned above, the interviewees worked for big ICT firms which are based in Stockholm. So, future research can be conducted in other parts of Sweden to identify if their investment behavior is similar. Moreover, mid-scale companies can be examined in order to compare the results and conclude if the company size is a factor that determines industrial investment decisions. On the top of that, it would
be interesting to conduct a quantitative research as well. Qualitative research helps the scientific community to understand why and how the industrial investments have been transformed but a quantitative research can depict the size of this change more precisely.

Lastly, it is vital for the alternative industrial investments’ appraisal sector to add monetary value to the social impact and similar phenomena connected with sustainability and there is not much research on this topic. So, it would be interesting both from a research and a company perspective, to attempt to monetize the side effects of an industrial investment i.e. a new machinery which offers damage prevention tools relieves the operator and the maintenance engineer from the anxiety to find what the problem is and fix it as soon as possible.
6. References


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