Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Department of Economics

How will an integrated sustainability tool contribute to strategy making?

- a multiple case study of the Integrated Profit and Loss assessment

Sanna Lindkvist

Master thesis • 30 hec • Advanced level
Agricultural Programme – Economics and Management
Degree thesis No 1179 • ISSN 1401-4084
Uppsala 2018

How will an integrated sustainability tool contribute to strategy making? - a multiple case study of the Integrated Profit and Loss Assessment

Sanna Lindkvist

Supervisor: Per-Anders Langendahl, Swedish University of Agricultural Science, Department of Economics

Examiner: Richard Ferguson, Swedish University of Agricultural Science, Department of Economics

Credits: 30 hec
Level: A2E
Course title: Independent project in business administration
Course code: EX0807
Programme/Education: Agricultural Programme – Economics and Management
Faculty: Faculty of Natural Resources and Agricultural Sciences

Place of publication: Uppsala
Year of publication: 2018
Name of Series: Degree project/SLU, Department of Economics
No: 1179
ISSN: 1401-4084
Online publication: http://stud.epsilon.slu.se

Key words: Corporate sustainability, decision making, integrated sustainability assessment, management, monetary evaluation, strategy making

Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Faculty of Natural Resources and Agricultural Sciences
Department of Economics

Acknowledgements

I would first of all like to thank the people who helped me learn about the Integrated Profit and Loss Assessment, who will be kept anonymous, but you know who you are. It has been a great experience to get insight within two highly ambitious companies working for truly integrating sustainability.

Thank you, my supervisor Per-Anders Langendahl, for meaningful discussions, advice and encouragement. Your ability to guide a confused student, has been of utter most help.

I would also give a special thank you to Lena, my external supervisor, for helping me with framing this thesis. Thank you for all the support and guidance, and for all the valuable feedback when I got stuck.

Lastly, I would like to express my gratitude to my family and friends. Thank you for all the love and support, and your non-stop encouragement, even when I doubted I could pull this off.

Uppsala, June 2018

Sanna Lindkvist

Abstract

The demand on companies from various stakeholders, such as customers and suppliers, to report impacts and sustainability efforts creates a need for sustainability reports to integrate the financial, environmental and social perspectives of a company. International research has during recent years focused on developing sustainability tools for measuring economic, social and environmental dimensions. To approach the challenges of sustainability, challenges such as climate change and emissions of greenhouse gases, an integrated assessment for companies is required, in order to provide guidance for decision-making.

Including natural capital, as well as human and social capital within the value of a company, is often described as an integrated sustainability assessment (ISA). An integrated sustainability assessment is argued to be needed in order to simplify the complexity of the surrounding sustainability issues. However, integrated sustainability assessment tools deal with challenges. Sustainability efforts are constantly being criticizes for being time consuming and for having unclear purposes. In addition, the implementation of sustainability efforts into the company's strategy is often difficult, because the sustainability work does not get integrated within the decision making.
Given the above reasoning, there are uncertainties about how an ISA tool can be managed in order to contribute to strategy making. A company must have a strategy and management approach that can deal with both trustworthy sustainability reporting and strive towards a long-term perspective of reducing their impacts.
This study has chosen to investigate one specific ISA tool, the Integrated Profit & Loss (IP&L). Since the IP&L tool is a recently established tool, there is a lack of research about how it can contribute to strategy making. This thesis wishes to address the research gap. The aim of this study is to investigate how the integrated sustainability assessment tool IP&L contributes to corporate strategy making. The research focus lies on the managers' experiences and perspectives.

This study follows a qualitative and flexible research design. Further, an inductive approach is used regarding literature collection and empirical material. A multiple case study on managers and one strategist working with the IP&L tool is preformed, which are in total four employees at two companies that have implemented IP&L. Semi-structured interviews are the main primary source of data carried out on four respondents/cases. Secondary sources of data are collected from different websites. The conceptual framework used to analyze the empirical material is based on corporate sustainability, integrated assessment, integrated sustainability assessment (ISA) and the process of ISA. The theoretical view of ISA identifies three areas of the ISA process, themes/motives, management and strategy making.

The thesis identifies that the IP&L tool can contribute to corporate strategy making by generating information in an understandable way. IP&L can therefore be seen as a communication tool that converts "invisible" values of capital into monetary financial values. "Hot spots", which is referred to areas the company operates in that need immediate attention, has also been highlighted through the IP&L assessment. This generates strong arguments for changing strategies and is seen as the biggest utility of the tool, viewed from managers' perspective.

Sammanfattning

Krav ställs på företag från intressenter i större utsträckning. Bland annat kunder, anställda och leverantörer efterfrågar rapportering av miljöpåverkan och hållbarhetsinsatser ifrån företag. Detta har skapat ett behov av hållbarhetsrapporter för att integrera delar av företagets ekonomiska, miljömässiga och sociala områden. Internationell forskning har under de senaste åren fokuserat på att utveckla hållbarhetsverktyg för att mäta ekonomiska, sociala och miljömässiga dimensioner. För att ta itu med utmaningarna för hållbarhet, som klimatförändringar och utsläpp av växthusgaser, finns behov av en integrerad bedömning för att ge vägledning för beslutsfattande inom företagen.

Att inkludera naturkapital, såväl som humant och socialt kapital inom ett företags värde, beskrivs ofta som en integrerad hållbarhetsbedömning (ISA). En integrerad hållbarhetsbedömning ses vara nödvändig för att förenkla komplexiteten inom de omgivande hållbarhetsfrågorna. Integrerade hållbarhetsbedömningsverktyg står dock inför stora utmaningar. Hållbarhetsinsatser inom företag kritiseras ständigt för att vara tidskrävande och för att ha otydliga mål. Dessutom är implementeringen av hållbarhetsarbetet i ett företags strategi ofta vanskligt, eftersom hållbarhetsarbetet inte integreras i beslutsfattandet.
Mot bakgrund av ovanstående resonemang finns det en osäkerhet om hur ett ISA-verktyg ska hanteras för att bidra till företagsstrategin. Ett företag måste ha en strategi och en ledning som kan hantera både pålitlig hållbarhetsrapportering och ha ett långsiktigt hållbarhetsperspektiv för att minska deras miljöpåverkan.
Denna studie har valt att undersöka ett specifikt ISA-verktyg, Integrated Profit & Loss (IP&L). Eftersom IP&L-verktyget nyligen har etablerats, saknas forskning om hur det kan bidra till företagsstrategi. Denna uppsats vill ta sig an denna forskningslucka. Syftet med denna studie är att undersöka hur det integrerade hållbarhetsbedömningsverktyget IP&L bidrar till företagsstrategi. Forskningsfokus ligger på ledarnas erfarenheter och perspektiv.

Denna studie följer en kvalitativ och flexibel forskningsdesign. Vidare har en induktiv metod utförts med avseende på litteraturinsamling och empiriskt material. En multipel fallstudie av tre chefer och en strateg som arbetar med IP&L-verktyget är utfört, vilket totalt omfattar fyra anställda hos två företag som har implementerat IP&L. Semi-strukturerade intervjuer är den huvudsakliga primära datakällan som utförts på dessa fyra respondenter. Sekundärt material samlas in från olika webbplatser. Den konceptuella ram som används för att analysera det empiriska materialet är baserat på hållbarhet inom företag, integrerad bedömning, integrerad hållbarhetsbedömning (ISA) och ISA-processen. Den teoretiska delen av ISA identifierar tre områden i ISA-processen, teman/motiv, förvaltning och strategi.

Denna uppsats anser att IP&L-verktyget kan bidra till företagsstrategi genom att generera information på ett förståeligt sätt. IP&L kan därför ses som ett kommunikationsverktyg som omvandlar "osynliga" kapitalvärden till monetära finansiella värden. "Hot spots", det vill säga verksamhetsområden inom företagen som behöver omedelbar uppmärksamhet, har också blivit uppmärksammade genom IP&L-bedömningen. Detta ger starka argument för att ändra strategier och ses som verktygets största nytta, sett från ledarnas perspektiv.

Table of Contents

List of figures

List of Tables

1 Introduction

In the following chapter, the background of the thesis problem will be introduced, and after the specific problem for this thesis. Further the aim, research questions, unit of analysis and research focus are presented. At the end of this chapter, an outline for the thesis is illustrated and described.

1.1 Problem background

Impacts on the environment has become a priority for an increased number of companies (Atkinson *et al,* 2000). In order to run a business with an environmental perspective, companies need to understand what impacts they make on our natural and social systems. According to the report " Natural Capital at Risk: The Top 100 Externalities of Business" (2013), the top hundred external environmental costs that affects the global economy is estimated to 4,7 trillion US dollars per year. Emissions of greenhouse gases, loss of natural resources and climate changes are some examples of consequences linked to these costs. A growing number of companies have embraced these consequences and challenges into their businesses and work with corporate sustainability. Yet, a company must have a strategy and management approach that can deal with both trustworthy sustainability reporting, and also work with a long-term perspective of reducing their impacts generated form their operations (Figge *et al,* 2002). Sustainability management is explained as the integration of the dimensions of sustainability; the environmental, social and economic dimension, which also offers the possibility to integrate management of social and environmental features into business activities. The approach of sustainability management aims for achievement of economic, social and environmental goals (Figge *et al,* 2002; Schaltegger & Burritt, 2014).

Sustainable development (SD) has become a crucial objective of decision and strategy making within most industries. One well-known definition of sustainable development is stated in the Brundtland (1987) report, were sustainable development meets the needs of present generations without compromising the ability of future generation's needs. Based on this definition, a number of tools for sustainability assessment that evaluate performances of companies. A sustainability assessment tool can be defined as "*a tool that attempt to understand a system and offer information in a format that can assist the decision-making process*" (Gasparatos, 2009). To understand this definition, a system can for example be an ecosystem used in a business. A sustainability assessment tool is also of use in sustainability reporting. Sustainability reporting refers to a non-financial report, which companies use as a tool to communicate their responsibilities within society (Fernandez-Feijoo *et al*, 2014). World Business Council for Sustainable Development (WBCSD, 2002) and the Global Reporting Initiative (GRI, 2002) are the two main foundations of sustainability reporting.

The demand on companies from various stakeholders, such as customers, employees and suppliers, to state impacts and sustainability efforts creates a need for sustainability reports to integrate elements of financial, environmental and social sides of the company (GRI, 2002). Sustainability reports often introduce a range of SD indicators used to measure sustainability performance within a company (Krajnc & Glavic, 2005). Indicators translate sustainability issues into quantifiable measures of environmental, social and economic performances. The purpose of quantifiable measurements is to help to address sustainability impacts as well as to provide information on how the company contributes to sustainable development (Azapagic, 2005). The need of developing an integrated framework of sustainability criteria, focusing on

the sustainability assessment of companies, has generated initiatives from GRI (2002) and WBCSD (2002). Further, integrated framework has also generated standards for environmental management systems, for example ISO 14000 (OECD, 1998). International research has during the recent years focused on developing sustainability tools for measuring economic, social and environmental dimensions (Krajnc & Glavic, 2005). However, there is still no useful tool available for integrated sustainability assessment adjusted for companies. To approach the challenges of sustainability, challenges such as climate change and emissions of greenhouse gases, an integrated assessment for companies is considered to be required in order to provide guidance for decision-making *(ibid).*

In the last few years, alternative methods have been developed in order to provide companies and their stakeholders with information about their operations. One example is the monetary valuation of ecosystem services (MES) (Baveye *et al*, 2013). The MES is a valuation that estimates values of ecosystem services used by human society. This kind of valuation is discussed to generate a strategy to make nature visible for decision makers. The vision of the MES is that it would eventually lead to sustainable use of natural resources by companies. The monetary valuation is also used on human and social capital. Estimations of different kinds are used to put value on several capital areas. For instance, human capital can be estimated with a monetary value by looking at salary development within a company. The World Bank (2006) has valuated immaterial capital, mainly social and human capital. These capital areas are estimated to be around 60 to 80 percent of the true capital value in most developing counties. However, social capital differs from human and natural capital, as it is based mainly on relationships between stakeholders in society, and is considered difficult to valuate (Hamiltion & Liu, 2013).

To include natural capital, as well as human and social capital within the value of a company, is often described as an integrated sustainability assessment (ISA) (Videira *et al,* 2010). An integrated sustainability assessment is argued to be needed in order to simplify the complexity of the surrounding sustainability issues. Further, it is an evaluation process of sustainability consequences that companies are responsible for (Paehlke, 2004). For example, issues/challenges such as reducing impacts on the environment and retain a dynamic social environment. Therefore, several integrated sustainability assessment tools are developed to evaluate different capital areas within companies. One example of such tool is The Integrated Profit and Loss assessment (IP&L). This integrated sustainability assessment framework is argued to create a holistic view of public wealth, which is central for a sustainable economy. Therefore, natural, human and social capital are estimated into monetary values (Gist Advisory, 2018). This is a relatively new tool, and this study is going to analyse the IP&L tool further.

1.2 Problem statement

A sustainable assessment is crucial for many companies in order to achieve legitimacy and to obtain trustworthiness (Galoin & Whittington, 2012). However, sustainability management and associated sustainability assessment tools appears to be promising and are created to inform decision making, both for firms that implement sustainability tools and for their stakeholders, e.g. banks, customers and suppliers. However, sustainability assessment tools deal with challenges. Sustainability efforts are constantly being criticizes for being time consuming and for having unclear purposes. A lot of resources is often used for a certain sustainability assessment tool to be implemented in a company (Sala *et al,* 2015). With this investment, companies have high hopes that the efforts will facilitate the daily work when

striving towards a sustainable business. Though, the implementation of sustainability efforts into the company's strategy is often difficult, because the sustainability work does not get integrated within the decision making. A global survey was made by Berns *et al*. (2009), and involved more than 1500 corporate executives, in order to understand the executives' perspectives on business strategy and sustainability. This survey shows that the majority of respondents believed that having a business strategy informed by a sustainability assessment is becoming increasingly important. Furthermore, the respondents also believed that there are chances of failing to include sustainability assessment in their business strategy (Porter & Kramer, 2006).

As mentioned above, a company's strategy is a crucial part of successful sustainability efforts. With a well-developed strategy, sustainability goals are more easily achieved. However, if the transition process to sustainability is going to succeed, goals must be evaluated (Ness *et al,* 2006). Scientists and researchers are facing challenges, such as how to evaluate impacts from business activities, when providing society with efficient and reliable sustainability tools. Sustainability assessments tools for companies has become a rapidly developed research area as a response to these challenges, for example the challenge about evaluation of natural systems. Kates *et al*. (2005) argue that the purpose of sustainability assessment "*is to provide decision makers with an evaluation of global to local integrated nature-society systems in short and long-term perspectives in order to assist them to determine which actions should or should not be taken in an attempt to make society sustainable"*. The question arises how companies' sustainability goals can be fulfilled with help of today's sustainability assessment tools. Do they have the capability of sufficiently address global and local dimensions of both a long and short-term perspective?

In practice, sustainability assessment tools are consistently developed to measure every part of a company's activities and impacts in order to fulfill the whole range of corporate sustainability (Neugebauer *et al*, 2014). The ability to valuate aspects that generates relevant data, regarding environmental impacts and natural resource consumption, is expected when implementing a sustainability assessment tool. In order to determine a company´s full value, sustainability assessment tools created to identify value creation of natural, social and human capital within a company, are argued to be necessary in order to have an integrated sustainability assessment (ISA) (Ekins, 2011). Pedrini (2007) argues that to evaluate the human capital, within a company, for example skills of employees, and to communicate the results in the sustainability report is of high importance.

Given the above reasoning, there are uncertainties about how an ISA tool can be managed in order to contribute to strategy making. A company must have a strategy and management approach that can deal with both trustworthy sustainability reporting and to strive towards a long-term perspective of reducing their impacts generated from their operations (Figge *et al* 2002; Schaltegger & Burritt, 2014). The main purpose of an ISA tool is to identify values from different capital within a company (Ekins, 2011). The values are considered to generate more detailed information that companies can use for sustainability reporting. There are several developed ISA tools. However, this study has chosen to investigate one specific tool, the IP&L, that is stated in the problem background. Yet, there is no common understanding about the IP&L tool's contribution to corporate strategy making. By investigating the IP&L tool, the author of this thesis hopes to provide useful knowledge about the tool that can enable managers to understand its contribution. Since the IP&L tool is a recently established tool, there is a lack in research about how it can contribute to corporate strategy making. This thesis wishes to address the research gap.

1.3 Aim and delimitation

The aim of this study is to investigate how the integrated sustainability assessment tool IP&L contributes to corporate strategy making.

Research questions

- What motives does a company have when selecting an integrated sustainability assessment (IP&L) tool for their strategy making?
- What potential affects might an integrated sustainability assessment tool (IP&L) have on corporate strategy making?

1.4 Unit of analysis

The unit of analysis is the element that is identified and analysed, and is often described as components that is linked to the phenomenon of interest (Bryman & Bell, 2011). In this study, the units of analysis will be three managers and one strategist, four respondents totally, who have been working with the chosen integrated sustainability assessment tool. The chosen tool in this study is the so called Integrated Profit & Loss (IP&L) tool. Three of the respondents work at Company A, and one respondent works at Company B, and respondents as well as the companies' names will not be mentioned in this study.
Both companies have implemented the IP&L tool. Company B has also stated the results of the assessment in the company´s annual reports from 2015-2017. Company A started to work with the IP&L tool in year 2017. Therefore, is the tool further integrated in Company B than in Company A, which make the two companies in different stages of the IP&L process. This will hopefully give a dynamic and broader insight from the respondents.

1.5 Research focus

This study focus on doing a qualitative assessment on one specific tool and IP&L as a sustainability assessment tool. This study attention is on the management experiences of an integrated sustainability assessment tool and how it contributes to corporate strategy making. Furthermore, the management perspective is the focus of this study, because all the respondents are managers or strategist. This study´s delamination is one specific integrated sustainability assessment tool, IP&L. However, the author wants to point out that this thesis will not focus on the evaluation methodology of the IP&L tool, even though it is brief explained in the empirical chapter so the reader will get an understanding of how the tool works. Thus, this thesis will emphasize the experiences and knowledge regarding management of an integrated sustainability assessment tool. There are numerous of developed integrated sustainability assessment tools, and this study is analyzing one of them.

1.6 Outline

The first chapter of this thesis is the introduction, which introduce the problem background, problem statement, aim and research questions of the thesis. Next chapter describes the theoretical framework, containing corporate sustainability and Integrated sustainability

assessment (ISA). Chapter three contains the method that was used of this thesis, a qualitative design with an indicative approach. In addition, this chapter also includes why the author choose this method and the critics against it. The empirical study is found in chapter four, where the empirical material from interviews is presented. After the presentation of the empirical material, an analysis and discussion has been done in chapter five. Lastly, in chapter six, the conclusion of this study followed by recommended further research is stated.

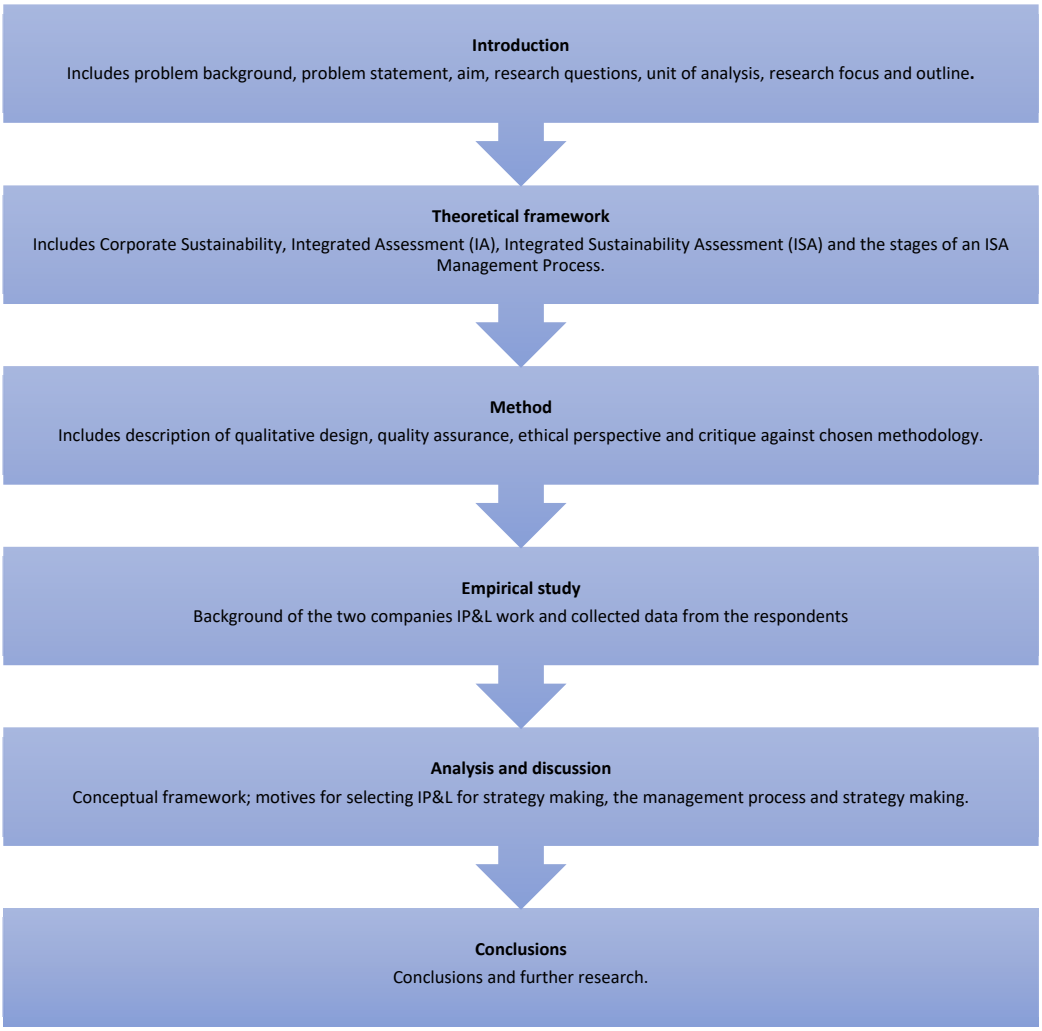


Figure 1: Illustration of the outline of this thesis.

2 Theoretical framework

This Chapter aims to clarify and explain the key concepts for the theoretical framework and the research field of the study. First, the concept of corporate sustainability is described, based on three essential dimensions. In section 2.3, the concept of Corporate sustainability assessment as described based on themes companies should consider when preforming assessment on their business operations. Thereafter, the integrated sustainability assessment (ISA) is followed by the defined from a management and strategy making process. Lastly, a conceptual framework summarizes the theoretical knowledge in the end of this chapter.

2.1 Corporate Sustainabiltiy

The concept of sustainable development has over the last decades changed, with an ongoing conceptual development of corporate sustainability (Dyllick & Hockerts, 2002). How sustainable development can be applied to business level is a complex research area.
The grounds of sustainability are set by the well-established definition by Brundtland (1987). For a company, the corporate sustainability can be defined with the basis of the Brundtland Report as following:
"Run a business by meeting the needs of a company´s indirect and direct stakeholders (for example employees, clients and shareholders) without jeopardizing its ability to meet the needs of the company´s future stakeholders as well." To achieve this goal, companies have to integrate the economic, environmental and social aspects of doing business and contribute to sustainable development while actively contribute to sustainability in fundamental field. The visual figure of these three dimensions is called the "triple bottom line", shown in figure 2 (Elkington, 1997; Brundtland 1987).

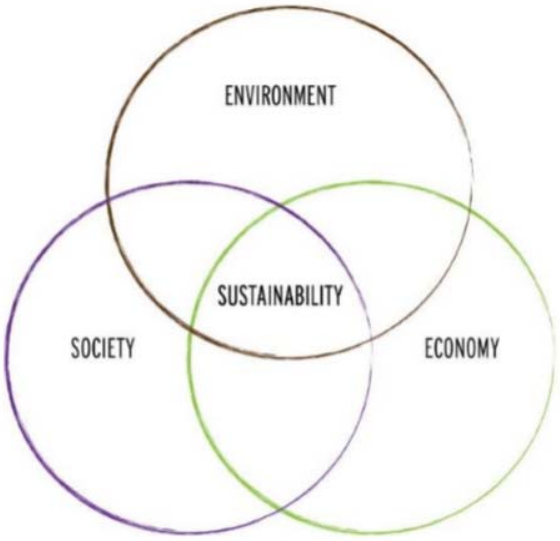


Figure 2. The triple bottom line (based on Elkington, 2001).

With focus on society, sustainable development has increasingly been applied on companies and their approach of dealing with sustainability issues, with the concept of corporate sustainability (Steurer *et al,* 2005). But how does sustainable development affect the corporate world? Several arguments are stated by researchers who has investigated corporate sustainability. The ones that are against the concept argues that corporate boundaries do not match with the sustainability concept as it lacks a definition of the end-state. However, the

corporate sustainability concept has increased in popularity and companies are on a higher level willing to attempt integration of corporate sustainability. When a company adjusted it operations to corporate sustainability principles, it is argued to generate benefits both economically and in public relations. For example, customers are more aware of buying products and services from companies working with sustainability efforts and taking Corporate Social Responsibility (CSR). In addition, employees will consider to rather work for companies with a sustainability approach and stakeholders will put pressure to work with sustainability efforts to create competitive advantages (Berry & Junkus, 2013).

The most important part of the corporate sustainability theories is argued to be the realization to leave the traditional management concept, with its focus mainly on economic sustainability, which means that a company focus mainly to generate profit to avoid to be bankrupt. Economic sustainability alone is not a condition that is sufficient for sustainability within a company (Elkington, 1997). Focus on economic sustainability can give "success" in shorter terms, but in the long run all three dimensions is required for corporate sustainability (*ibid*). Short-term profit is still a goal in many companies, which is not in line with the corporate sustainability definition. Long-term corporate sustainability stands for managing the economic capital, as well as a company´s natural and social capital (Dyllick & Hockerts, 2002).

2.2 Corporate Sustainability Assessment

The focus of corporate sustainability assessment is to evaluate sustainability within companies, policies, projects and so on (Pope *et al.,* 2004). The major objectives to stimulate the implementation of sustainability assessment is a) analysis and research, b) participation and agreed sustainability structure, c) encouragement and d) management and decision making. The two global initiatives of sustainable development, WBCSD and GRI, support these major objectives and is developed to also influence sustainability management (i*bid*).

Themes/Motives for Corporate Sustainability Assessment

Corporate sustainability assessment is according to Devuyst (2001) a methodology "*that can help decision-makers and policy-makers decide what actions they should take and should not take in an attempt to make society more sustainable"*. When framing corporate sustainability assessment, it is about measuring to what extent a company integrates environmental, social, economic and governance aspects into its operations (Sala *et al,* 2013). In addition, measure impacts of these factors that affect the company as well as society. A general checklist of themes that sustainability assessment should cover is the following:

a) Actively integrate environmental, social and economic issues, and at the same time considering their general needs
b) Involve society
c) Be aware of what consequences of present actions have in the future
d) Be aware of that uncertainties are certain, and that they might affect the results of a company´s present actions. (Gasparatos *et al,* 2009).

One goal of sustainability assessment that is defined by Verheem (2002), is *"to pursue that plans and activities make an optimal contribution to sustainable development"*. However, it is argued that Corporate Sustainability Assessment is one of the most complex types of evaluation methodologies (Sala *et al,* 2013). The basics is sustainable development, who has a wide definition, which often generates different interpretations. The result of this is a wide

range of different assessment approaches. Still, no assessment approach is universally accepted, even tough by year 2010 more than 50 different sustainably assessment methodologies were developed (Sadowski *et al*., 2010). Support of theory, data collection and analysis is not sufficient for any approach (Parris & Kates, 2003). More recent developed methodologies offer "newer" perspectives to impact assessment with the promise to simplify planning and decision making on sustainable development, methods often called "Integrated Assessments" (Sala *et al,* 2013).

2.2.2 Integrated Assessment (IA)

An integrated approach regarding sustainability is needed to simplify the complexity of the surrounding sustainability issues (Videira *et al,* 2010). Issues like reducing impacts on the environment, how to value ecosystems and retaining a dynamic social environment. The integrated view of this sustainability complexity is to include science, education, management and policy that transcends for the existing frameworks and boundaries that often aggravate sustainability improvements. New knowledge and experiences from different areas can be used in a transdisciplinary process and create integrated assessment (IA) (*Ibid*).

An integrated assessment includes all relevant aspects of a complex societal issue (Videira *et al,* 2010). The plan of such assessment is to design an understanding of the problem, and try to solve the problem by imply a system thinking which should balance "the triple bottom line", that is including an environmental, economic and social of the issue (Rotmans, 2006). The process can be seen as reducing borders between disciplines and therefore integrate knowledge for several domains into one issue. The aim of integrated assessment is to generate useful information for strategy and decision making (Videira *et al,* 2010).

Integrated assessments are usually used to help decision makers to understand complex environmental issues (Sala *et al,* 2013). In practice, the main complex environmental issue is climate change, and by using integrated assessment to divide factors that affect climate change, the issue is easier to understand. We know that climate change is affected by greenhouse gases and the atmospheric chemistry. With an integrated assessment that can valuate activities linked to social and economic factors, can generate results from what activities that affects the climate and human welfare. The two defining characteristics of integrated assessment are 1) to provide information that can be used by decision makers and not only to be able to explain the issues but also trying to prevent it; and 2) to include a broader set of areas to generate a wider knowledge.

There are several tools and method developed to frame the integrated assessment process (Sala *et al,* 2013; Videira *et al,* 2010). Just a couple of examples of those are the Environmental Impact Assessment (EIA) and the Strategic Environmental Assessment (SEA), and the two is often used together within a company. The environmental consequences, both negative and positive, is evaluated for different parts of a company and the results is supposed to help with the decision making. When decisions are set, proposed actions are formulated in order to move the company forward with a wider perspective of environmental impacts. In context of a company, the EIA is often applied to certain projects by companies or individuals, while SEA applies to policies and programs by organs of state (Videira *et al,* 2010). The environmental assessment has the purpose to ensure that decision makers consider environmental impacts of a project when deciding if the project should proceed.

The International Association for Impact Assessment (IAIA) has a definition of the environmental impact assessment which is "the process of identifying, predicting, evaluating

and mitigating the biophysical, social and other relevant effects of the development proposals prior to major decisions being taken and commitments made" (www, IAIA, 2018).

Integrated assessment tools and methods are many, but EIA and SEA as example of those explained above do focus mainly on the environmental dimension of sustainable development (Videira *et al,* 2010). The need of an extended integrated approach involving the social and economic dimensions, and the evolution of integrated assessment tools has come to a stage were an extended version of integrated assessment IA has developed to Integrated Sustainability Assessment (ISA) (*ibid*).

2.2.3 Integrated Sustainabitliy Assessment (ISA)

To strive for sustainable development, integrated assessment (IA) has transformed to another concept, the Integrated Sustainability Assessment (ISA). Pope *et al* (2004) describe ISA as the next generation of IA frameworks. Another description is an evaluation process of sustainability consequences that companies are responsible for (Paehlke, 2004). When doing a comparison of the EIA methodology described above, the ISA has particular features which separate it from EIA. The main feature that ISA process focus on is the relationships of unsustainable trends and how they can be changed, and not the impacts generated from existing activities, which is the basis of IA processes (Videira *et al,* 2010). The range of tools and methodologies approaching the ISA process is also of wide range, and some examples of these are analysis tool like cost-benefit analysis and scenario analysis. It is also common to use sustainability indicators of some sort to simplify the complex issues of sustainability. The integrated sustainability assessment tool will be explained more detailed below.

To integrated sustainability into a company can be a difficult process and can often fail to be embedded in the company´s strategy. The choice of integrated sustainability assessment can therefore be crucial for a successful implementation (Ness *et al,* 2006). It also depends on the availability of official data, what the stakeholders require and the reliability and trustworthiness of the ISA. This is why its argued to develop a framework of the strategy making process divided in different stages (Videira *et al,* 2010). The underlying aim of developing an ISA framework is to investigate the relationship underlying unsustainable trends.

Why develop a framework of ISA strategy making process? Is stated several decades ago that framework for education and communication are particularly useful on a strategic decision-making level when developing better-informed policies to address complex problems (Sterman, 1988). Furthermore, the integrated approach of sustainable development is argued to be adjusted into appropriate frameworks for structure mutual understanding about how different system works, for example socio-economic and natural systems. In addition, a proposed stepwise approach of ISA as a strategic model, engage management teams to make sure that strategy and business processes go in line with stated goals. Videira *et al* (2010) has come up with an integrated model for supporting ISA processes (Figure 3). The aim is to develop a modern framework based on ISA approaches with an innovative platform, to help structure the assessment process. It is five stages of a learning cycle, and each stage will be presented below.

ISA Strategy making process

Stage one, Scoping and abstraction
The process starts with defining the problem (Videira *et al*, 2010). Trying to conceptualize the fundamental parts of the unsustainable trends that forms the problem or sustainability issue, an issue like biodiversity loss or climate change. The purpose of this is to develop a low-resolution, broad conceptual model illustrating the inter-relationships between the natural and the socio-economic systems wherein policies interact and new policy initiatives is made. By defining the basis structure of the model who is significantly simplified helps to identify and describe the reference behavior modes that characterize the problem. In practice, this stage involves participatory modelling workshops, in-depth meeting with relevant social actors and causal loop diagrams of the concept and process. Casual loop diagrams are stated to be suitable for conceptualization tasks, and seems to be attractive when managing groups aiming to get a strategic overview of a sustainability issue (*ibid*).

Stage two, Envisioning and goal setting
By creating a shared vision of the future and sustainability criteria's together with relevant stakeholders, the aim of the second stage is fulfilled. The reference behavior modes and qualitative models generated from stage one are supposed to be input in the second stage (Videira *et al*, 2010). This stage is also involving visioning and scenario workshops, and the goal is to visualize sustainable development trends and also develop visions of the future. The output of this is to develop a context including the sustainability criteria's and vision with interpretation of sustainability. These criteria´s and vision will also be used as benchmarking measurements to make it possible to compare and evaluate alternatives for policy initiatives in the following phrases. According to Kallis *et al* (2009), visioning can play a diversified role in sustainability assessment and a decision-making process, for example increasing motivation towards shared goals and helping participants in understanding a system perspective of the stated sustainability issues.

Stage three, Model formulation
Next stage is model formulation, and it is in practice a series of modelling workshops leading to collaborative development. This model formulation stage can be divided in two parts when form the following assessment, the first part involves scoping diagrams of information to define each area of the assessment, define boundaries of the analysis, identify variables to use for evaluation and structure relationships between the social, natural and economic systems that is supposed to be analysed. The second part concerns the stated vision and sustainability criteria from stage two, and that these can help with possible benchmarking which is to compare decision alternatives. By doing this kind of model formulation and benchmarking session, is argued that it will involve participants of the assessment, create social learning, knowledge and development of innovative solutions.

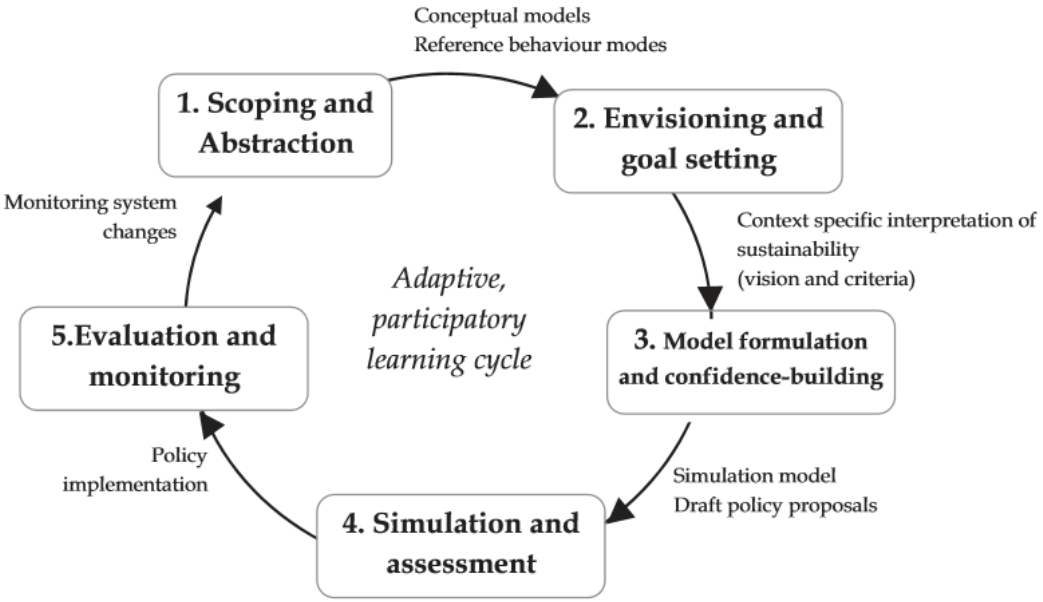


Figure 3. Conceptual participatory modelling framework for ISA adapted from Sterman, 2000; Weaver & Jordan, 2008 (Videira *et al* 2010).

Stage four, Simulation and Assessment
Stage four of the ISA learning cycle is about the assessment of the sustainability impacts which can generate form policy proposals (Videira *et al* 2010). If a proposal is discussed to be used, the purpose of this stage is to anticipate the long-term sustainability impacts of policy proposals, and also compare them with the sustainability criteria and vision stated from stage two. This stage of the ISA cycle is where simulation of different scenarios and policy analysis are performed. The understanding of the outcome of initiatives or policies is important, and creating simulations is an effective way see different perspective of what to come. From a sustainable perspective, future occurrences are difficult to predict, but even so is simulation of a future scenarios of great importance. The performance of this stage is to set a time horizon, alternative scenarios and compare them. Then, interpreted the results. Sterman (2000) do add that this stage of simulation insights may lead to one step back in the ISA process, as this may create doubt concerning the goal setting and problem scoping.

Stage five, Evaluation and Monitoring
Policy implementation, as shown in figure 3, often follows after the integrated assessment of possible scenarios addressing sustainability issues. This type of participatory modelling framework showing in this five-stage process, has an underlying assumption that insights of these different stages lead to action or at least improve understanding of stakeholder's involvement in the decision-making process (Videira *et al* 2010). Is about the different levels of influence stakeholders make on decisions. When embedding participatory modelling processes in decision making strengthens commitment to act and monitor policy implementations.

The two objectives of the fifth stage of evaluation and monitoring is the following: a) outcomes of the ISA process should be evaluated and b) monitor adoption of policies and commitment to actions (Videira *et al* 2010). A systematic evaluation is regarding this modelling framework preformed in four outcome levels. 1) evaluate the method, if it is efficient in comparison with others. 2) the individuals, their reactions, commitments to the

implementation and if the process generated insights and learning. 3) the group, how they communicated within the group and exchanged viewpoints, and if the process gave a shared view of the actions and problem. 4) the company itself, has the system and strategy changed? Did the implementation of new policies lead to positive results?

Follow-up the decision taken from the ISA process must focus on monitoring the effects of change in behaviors from stakeholders, and also measuring changes within the company´s progress. The last part of the ISA process suggests to develop suitable indicators as well as monitoring systems for sustainable development. This will hopefully facilitate measurements of the longer-term impacts a company make on socio-economic and natural systems *(ibid).*

Management of the ISA process

The general framework of the ISA process is stated above. However, a general framework of a process can be difficult to apply within a company´s integrated sustainability assessment (Videira *et al* 2010). Several researchers have therefore identified principles and practices to guide and structure the implementation of the ISA process. Gaps and uncertainties who may occur of a process is argued be clarified with distinct practices and guidelines. Three phases will be explained, with several stated practices of each phase.

Preparatory Phase

The preparation of implementation of an ISA process is crucial and needs careful planning (Videira *et al* 2010). The recommendation of this phase is to bring up a few questions and discus how they can be approached. How does the company assess challenges regarding a) the scientific context, for example if the information is available and interpretable by affected and interested parties, b) implementing and convening agencies, for example if there are a decision-making authority or any actor that would implement any of the reach agreements, and c) what abilities and constrains do the participants have, which participants have the power to influence the process?

At the preparation phase, it is necessary to define whom is responsible for the process. Management of the process needs to match what resources and capability is required for the goal setting and scope of the ISA process. A suggestion is that a steering committee of both internal actors as well as a broader forum of stakeholders should take responsibility of the process. In figure 4 is each phase is divided with principles and practices *(ibid).*

Implementation Phase

What this framework of ISA processes is aiming for is to investigate the relationships underlying unsustainable trends (Videira *et al* 2010). Though development of a model that integrates a shared vision and interpretation of sustainability, will engage participants in discussion and reflection on proposed policies to address sustainability issues. However, this broad purpose needs to be specified. Clear objectives must me stated and communicated to stakeholders. To reach valuable objectives, a couple of question may come in handy to ask managers of the process:

a) is the process purpose to produce knowledge and generate different viewpoints and values regarding policies utility,
b) is the process going to expose conflicts regarding sustainability issues and solve them,
c) is the planned ISA process going to generate innovative solutions for sustainability issues, and at the same time create win-win opportunities of partnerships with stakeholders.
d) and will the ISA process have the influence of reaching decisions and set of actions to strive for sustainability.

A principle of importance when working with decision-making and sustainability assessment is to focus on implementing the assessment process in an adjustable governance, as well as gathering commitments towards self-assessment procedures. Flexibility and open minds is the key. Decision makers might be uncomfortable to commit to something were the outcome is still unknown, which is a common problem when working with sustainability issues. Still, the long-term success of the ISA process depends on embedding the participatory sustainability assessment within the company. A process like ISA needs to be flexible enough to generate experiences and allow adjustments that can be convert to future efforts. A participatory modelling process relies on flexibility (Stave, 2002; Videira *et al.,* 2009). The application needs to be flexible concerning the variety of subjects and participatory context. Flexibility is related to viewing issues from different perspectives and create a dynamic communication between participants and stakeholders. Subjects like social and economic issues needs to have a flexible approach in the same way as the environmental issues.

Several principles are recommended to guide what choices to make when implementing a ISA process. Transparency of the process, to clarify every part makes it easier to successes with the implementation. Inclusiveness and good faith communication is also crucial when working with ISA within a company. It is essential for gaining respect and building trust with all participants. Bloomfield and Wade (2003) argues that in an ideal scenario of a successful working process, all affected parties should have chance to be properly represented. Of course, it is not always that easy to integrated all these principles in practice. This is why the promoters of an ISA process within a company needs to select actors within the working group who creates a negotiating environment the company likes to have with participants and stakeholders. Examples of practices who can promote this is open invitations and stakeholder selection and analysis. Stakeholder selection and analysis refers to when the steering committee produces a stakeholder list that is considered reliable, and participants will over time expand the list of stakeholders' trough recommendations. Another crucial aspect for the implementation of an ISA process is to assure skilled facilitation (Videira *et al* 2010). This refers to a facilitator who has experience of the process, but has preferably no ties to the company. Depending on the size of the group working with the process, maybe to facilitators is necessary. The facilitator should provide the process with integrity and authority, as well as having a helping attitude.

To pay specific attention to values and facts generating from the ISA process, Videira *et al* (2010) argues that these principles and practices seen in figure 4 is fundamental in the ISA process. Using this approach for collaborative problem definition and scoping is documented in several cases to be effective. This is because providing deliberation and reflection on facts and values from sustainability issues, which often are uncertain or disputed between different actors, has helped in developing a diversity of public values.

Follow-up Phase

Practices and principles valuable when working with the ISA process also includes a follow-up phase. This refers as a careful procedure of evaluation and monitoring. In practice, the working group should also participate in interviews and questionnaires, and this will evaluate the effectiveness of different outcomes as well as adding more empirical data to research area of the ISA process. Finally, a ISA process most crucial feature is iteration, and should be build into the process to "refine both the questions being asked and the answers being offered" (National Research Council, 2008).

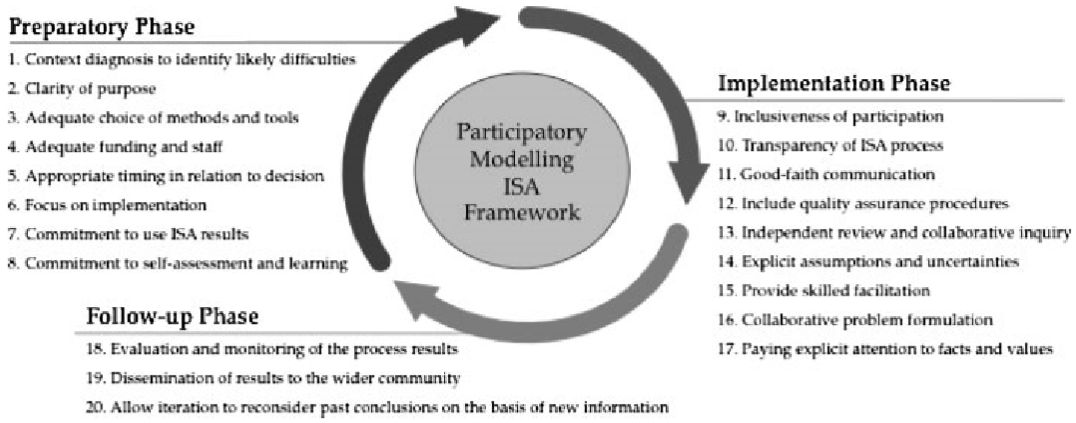


Figure 4. Principles and practices guiding the implementation of the ISA framework (Videira *et al* 2010).

2.3 Conceptual Framework

The starting point of this thesis theoretical chapter is corporate sustainability, which describes the basic theory of how companies should integrate the three dimensions of sustainability within their operations. The corporate sustainability assessment, an extension of corporate sustainability, is about measuring to what extent a company integrates environmental, social, economic and governance aspects into its operations. The integrated sustainability assessment (ISA), is developed from the corporate sustainability assessment, and is defined as the process within companies that focus on is the relationships of unsustainable trends and how they can be changed, and not the impacts generated from existing activities. The ISA process is the main theoretical part of this conceptual framework. The phenomenon analyzed in this study, the IP&L, is considered to have similar configuration as ISA process. The ISA process is divided in three areas, themes/motives, management and strategy making. Based on these three areas, the practices and principles of the ISA process are put in relation to the managers' experiences of the IP&L process within their companies. Figure 5 illustrates the conceptual framework developed to guide the reader through the analysis.

.

Figure 5. Conceptual framework (Own processing)

3 Method

This chapter presents the method used in this study. The research approach and strategy is introduced, followed by arguments of why the author consider the chosen method relevant to approach the research problem. In addition, the perspectives of quality, transparency and critical view are also discussed.

3.1 Research approach, design and strategy

As this thesis wants to investigate and analyses the management of an integrated sustainability assessment tool, and if it contributes to better strategy making, the research approach must match this aim. This research is striving in developing a deeper understanding of how managers experience the working process with IP&L and how corporate strategy might be affected. To understand the research approach of this study, the difference between the main approaches in business research will be presented. Those are the qualitative and quantitative approach (Bryman & Bell, 2011). One way to describe a qualitative approach, is that it's trying to understand social constructions within its context (Robson, 2011). Another description is that the focus lies on exploring the process of a phenomena rather than attempts to find results (Alvesson & Deetz, 2000). In practice, the qualitative researcher is located in a social context, collecting data while interpreting the data in an interacting process (Bryman & Bell, 2015). The researcher wants to capture actions within the context as well as understand the meaning of these actions. Quantitative researcher on the other hand, has its base in an objective surrounding, and by measuring different indictors in order to receive information about the objective's reality. This is usually done by a hypothesis test, which means that the researcher assumes a hypothesis, which by collecting and analyzing data will be confirmed or rejected (Robson, 2011). One of the main differences of qualitative and quantitative research designs is the focus of an objects reality. Quantitative research acknowledges the reality, while qualitative highlights the several realities that can occur in an objects context depending on the interaction between individuals within the context. By defining the two main research approaches, one can argue as this study did not want to measure or quantify the results of a sustainability assessment tool like IP&L. However, this study wants to investigate and explore the IP&L tool by talking to respondents and their thoughts of hoe IP&L contributes to the companies' strategies. Therefore, the researcher in this study have chosen a qualitative approach.

A study design is usually either flexible or fixed. A fixed design is characterized by focusing on the relationships and comparison of them (Bryman & Bell, 2015; Robson, 2011). The data collection of a fixed design is usually planned beforehand. Therefore, a fixed design is not considered suitable when studying social contexts and individuals. A flexible design has been used in this study, which is preferable when investigating a social phenomenon in its contexts (Bryman & Bell, 2011; Kvale & Brinkmann, 2014). This study has investigated an integrated sustainability assessment tool and how it contributes to strategy making, with collected material from manager's experiences. The aim of a flexible design is according to Bryman and Bell (2011) to create an understanding of a phenomenon by interpreting and analyzing collected material and is suitable when doing in-depth investigation.

Next, the author of this thesis will argue why this study is considered to be inductive. But first, let's just shortly describe the meaning of why researchers need to argue if their study is inductive, deductive or sometimes abductive. Is all about the study´s relationship between the theory and the reality observations (Alvesson & Deetz, 2000). It is important to explain which

part of the research area the study approaches first. Inductive study focuses on observations collected from reality, and from those observations finding a theoretical framework that could match, challenge and change an established theory (Bryman & Bell, 2011). A deductive study, roughly speaking, goes in the other direction. The starting point is a theoretical model or framework, hypothesis is then developed, to be tested against observations from reality.

An inductive approach follows a process were empirical data form a certain context is collected. Then, the data is usually sorted into different themes in order to facilitate the search for convenient theory/theories (Bryman & Bell, 2015). You can call this the course of action of the inductive approach. As mention above, the deductive approach course of action of the opposite direction, and the theory is clarified before empirical data is collected. An abductive approach is mixing the two above and refers to when researchers is interacting between theory and empirical data (Robson, 2011). So, coming back to why this study is considered to be an inductive study, the startup of this study was based on the curiosity of IP&L, and how this tool can help a company. The literature review, who is to be explained more detailed later in this chapter, was performed during the empirical data collection, and also after the primary data collection.

3.2 Multiple case study

A case study design is used when researchers wants preconditions to develop an in-depth study and analysis of one case (Stake, 1995). A case is often associated with geographical location, for example an organization. But a research case can also be a process, activity or individuals (Bryman, 2011; Robson, 2011). How a case study distinguishes from other designs of research is the limited focus on a system or situation. Case studies are often associated with qualitative research, but this is not always required. By qualitative research means that often one or only a few cases are analysed, but so-called quantitative research with several cases can also use the case study design (Bryman, 2011). Because of the wide us of case studies in different research methods is possible, it is important to clarify the aim of the study carefully. Unless a distinction is not made, it becomes difficult to distinguish the case study to a specific research design. When a case is selected with the intention to represent a population, sampling of a formal structure is required. Stake (1995) point out the importance of learning when choosing a case for research.

This study is a multiple case study. As this study wants to contribute to increased knowledge of a certain phenomenon, in this case the IP&L tool, it is suitable with several observations of specific contexts to create a deeper understanding. A multiple-case study can be described as an extension of the case study design (Bryman, 2011). This kind of study is often mistaken for having the purpose to gather a “sample” of cases to be able to see a generalization (Yin, 2009; Robson, 2011). In fact, in many studies it can be appropriate to study more than just one case. Yin (2009) argues that multiple case studies involving several research strategies, can generate analytic generalization. In practice, the first case study is likely to provide evidence that can support a theoretical view about the research area, for example in terms of the context conditions or mechanisms in which they operate. Patterns of data and findings from one case study can help support findings in another case *(ibid*).

As this study wishes to investigate the managers experience of the IP&L tool, managers and one strategist situated in two companies were selected for case study research. Since there are more than one manager, a multiple case study approach was conducted. To generate increased knowledge about a certain phenomenon, using a multiple case study to approach creates an

understanding of real experiences in social contexts (Yin, 2006). This study has analyzed the experience of four respondents, who has the phenomenon IP&L in common. The problem formulation of this thesis is highlighting the issue of sustainability efforts and strategy making, and is investigating one certain sustainability phenomenon, the IP&L tool. The two companies selected for this thesis has implemented this specific integrated sustainability assessment tool. However, the author of the thesis saw an opportunity for carry out a multiple case study to understand the management experiences of this tool, and has seen the four respondents as four different cases. One can argue that the two companies chosen for this study reflects two different contexts, which provide results seen as stronger and more convincing than if only investigating one context (Bryman & Bell, 2011).

To argue that this study is a multiple-case study and not a cross-sectional study, the answer should lie in the focus of the study (Bryman & Bell, 2015). When looking at the aim, which is to investigate how the IP&L tool contributes to better corporate strategy making, it indicates that the study wants to look at the context of each case and not produce general findings. So, a multiple-case study focus is on the individual case, while the cross-sectional design focus on a sample of cases *(ibid).*

At first, a comparative design was considered when doing a multiple case study, this because this type of research is widely assumed to have the purpose to compare the cases who are involved (Bryman & Bell, 2011). To argue why not use a comparative approach of a multi-case study is because this study does not wish to analyse patters, similarities and differences across the cases, that is seen as the basis of a comparative study. This was the first reflection as the IP&L tool is a quite new phenomenon at the time of writing this thesis. A comparison was considered to be useful approach to generate findings of how the corporate strategies is affected by a recently implemented integrated sustainably assessment tool. However, this study wants to investigate the management experiences of an integrated sustainability assessment tool. Finding similarities and differences has not been the focus of the analysis. Instead, two contexts and four respondents involving the same phenomenon has through analysation created a deeper understanding of an implementation and management of an integrated sustainability assessment tool, and how it can be used in strategy making. Differences and similarities has come up, but is not the main focus of the study.

3.2.1 Choice of cases

First, two companies are mentioned in this study, both anonymous. The author has therefore strived to carefully describe the context and operation of each company in general and not state any details. This is why they are referred to Company A and Company B. Respondents from the two different companies is also anonymous, and has been referred as their title, for example “sustainability manager” and “political manager”.

To build up enough cases of a population or area that is hard to reach, a so-called snowball sampling can be applied (Robson, 2011). When researchers find a case that is new in its context or relativity un-known within an area, the snowball sampling is a way to find rare cases to use within qualitative research. This kind of sampling was made in this study because the IP&L tool is considered to be a quite new phenomenon. It is hard to reach companies that have implemented this tool because they are few and don’t communicate their IP&L work externally. By applying this kind of sampling on a qualitative study, unique social knowledge of high quality from dynamic moments can be generated (Noy, 2008). When finding different groups, who shares social experience, have most certain different approaches to address what they have experienced.

This sampling approach is also suitable for business studies when a specific company´s employees gives primary data (Research Methodology, 2017). Once you have contact with an employee it is possible that this first contact can help you recruit other contacts from the same or other companies that can add more primary data but from a different perspective. In this study, Company A was found by the researcher as a potential case study object, and had at the time just finished its first IP&L report. To be able to get more knowledge about the IP&L implementation and contribution to strategy making, Company A´s sustainability manager helped the researcher of the study to find contact information to Company B. Company B have an established IP&L implementation, both in the sustainability work and within the company´s strategy. This part of the sampling of cases can be argued as snowball sampling. Further discussion of snowball sampling is that it relies on the dynamics of organic social networks (Noy, 2008; Robson, 2011). In terms of social systems and social capital is relevant with organic social knowledge and power relations between respondents (*Ibid).*

In this thesis, Company A and Company B are viewed as two contexts where both have implemented the IP&L tool. Further, the four respondents who are employees at Company A and Company B, are the cases of this study, which also is stated by Robson (2011) and Bryman, (2011), that research cases can also be individuals.

3.2.2 Data collection

The author of this study has used semi-structured interviews to collect data. This type of interview is characterized are described to be open and flexible (Bryman & Bell, 2011). The researcher usually prepares an interview guide, which is written questions of an open character. Open questions allow the respondent to talk about a phenomenon or context with own words and experiences. The strength concerning open questions is that it can gain knowledge from the respondent's experiences. The weakness on the other hand, is that open question can exclude relevant information if an interview gets to flexible. Using the interview guide as a checklist of subjects to be cover during the interview, without to follow any outline. Furthermore, when a method is flexible and qualitative, it is often suitable with semi-structured interviews to collect data (Robson, 2011). Semi-structured interviews can provide richer and more developed answers, which is partly because respondent can use own expressions and words. In addition, perspectives and interests of the respondents is highlighted.

Table 1: Interview résumé.

Respondent	**Date**	**Duration**	**Form**	**Content confirmed**
Sustainability Manager, Company B	16 March 2018	60 min	Face to face (recorded)	Yes
Political Manager, Company A	26 March 2018	40 min	Face to face (recorded)	Yes
Sustainability Manager, Company A	26 March 2018	30 min	Face to face (recorded)	Yes
Climate Strategist, Company A	20 April 2018	30 min	Telephone (recorded)	Yes

Using several sources of data strengthens a qualitative study (Bryman & Bell, 2011). In addition, information from secondary sources has been collected from the two cases websites, annual reports and their IP&L reports where they explain the working process and results.

A final note concerning collection of material is the author of this thesis have had consistent contact with Company A: s sustainability manager, who has been an external supervisor for this study. This kind of data collection can be referred to participant observation (Bryman & Bell, 2011). The aim of participant observation is to gain close understanding of a given group of individuals. Further, observation of the social context and the individual's practices in their cultural environment is done over a period of time (*ibid*).

As seen in Table 1, almost all the interviews were conducted face-to-face, which makes interviews more potential to provide valuable material (Robson, 2011). It also enables the researcher to see reactions and responses from the respondent during the interview. Therefore, the author of the thesis has strived for as many face-to-face meetings as possible. All the interviews were performed one by one, and only the researcher and the current respondents were in the room. The interviews were also recorded, minimizing the risk to miss crucial information and to have the interview material for transcription. The benefit from that no other employee from the company participates in the interview other than the respondent is that it prevents interruption, creates a sincere dialog and one other person than the researcher is asking questions (Bryman & Bell, 2011). All the face-to-face interview were carried out in each respondent's office place. The telephone interview was planned to be a face-to-face interview as well, but was suspended due to illness. It is argued to be pros and cons of a telephone interview (Robson, 2011). The cons are mainly the lack of visual indications and not having the change to collect information from the context. The pros are that it saves time and can be performed pretty much with anyone anywhere in the world *(ibid).*

3.2.3 Data analysis

In a qualitive study, it is of great importance to organize the data from the data collection (Robson, 2011). Semi-structed interviews often generate massive amount of material. To sort and view the material to be able to analyse it, the recommendation from several method researchers is to transcribe each interview (Robson, 2011; Bryman & Bell, 2011). Each interview was therefore recorded and then transcribed. When the transcriptions were finished, they were sent to the respondents to approve to use the material, alternative change or remove some parts and after approve. Transcription is time-consuming, but the valuable benefit from it is that the researcher gathers all information on paper and don't miss out important parts from the interviews. All the interviews were performed in Swedish, so the transcriptions have also been written in Swedish based on the recordings. The interviews where typed down with the strive to copy the exact phrases, however is the author aware of that the transcription does not always follow the interviews word by word.

As this thesis is written in English, the material from the Swedish interviews as also been translated into English. This can create disadvantages of the quality of the contents, as barriers between languages can occur (Bryman & Bell, 2011). The author of the thesis has been aware of this, and has therefore after processed and written the empirical chapter involving materials from the interviews, sent the material once again to the respondents for approval or disapproval to use. While the empirical chapter was written, the author of the thesis chose to organize the empirical material divided in different themes. This approach is called thematic

coding (Robson, 2011). This is supposed to help to researchers to structure and analyse the material. For each case, the empirical material was divided in three themes:

1) Implementation, framework and results of IP&L (empirical material based on the companies IP&L reports)
2) Motives and criteria (empirical material from interviews)
3) Management and communication (empirical material from interviews)

3.3 Literature review

A literature review is crucial to create understanding of the current situation of the chosen research area, discover the theoretical viewpoint and concepts to get an overall view of the social phenomenon of interest (Bryman & Bell, 2011; Creswell, 2013). Different perspectives of a study are important, and a literature review can help the researcher be aware of these perspectives. Going through literature can help researchers to find potential gaps in the existing knowledge and by this formulate new research (Hennie, 2010).

To easier frame the analytical approach the researchers wishes to have, a literature review also is of importance. The purpose is not to find a detailed approach for the analyzation process, but help to provide a general framework with literature findings with some overall perspectives, while analyzing the chosen narrow concepts (Creswell, 2013). The general relevant framework of literature was constructed trough a literature reviews based on topics of corporate sustainability, corporate sustainability assessment, integrated assessment and integrated sustainability assessment. Google Scholar, Primo, and Web of science was the most used databases for finding appropriate literature. Primarily, the author has based the theoretical framework on peer-reviewed academic articles. The phenomenon of this study, IP&L tool, was also searched for on several data bases, but since the tool is at the time quite new, hardly any literature was found. The author founded books about sustainability, environmental economics, strategy and sustainability assessment at SLU Ultuna Library. Looking through overall literature also helps to ensure the trustworthiness of the theoretical framework (Bryman & Bell, 2011).

In this study, a narrative literature review was proceeded (Bryman & Bell, 2011). This review type tends to be wide-ranging in scope, and do not have a clear focus where it is heading. The opposite literature approach is the systematic review. When a researcher with an inductive approach wants to generate understanding of a certain subject, a narrative review is often used. As this study is flexible, the narrative literature review comes naturally when looking for academic literature (*ibid*).

3.4 Quality assurance

Quality assurance of qualitative research and foremost case studies have varied opinions. In quantitative research, validity and reliability is two main quality measurement (Bryman & Bell, 2011). Shortly, validity of a quantitative study refers to measure relevant data linked to the right context, while reliability is about measuring data in a reliable way. The general rule of the correlation between validity and reliability is the following: high reliability does not guarantee high validity, and high validity requires high reliability (*ibid*).

Going back to the qualitative approach, some researchers use validity and reliability as quality measurement in qualitative studies as well. However, discussions regarding relevance of validity and reliability in qualitative research have been ongoing between researchers. Yin

(2006) argues for using validity and reliability on cases studies, while Stake (1995) do not consider it applicable to use validity and reliability on case study research. Further, other criteria have been proposed to use instead, for example authenticity and trustworthiness, to be able to assess qualitative research (Guba & Lincoln, 1994). In the expression trustworthiness, confirmability, transferability and credibility are included.

3.4.1 Reliability

The mixed opinions about reliability has been in consideration when preforming a qualitative study (Stake, 1995; Yin, 2006). Even tough, the author of this study has strived to integrated the same view of reliability as Yin (2006), which defines reliability in qualitative research to be the possibility for another researcher to perform the same study once again and reaching the same results. If using the same methodology and the same cases, a different researcher should generate similar results. However, qualitative studies strive for understanding, and different researcher will generate different understanding and interpretations in the same contexts, cases or phenomena (Bryman & Bell, 2015). This can once again criticize reliability within qualitative studies, and awareness of that reliability depends on the analyzation of empirical material and how the interviews is performed, and so on. Still, the importance of a reliable qualitative study is crucial (Merriam, 1994). To strive for a reliable study, the author as tried to written a detailed and transparent description of the chosen methodology.

3.4.2 Validity

Yin (2006) describes the concept of validity as a quality assurance of a study examines what was intended to be examined, based on the given methodology. Some researchers argue that validity within a qualitative research strengthens its trustworthiness and quality (Bryman & Bell, 2011; Yin, 2006). Even tough validity together with reliability is discussed to not be suitable for qualitative research, this study has still tried to integrated them both. Internal validity is often mentioned when looking at qualitative studies, which means that a study should strive for strong correspondence between theoretical concepts and observations generated from the research (Bryman & Bell, 2011). To strengthen internal validity, the respondents have looked over the collected material, and got the change to return feedback and approve the material.

3.4.3 Ethical considerations

Ethical considerations have been taken in account during this study, and the author has strived to highlight them both in this report and to all respondents. In an interview situation, both face to face and over telephone, there are several considerations that the researcher needs to keep in mind. Both during and after the interviews, the researcher needs to make sure to provide respondents with material of what the purpose is planned to be for the study, as well as the collected material from the interviews (Robson, 2011). This because the respondent should not feel misunderstood in order to assist the researcher with empirical material, as informed respondents is argued to be of great importance in qualitative research (Kvale & Brinkmann, 2009).

A transparent dialogue with respondents during the whole study is one other important ethical consideration (Bryman & Bell, 2015). This to create an understanding from the respondents about the contents of the thesis, and how their participation will be used. All the interviews were recorded, and every respondent approved the recording. The author did know beforehand that one of the companies did not what to be mentioned in the study, so to protect their privacy, the author decided to keep the whole study anonymous.

3.5 Criticism against chosen methodology

It is of great importance to have a critical view of the chosen methodology, and is because to create awareness and seeing the study from a different perspective (Bryman & Bell, 2011). Yin (2006) is a frequently referred to regarding the critical perspective of case study research. Three different critiques explained by Yin (2006) has also been in consideration when writing this thesis. First is the statement that case studies cannot be generalized. This is considered to be true if a statistical generalisation from populations is the focus of the case study. However, case studies can be generalized when approaching them with theoretical hypotheses. Yin (2006) visualize this criticism with the example of a black swan. If a researcher finds a "black swan", the conclusion of this is that one black sawn exist, and generalization of this says that black swans exists. Cases studies aims to develop and generalize theories, and not regularities. Another critique regarding case studies is that they take too much time to finish. One last critique is that the researcher might influence the results and conclusions. It is argued that the researcher cannot view a social phenomenon from the outside, because the information the researcher gathers makes her or him involved in the social context of the case study. A qualitative research design is argued to be non-transparent and subjective. (Bryman & Bell, 2011)

The author wants to point out that the purpose of this thesis is to create an understanding about an integrated sustainability assessment tool and how it might influence a company´s strategy. A statistical generalization is not possible for this kind of research, and the author are aware of that the theoretical framework has not been developed to see a match between a general ISA management and the cases management. A wish to see an over-view of how management of the IP&L tool can contribute to better decision making and motives for using the IP&L was the authors purpose with this study. The author is also aware of bias a qualitative approach can generate, and the gained knowledge can affect the researcher's subjectivity. Lastly, to be aware of impacts researchers can make on a study creates transparency (Bryman & Bell, 2011).

4 Empirical data

In this study, one specific integrated sustainability assessment tool (Integrated Profit and Loss, IP&L) is analyzed by making a multiple case study of two companies with a total of four respondents, all having a managing or strategic role in the IP&L process. In this chapter the IP&L tool is described. Then, a presentation of each company´s IP&L process is written based on their IP&L reports, follow by the empirical data from interviews of the respondents.

4.1 Integrated Profit and Loss Assessment (IP&L)

This integrated sustainability assessment framework is argued to create a holistic view of public wealth central for a sustainable economy. Monetary values are therefore estimated of natural, human and social capital (Gist Advisory, 2018).

The Integrated Profit and Loss assessment (IP&L) is a framework developed to help managers to design appropriate responses to local and global risks of a company. In addition, it promotes to generate measurable value to the company´s stakeholders and drive sustainable growth (Gist Advisory, 2018). This integrated sustainability assessment framework is argued to create a holistic view of public wealth that is considered central for a sustainable economy. Monetary values are therefore estimated of natural, human and social capital as well as non-shareholder financial value. Combined with a company´s financial performance, measuring externalities along the natural, human and social capital provides companies with a monetary evaluation of their performances, highlighting value creation or loss for both society and the company (World Bank, 2006; Gist Advisory, 2018).

A company depend on the support of local communities, a dynamic workforce and sustainable supply of natural capital to be able to operate efficiently. Creators of the IP&L assessment states the following critical flows of capital can by IP&L be accounted within the company.

- Quantify the positive and negative impacts the company has on local communities
- Disconnect business growth from environmental degradation
- Measure return on investments from the company's employee training programs

With these guidelines, it is argued that a company will make better decisions across the product range, supply chains, and at the same time communicating the company´s value to every stakeholder group. A short description of each capital area is explained below.

Natural capital can be seen as the world´s stock of natural resources (Gist Advisory, 2018). This include air, water, soil, geology and all living creatures. Ecosystem services is systems that humans obtain of wide range, and they are developed from natural capital. The fundamental asset base for human's global economy is natural capital, yet we continue using this capital beyond what is sustainable. Companies who measure their impacts on the environment are according to Gist Advistory (2018) able to decoupling resource use from profit maximization in order to achieve sustainable growth.

Knowledge, competencies within employees, personal and social attributes embedded in individuals aiming for producing economic value, is one definition of human capital (OECD 1998). Human capital is the key factor of how a company preform as well as a dynamic society, still is human capital rarely well accounted for. Companies who quantifies value

creation from their employees through for example training programs, can improve business performance as well as attract new employees.

Social capital can be referred to the relationships established between and within groups of stakeholders, communities and similar networks, and their ability to share information between these networks, and by this develop individual and collective welfare. The impact a company makes on society often generate positive externalities. One example is that it has been shown that employment of local women leads to more money invested in education and health for local families. Social capital and the benefits from it can be communicated and quantified to stakeholders to promote local support and increase the brand value (Gist Advisory, 2018).

The IP&L assessment tool is developed to extend the understanding of that a company´s full value is not provided simply through the standard accounting value (Gist Advisory, 2018). Added financial value a company has from different components, for example the results from net interest, net rentals and salaries, do not show in the company´s accounting. IP&L as a framework do mention that boundaries to what extend a company wishes to value capital and assets depends on the company itself, and this analysis can be chosen to just be used on the company alone, or be implemented on the full value chain. Finally, the IP&L tool promotes capturing value-added components along the whole supply chain will help companies quantify all contribution they make to the economy.

Table 2. An example of how an IP&L assessment looks like. (Gist Advistory, 2018)

EXAMPLE: IP&L™

	2014		2015		Annual change
	P	L	P	L	%
Natural Capital (NCX™)					
Upstream ($Millions)		152		139	- 8.6%
Direct ($Millions)		38		42	10.5%
Downstream ($Millions)	37		43		16.2%
Total		153		138	-9.8%
Human Capital (HCX™)					
Upstream ($Millions)	5		7		40%
Direct ($Millions)	135		140		3.7%
Downstream (B2B) ($Millions)	12		10		- 16.7%
Percentage increase	152		157		3.3%
Social Capital (SCX™)					
Upstream ($Millions)		15		14	- 6.7%
Direct ($Millions)	50		65		30%
Downstream (B2B) ($Millions)		7		9	28.6%
Total	28		42		50%
Financial Value Added (FCX™)					
Direct	230		355		54.3%
Total	230		355		54.3%

KEY BENEFITS

Provided the business case for innovation in high risk areas across the supply chain.

Enabling access to green capital to deliver resource efficient manufacturing processes.

Used to inform adaptive marketing strategies to consumers in resource constrained cities.

By assessing our direct link to job creation in our supply chain, it has provided our procurement team with an engagement point that is strengthening key supplier relationships.

Human capital analysis has determined the effectiveness of our training and H&S programmes and helped HR to decide on where to target key staff retention policies.

This has identified threats to the business, allowing us to anticipate social issues that effect our ability to operate in certain locations.

Understanding our social externalities provided us with the information to rework our sustainability strategy, ensuring we maximise value to our stakeholders and communicate this more effectively.

By capturing value added for non-reported stakeholders, we are able to evaluate the true contribution made by our company to the economy.

4.2 Company A: s implementation, framework and results of IP&L

Company A operates in Sweden, and it owns a large amount of natural resources. This company has a vision to be in the market leader regarding sustainability efforts and development, and started with the Integrated Profit and Loss assessment in year 2016. The intention of IP&L was to understand the full value Company A delivers to its stakeholders

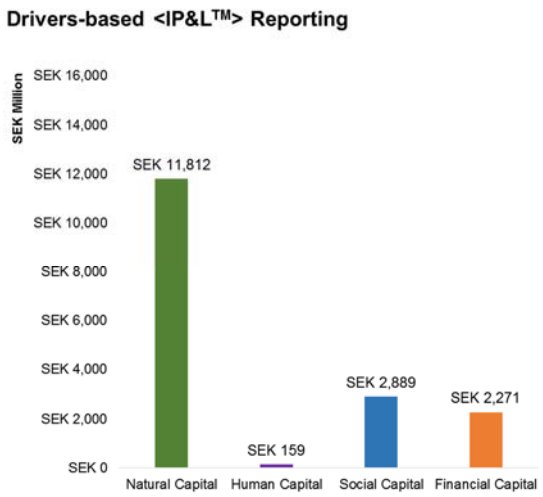
from its business operations. The demonstration of the wide range of both impacts and benefits that Company A generates across their four capital areas, which in their case is natural, human, social and physical capital. The IP&L report has the intention to help answer strategic questions, for example; how can a company generate more value, or how does the business operations affect both Swedish society and its stakeholders.

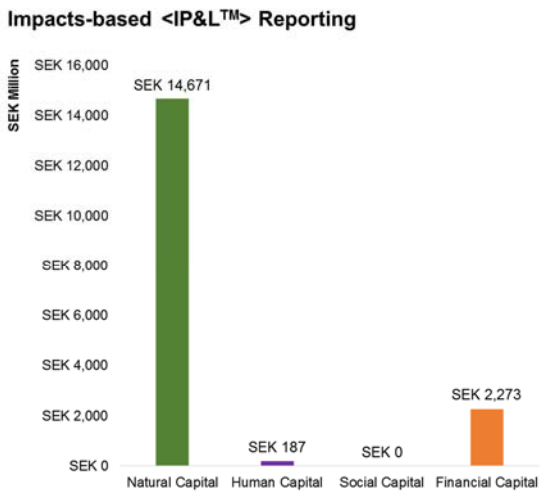
The scope of evaluation involving positive and negative impacts of Company A operations is divided in several parts. First, analyzation of positive natural impacts of ecosystem services, and negative natural capital impacts of Company A: s operations and the services it purchases from its contractors. Second, positive social capital impacts Company A: s operations and policies generates for local communities through corporate social responsibility (CSR). Third, the positive human capital impacts Company A generates for its employees. Finally, the non-reported financial value addition Company A contributes to the Gross Domestic Product (GDP), (in Swedish BNP), beyond the annual net profits reported in annual reports.
The stated approach of Company A to the IP&L is "value addition through a holistic lens, measuring impacts across different capital areas, following the assessment of integrated reporting". The four-capital framework is scientifically accepted from both environmental economics literature and macro-economic frameworks based on the Inclusive Wealth (IW) Report of the United Nations.

The results of Company A: s IP&L assessment is shown in Table 3 below. This illustrates year 2016´s study of monetized impacts across four capital, and is divided in a "Drivers-based" approach and an "Impacts based" approach. These two approaches are used depending on what to evaluate. The drivers-based approach enables companies to identify how business activities and value chains impacts the four areas of capital. The impact-based approach identifies on whom these impacts occur. Driver-based approach is helpful in stakeholder reporting and corporate management, because it helps to identify, measure and manage impacts of a company´s business across the four capital areas. Concerning the impact-based approach, this provides micro-macro linkages between corporate externalities reporting and a holistic national wealth accounting. Natural capital is with no doubt the biggest capital area within both approaches in Company A.

Some examples of impact-based reporting of natural capital are harvesting from Company A: s land and recreational value, but are classified as social capital under the drivers-based approach. Looking at human capital impacts, they are for example air pollution and water consumption from the impact-based approach, but are classified as natural capital when analyzing it from a drivers-based approach.

Table 3. Overview of Company A: s IP&L assessment, divided in drivers-based and impact-based reporting.





4.2.1 Interviews with respondents from Company A

The Political Manager of Company A was around year 2013 at a seminar about ecosystem services. In this seminar, values apart from the financial were discuses. This was the first meeting with IP&L founder Pavan Sukhdev, who introduced this integrated sustainability assessment tool. It was concluded that most of the companies who has used the IP&L assessment has long supply chains which result in monetary valuation of capital illustrates that impacts linked to their operations is much higher than first expected. If companies made efforts and paid to reduce impacts, they would become more sustainable. "Our business includes natural resources, and a lot of our activities are underrated, that we contribute to services in the form of natural or social capital through our activities and through our management of a green resource," explains the Political Manager. In 2014, a smaller study was made of Company A with help of Pavan Sukhdev and his team, just to get an understanding of the IP&L process.

"Then we decided to do the assessment in full scale under the leadership of our new Sustainability Manager", says the Political Manager.

Motives and criteria

Concerning motives or goals of the IP&L analysis is first to visualize the values of Company A: s natural resources. Another motive is to have a wider range of reasoning for a more sustainable business, and create a discussion of how to use natural resources in a sustainable business.

The Sustainability Manager today, explains what motives Company A had regarding the implementation of the IP&L tool: "One motive was that we needed a tool showing how we work with sustainability, measure our impacts and report our sustainability work. IP&L is a communication tool, but also a new way of reporting and accounting sustainability efforts." The third respondent of Company A is the Climate Strategist, who has been responsible for a big part of the data collection for the IP&L analysis, and have a deeper insight of the assessment process. She has also reviewed reports produced from the IP&L consult team Gist, communicated questions and when something has been unclear in the analysis.

"Company A is fully aware of that our operations generate other values than just our production, especially the social values. This analysis is a good way to show how we deliver those values together with the financial values, and that they necessarily don't have to stand in contrast to each other", says the Climate Strategist. She continues: "The other great thing about this tool is that it's good for monitoring over time, it helps us see how we affect different values and identify areas who need to be worked with. This tool can be a part of the company's strategy making if it is implemented to its full extend."

Company A: s criteria for choosing a tool like IP&L to implement within their business emphasizes all three respondents the importance of transparency, and that transparency is generated with credibility of a tool. "I think we need to manage the results we generate with humility and respect, to not just communicate the result as definitive numbers. You net to see it more like indications of the relationships between capital" says the Political Manager. He continues: "To understand the dimension of values we manage, we also need to understand our responsibilities and our opportunities, and from there look forward and follow-up our work over time".

Sustainability Manager: "It is about controlling our actions. We see our impact, both negative and positive, and this we want to be transparent about". She also continues with the importance of seeing the size of relationships: "I think we knew all along about most of the results we got, is was more of a confirmation. But what we did not know was the quantities and the relationship between them".

The Climate Strategist added: "A scientifically proven methodology is crucial when working with this kind of questions, but what I find important when doing an evaluation like this is not the monetary values, it is the relationships, and if we can get a number of these relationships we can use the IP&L as a follow-up tool."

Management and Communication

The communication of the IP&L work is concerning to the Political Manager to strive for lifting values their production and operations actually make for the climate, water quality and so on, and try not to focus on the monetary values as numbers. By highlighting values that otherwise no one would notice regarding the natural resource Company A have in its production is important concerning the communication. "Communication is challenging, and the IP&L analysis is an abstract approach. Many times, you need a good example to make something understandable". The Political Manager continues to explain the new perspectives the IP&L assessment can generate. One example is taken from Latin America´s agriculture, who gets water from the Amazonas, and it works like a pump who delivers water to the south parts. If the Amazonas would disappear, what would happen then?

The understanding of what would happen to financial businesses if an ecosystem service disappeared creates a deeper insight, and putting values on ecosystem services highlights its actual contribution to business activities. The Sustainability Manager continues:

> "Communication is challenging, and there are many new expressions to explain, but this is always the case when something is new. Even tough, I see it most as a possibility. More customers are aware of impacts and so on, and it is a strength for our customers as well that we can report impacts from our business. I think over time it will be a selection, suppliers who aren't interested in reporting their impacts will disappear. Aware customers will set demands, and their customers will also set demands."

The Climate Strategist about communication:

> "I think this is a good communication tool concerning all the environmental discussions right now. The national environmental objectives, one objective is for example to include ecosystem services in decision-making. This tool helps to communicate that we actually evaluate our ecosystem services and show that we work towards the environmental objectives. The method is not perfect of course, but provides a good approach to start with".

She also adds:

> "We hope that we can communicate the results as easy as possible, both internal and external. If we can show that we deliver all these values, hopefully it will make our employees proud and generate a dialog externally to promote these large values".

There are pros and cons of a valuation tool like the IP&L. Evaluation of natural, human and social capital highlights the big number of vales Company A generates. The cons of doing an evaluation like this is how to look at these values, the Climate Strategist says that if you only look at the exact values, discussion might occur. Social values are in a way invaluable. Biodiversity are complex to value, and Company A has no given method to put value on biodiversity, and it has an intrinsic value itself, just by existing. Ecosystem services has a value for human being, but biodiversity has values in other dimensions. Company A also needs better systems to generate data from the human capital, to be able to measure investments on staff and also the return on investment. "We need to work with the data collection concerning several areas, and then integrated the results into the strategy-making", says the Climate Strategist.

> "The method needs to be developed, but the main thing is that we try to see these values to get the holistic picture and be aware of them. When we understand the importance of these values, it should integrate how to run a business and how decisions are made, that's the overall effect of this method I think, a new view of management of a sustainable company",

states the Political Manager.

The Sustainability Manager about how IP&L might contribute to strategy-making:

> "This is how I am thinking, Company A has goals concerning running a sustainable business, and we communicate this in our business plan already. Using this tool in our strategy-making, we will fulfill our goals of a sustainable business. What important right now is to gather what we have found from the IP&L analysis and link the results to our goals. In addition, concerning this new kind of thinking, it requires that the steering board also commit to the work, and I feel that we have a strong commitment already from the board".

The Climate Strategist about the future of the IP&L tool:

> "It depends on how we manage it from now on, we have merely taken the first step yet. We need to take the next steep and develop it further. Develop the methods to make it our own, follow-up in about two years and fully integrated it into the company. Then it will be a really useful tool in our sustainability work."

4.3 Company B: s implementation, framework and results of IP&L (3D P&L)

This worldwide company is on a high level effected by the Sustainable Development Goals (SDGs) stated in year 2016 (www, United Nations, 2018). Because of these goals, leading businesses around the world are accelerating to generate innovative solutions for sustainable development, solve societal development challenges such as population growth, and counteract the increased use of resources and carbon emissions within their value chains. Company B is through their sustainability efforts aiming to make increased use of environmental, social and economic impact assessment, and also profit and loss accounting, as an incitement for their decision making.

Company B has conducted a three-dimensional profit and loss assessment (3D P&L) across all their business activities. They started off with implementing the IP&L, or as they call it, the 4 P&L assessment, as it refers to four dimensions of capital analyzed, which are the natural capital, human capital, social capital and added financial capital. At first, Company B´s four dimensions were natural capital, human capital, financial capital and social risk. In year 2016, they removed the social risk dimension from this assessment since this was not monetized, so no actual profit and loss were calculated. To increase transparency, they changed the name to 3D P&L, and are now working with three areas of sustainability, which are economic capital, environmental capital and social capital.

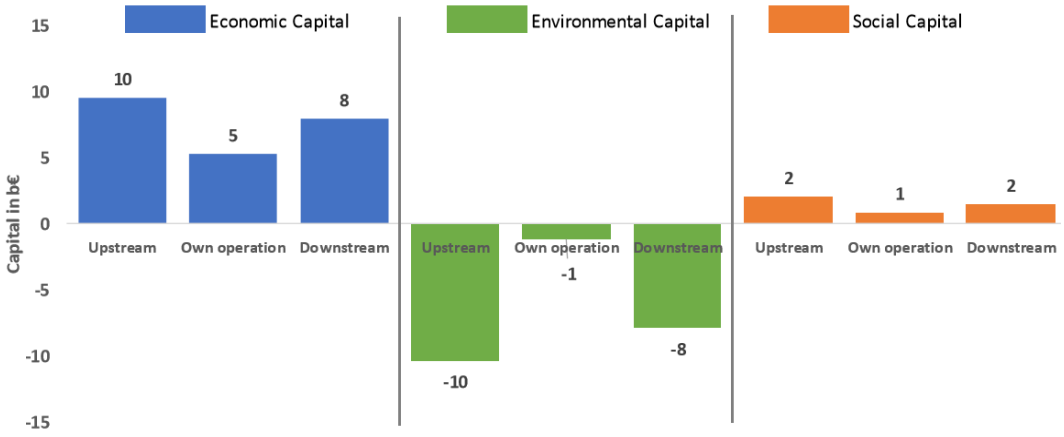
Sustainability efforts along the whole scope of were a company operates is not easy to measure, so an analysis of every part of the value chain is usually an effective way to see positive and negative effects. The 3D P&L methodology that Company B uses takes not only profit and costs in account, but also the negative effects (losses) and the value creation (profits) that take place in all links of the value chain, often called externalities. Activities in Company B: s value chain has been grouped into three main sections: first one is the Upstream, activities like transportation of raw material and raw material extraction. Next section is their own operations, for example energy use and emissions. The third section is downstream, the use and end of life of the products. These three sections are based on Company B: s Carbon Reporting, which is based on the green house protocol, which is a global standardize framework establish to manage and measure greenhouse gas emissions (GHG) from public and private sector value chains and operations (www, ghgprotocol, 2018). The analysis of downstream value creation and impacts are in line with their carbon reporting scope.

Company B: s three pillars of their 3D P&L framework is shown in figure 4. Each pillar is assessed with separate methodologies. The environmental capital was evaluated through an external approach, while the economic and social capital were evaluated with newly established methodologies.

Table 4 gives an overview of where Company B: s business creates value and where they have negative impacts. The big negative impacts are made in the environmental area, mainly from the up-steam and down-stream section. They create a lot of value in the economic dimension. The social dimension is positive even tough with limited aspects. From this view, it shows where Company B itself create value and generates impacts, but also its stakeholders. The up-stream perspective includes their direct and indirect suppliers. Down-stream perspective shows the direct and indirect costumers.

To understand what this stacking table means, Company B: s contributes with value from the total value chain with about twenty percent from the economic and social perspective, and with six present from the environmental perspective. Yet, Company B:s control over the stated value is directly twenty percent and six present of the value chain, but they are affecting the full hundred percent. This highlights that addressing these impacts is not possible without a combine effort from their customers and supplies.

Table 4. Company B: s results of the 3D P&L assessment, divided in three pillars.



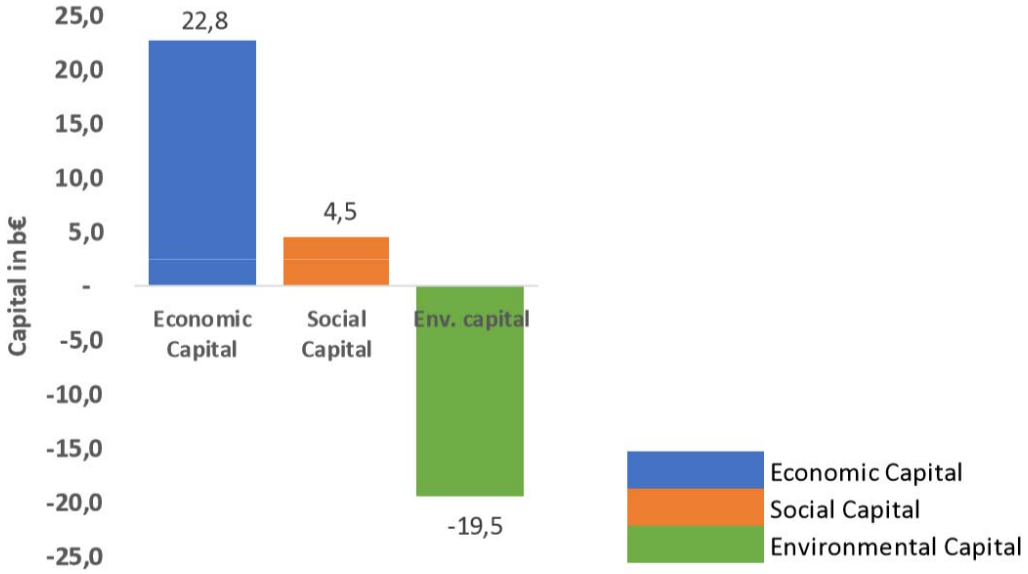
The economic capital is creating value from Company B, and its main contributor are salaries from all the employees in their industries. Other value contributions of the economic capital are interest, taxes to the government as well as profit to shareholders. Costs related to use of capital is also included when evaluating values from economic capital, such as lease rentals and depreciation.

Impacts on the environment and nature is caused by different activities related to Company B. When valuating natural cost associated with a business activity, monetary value can be used. The monetary values were stated using a life cycle assessment (LCA) of their value chains, which is a technique to assess environmental impacts associated with every stage of a product's life. They also used a pricing model for a longer-term perspective, and this model was used to estimate the market value 50 to 100 years from now on natural resources, with consideration to use these resources in the same way Company B do today. Company B:s main contributors to environmental impacts are fossil resource use, CO2 emissions, Volatile organic compounds (VOCs) which are organic chemicals and material resources. One example of the monetary evaluation was that one ton of CO2 was valuated to 135 euros. However, the key impacts on nature was not generated from Company B: s own processes, but from downstream and upstream activities.

The social capital has overall created positive value for Company B along the value chain. Key contributors to social capital is the knowledge within the company as well as the skill development of their employees. Future salary development was the approach to measure these contributors. Injuries at work of employees in other parts of the value chain was the main negative impact regarding social capital. However, company B:s value assessment on social capital is limited, as they wish to strive for not needing to monetize (not at any price) social aspects like child labor and human rights management violations.

Company B:s 3D P&L assessment results shows that many activities along the value chain is not sustainable. The results support what efforts that are needed in order to reduce impacts from mainly CO2 emissions and VOC emissions.

Table 5. Company B:s results of the 3D P&L assessment, a summary of the three dimensions.



4.3.1 Interview with respondent from Company B

Company B runs a global business with operations across several continents. They started to implement the IP&L assessment around year 2013-2014. The first study involving the assessment was in 2014, when five factories in South America were analyzed. The five factories have activities involving chemicals.

"This was the first test of the IP&L assessment. We wanted to know the utility of the approach, what results does it generate and what can we learn from it", explain the sustainability manager of Company B. She continues; "We have been working with the Life Cycle Assessment (LCA) for many years, so we are used to this type of system analysis. We also do a Carbon foot print every year, in a value chain perspective, from our use from raw material to "end of life" of products".

The LCA can give companies information about for example raw material and resource use, but other areas of impacts are not possible to trance with the LCA. Greenhouse effect or water supply can be estimated through a LCA, but it does not analyses what kind of service who stabilize the climate, or what services from nature we depend on and how they are effected by companies use. This is why they have expanded their thinking with a holistic view, based on the Natural Capital Protocol and Social Capital Protocol, to be able to understand their impacts in a wider context. The IP&L analysis started in 2014, but only on certain parts of the business. In 2016, an overall analysis was made on the whole company, using the previous LCA as the basis information. As members of the World Business Council for Sustainable Development, they are associate members of a working group within the council. This working group has developed a sector guide explaining how companies can apply and use the Natural Capital Protocol. They have done a pilot study of their operations in South America, to show the dependencies on natural capital for these operations and the risks in monetary terms linked to these dependencies. For example, their factories in South America is located

on the site of their customers, which gives close corporation, but also create dependency between each other. Therefore, they have expended the analysis to the customer's natural capital as well, because of the dependency and also risks they have to deal with trough their customers.

The IP&L assessment was the start of approaching the business form a holistic view, and Company B have collaborated with IP&L founder Pavan Sukhdev from the start. Together with him, they have developed a suitable methodology for the business. The LCA was already integrated, but the monetarized values were not specified, even though there are methods for monetarization within the LCA. The Natural Capital Protocol was also of great use.
"We have used different methods regarding the monetarization of values before, so we used a lot of previous approaches to complement the 3D P&L. For example, a method called Environmental Priority Strategies, developed from Chalmers University. The human capital is analyzed mainly through skill development, and regarding the social capital, we look at what risks that are linked to society."

Motives and criteria
LCA are implemented in the company several years back. Still, Company B: s sustainability manager points out that a LCA does not generate all answers of sustainability issues:
"We needed a better understanding of how depended we are on resource and capital, impacts we make and so on. Because, our ambition is for many years to develop the whole company, develop our processes, develop our products to become more sustainable. This is stated in our sustainability strategy made in 2013, and our climate policy from 2008".

The sustainability work is well implemented, and its measured in Key Performance Indicator (KPI), which is a measure used to track performance of a strategic objective, plan, initiative or business process. This shows that company reduces its climate impact, both from own factories and along the value chain of their products. "With the value chain thinking in mind, you realize how depended you are and that you also can make changes, both in global and local levels, concerning for example the greenhouse effect" says sustainability manager of Company B.

She continues with explaining that the more they know, the better decisions they can take for the future. The steering group has also been interested and engaged in the process, and they have also realized that a long-term sustainable business is depends on a social functioning capital. For example, the competence of employees, society around us functions etc. Having asset to the services nature provides, otherwise the business will not work. The understanding of the importance to adjust the business so it operates in a responsible way.

> "The results of the 3D P&L provide support in the decision-making process, for example what we invest in and what the focus lies in internal projects and the efficiencies of them, this needs to be identified", says the sustainability manager. She also adds: "Significant prioritized areas, that are of great importance for us as a company, those are analysed so we can understand our impact, and the analysation also shows were we have straights. Those straights need to be highlighted and be used wisely, to make them even stronger".

The outcome of sustainability efforts Company B: s has made, is that products developed to be more sustainable grows faster in volume, which gives a better margin and a profitable

business. “This gives motivation and competitiveness, which is important for the future”, the sustainability manager adds.
The implementation and development of the 3D P&L has been done to increase the internal knowledge and understanding, as well as increase the transparency of the business. “Our ambition is to be in the lead regarding the sustainability work, and that we updated our 3D P&L work continually. But I will make no secret that the process demands a lot of resources” says sustainability manager of Company B. “There is no complete method ready to apply on your business, you need to develop your own methodology”.

Several methods that analyse and evaluate natural capital is on the market, but are often own by large organisations. However, not that many are transparent. The transparency is crucial, to generate understanding and see what is relevant to focus on and make conclusions of the analysis. Which methods to use is also important, depending on if the analysis is on regional or global level. Water use is for example a local issue, were climate change is global.
“The hardest part of the analysis is the evaluation, to quantify monetary terms, it is complex”.

Management and communication
The results of the analysis have been brought up to discussion with the steering group, by presenting the “Hot spots” of the analysis:

> “What we see is that the financial gain in general is higher than the cost of natural capital, but in a case it was not, which is not sustainable in the long-term, and this has the steering group responded to and has created a dialog. This is a strength of the assessment, that we can point at something that’s minus in monetary terms, it’s a strong argument for changing strategy”.

The challenging part of the assessment is the evaluation of the social capital, were method and approaches to monetize value needs to be developed further. The social capital is complex to value, and at the same time capital that needs to be treated with respect. Company B has chosen to make a risk analysis on the social capital, but would like to see more research and development within the social area.

Company B has been working with encouraging supplies to implement activities for more sustainable business. “We control that our suppliers follow our standards and have a discussion and helping them to develop from a sustainability perspective. Our key suppliers that helps us with big volumes of material are very important to us. Together we have a discussion on how we can fulfil our goals”. The communication and discussion with internal and external stakeholders are a challenge, but Company B has mainly communicated the 3D P&L work to the steering committee.

“To communicate the results to the steering committee do we consider to be the biggest utility of the work, so that it can be used in different type of decision-making. The strength of the 3D P&L assessment is that it helps with strategic decision”. The sustainability manager continues:

> “The biggest use as I see it is that our steering committee increases their understanding of the overall sustainability performance of our operations and that a tool like 3D P&L can help to manage risks and possibilities linked to natural and social capital. And, in the longer-term, something that can lead to innovation from research projects and so on. With this tool, we see were we have strengths, were we have possibilities, and on these parts we should focus. When the focus is on those part, we see what challenges we have and can work with those, based on research and innovation.”

Concerning the customer values, Company B discusses the results with their customers, and they see an interest from them to also work with sustainability efforts. With this type of understanding of the value chain creates opportunities to work together with customers and stakeholders to find better solutions. “With a valuable dialog with customers, you get closer and integrated your sustainability efforts, generate competence and can work together towards your sustainability goals”.

5 Analysis and discussion

This part of the thesis focus on the analysis and discussion of the integrated sustainability assessment tool IP&L and analyses experiences and thoughts from the respondents. The analysis is based on the conceptual framework from chapter 2, see figure 5. Three of four respondents are titled managers, and one is a climate strategist. This means that the empirical data is looked from a management and strategic point of view, which is also the focus on this study, as the of this study is to investigate how an integrated sustainability assessment tool contributes to corporate strategy making.

5.1 Corporate Sustainability

Companies working with corporate sustainability is by definition a company that's "*run s business by meeting the needs of a company´s indirect and direct stakeholders (for example employees, clients and shareholders) without jeopardizing its ability to meet the needs of the company´s future stakeholders as well"* (Brundtland, 1987). This is a goal that both Company A and Company B clearly have in common; they have a shared vision of being in the lead regarding sustainability work. They are both considered to be highly driven companies with ambitious goals regarding sustainability work. When looking at the triple bottom line, who is the base of corporate sustainability, integrating economic, environmental and social aspects in their business, it is viewed from the authors perspective to also be the base of the integrated sustainability assessment tool they both have chosen, IP&L. However, the two anonymous companies are only shortly presented, as Company A business foremost concerns production and management of a Swedish natural resource, while Company B is a worldwide operating company managing mainly chemicals of different forms. With this in consideration, the two companies have dissimilar business areas and must approach their corporate sustainability efforts differently.

Furthermore, Steurer *et al* (2005) states different argument from researchers discussing the concept of corporate sustainability, both from a negative and positive view. The more pessimistic view of corporate sustainability is that is not adjusted to the boundaries of a company, because of its unclear definition. When looking at this study´s two companies and what the respondents have said, they have chosen both to invest in an integrated sustainability assessment tool, IP&L, that is created partly based of scenarios that might happen in the future. For example, if a company would have to start paying for using natural capital, the IP&L already would have evaluated the capital and impacts the company make linked to the capital area. This is not stated corporate sustainability would work this way in the future, however it is fully possible. Going back to argument that corporate sustainability does not fit a company's boundaries today can be argued to be true in a case of IP&L tool, because the concept is before its time in a way. With this said, corporate sustainability is a complex area and how it should be approach in the future is unclear. Turning this negative argument around, the IP&L tool can create benefits and opportunities for hard working companies that what's to create operations based on more sustainable strategies. Both Company A and Company B are fully aware of that investing in a complex tool as IP&L is a risk in a way, still they are both willing to take risks in order to approach their vision of both being leading sustainable companies. With this vision, there are no room of staying passive, and by actively showing stakeholders and society overall that both Company A and Company B have high ambitions regarding sustainability, they have chosen to implement the basis of IP&L with the aim to consistently develop and adjust the tool into their activities and integrated it within strategies.

Looking from the positive perspective of how corporate sustainability can generate benefits, it is argued that companies are willing to attempt integration of corporate sustainability to generate both economically benefits as well as public relations. Company A: s Sustainability Managers believe customer benefit generated from the results of IP&L will occur. If Company A can show their impacts and improvements regarding sustainability effort, it also creates an advantage for their customers, as they will have a supplier that already have evaluated impacts of the value chain.

5.2 Motives/themes for selecting the integrated sustainability assessment tool IP&L

As this study is analysing one integrated sustainability assessment tool called IP&L, the author would like to point out that the respondent's quotes are based on interview material talking about this specific tool. However, the analysis has the purpose of analysing the base of sustainability assessment as well. Below is first an analysation of motives for corporate sustainability assessment and how the cases studies have approach them.

As described in the theoretical chapter, a corporate sustainability assessment is about measuring to what extent a company integrated environmental, social economic and governance aspects into its operations. One goal of sustainability assessment defined by Verhem (2002) is "*to pursue that plans and activities make an optimal contribution to sustainable development."* Based on the answers from Sustainability Manager of Company B, they strive for as deep understanding as possible of their operations. She explained this concerning the IP&L implementation:

> *"*We needed a better understanding of how depended we are by resource and capital, impacts we make and so on. Because, our ambition is for many years to develop the whole company, develop our processes, develop our products to become more sustainable. This is stated in our sustainability strategy made in 2013, and our climate policy from 2008".

She explained that Company B has work with Life Cycle Assessment for many years, but the strive for the integrated assessment is clear in her quote above. Furthermore, Company A: s Climate Strategist stated the following quote:

> "Company A is fully aware of that our operations generate other values than just our production, especially the social values. This analysis is a good way to show how we deliver those values together with the financial values, and that they necessarily don't have to stand in contrast to each other".

This quote also reflects the will to take sustainability assessment one step further, in this case the IP&L assessment. These two quotes can be analyzed to be the basis of a sustainability assessment within the two companies, even though they have integrated their assessment even further. Furthermore, a general checklist of themes that corporate sustainability assessment should cover was stated by Gasparatos *et al* (2009), and will be analyzed to frame each company´s approach concerning their sustainability assessment management.

As stated in Table 6, quotes from the respondents reflects their management approach regarding their integrated sustainability assessment. Each theme will be analysed based on the quotes. First of is the theme a) actively integrate environmental, social and economic issues, and at the same time consider general needs. This highlights the triple bottom line, with the reminder to focus on the company's needs. Company A: s Sustainability Manager gave one

motive that goes in line with the triple bottom line, and adds that what can be considered as "general need" to report sustainability work. The quote from Company B: s Sustainability manager can be analysed from several perspectives, but highlights the range of information generating from sustainability assessment and to communicate this information will hopefully influence decision making.

The second theme is also very broad, but also allows companies to develop their own approach to society. Climate Strategist of Company A see the opportunity in an integrated sustainability assessment that they can highlight values they have been aware of for a long time, but not been able to communicate. When analysing this, it can reflect the will to fully evaluate the values one company make so communication to society can approve. The value chain thinking is the base if IP&L assessment, and for Company B evaluating all activities linked to their business is in a way awakening, to understand what changes a company actually can do for them as well as the society. Moving on to the third theme, how is about the understanding of sustainability in overall, to learn that operations we do today might generate consequences for tomorrow. Sustainability manager of Company A points out the importance of transparency when it comes to running a business, and the awareness of both positive and negative impacts. The focus is to not embellish the company's operations, but instead focus on what can be developed and go from there. Company B: s Sustainability Manager also highlights the benefits from being aware and adjust the business to produce more sustainable products. Motivation and competitiveness are also two benefits generated from integrated sustainability assessments. The last theme highlights the importance of that integrated sustainability assessments is complex, and that it will be uncertainties of the results. The Political Mangers points out to manage the results generated from integrated sustainability assessment should be treated with respect and humility, and not just see definitive numbers. To be humble and careful about such efforts make them easier to changes or develop if needed. Company B: s Sustainability Manager also state that every company is different and need to approach sustainability efforts differently with own methodologies.

Table 6. Overview of quotes from respondents discussing motives for IP&L.

Themes for Sustainability Assessment	**Motives, Company A**	**Motives, Company B – all quotes by the Sustainability Manager**
a)Actively integrate environmental, social and economic issues, and at the same time considering their general needs	"We needed a tool that present how we work with sustainability, measures our impacts and report our sustainability work" – Sustainability Manager	"The more we know, the better decisions they can take for the future."
b)Involve society	"Company A is fully aware of that our operations generate other values than just our production, especially the social values." – Climate Strategist	"With the value chain thinking in mind, you realize how depended you are and that you also can make changes, for example affect the greenhouse effect."
c)Be aware of what consequences of present actions have in the future	"It is about controlling our actions. We see our impact, both negative and positive, and this we want to be	"The outcome of sustainability efforts, is that more sustainable products grows faster in volume, which

	transparent about. – Sustainability Manager	gives a profitable business. This gives motivation and competitiveness, which is important for the future"
d)Be aware of that uncertainties are certain, and that they might affect the results of a company´s present actions.	"I think we need to manage the results we generate with humility and respect, to not just communicate the result as definitive numbers." – Political Manager	"There is no complete method ready to apply on your business, you need to develop your own methodology"

As the literature states, the corporate sustainability assessments are one of the most complex types of evolution methodologies (Sala *et al,* 2013). This is reflected in the themes analyzed above, as they are broad and are approach differently depending on management and type of company. This is why no approach is universally accepted. As mention earlier, the IP&L is a quite new tool developed for an integrated assessment. Is argued that integrated assessment methods will offer other perspectives to impact assessment, and simplify planning and decision making on sustainable development (Sadowski *et al*., 2010; Sala *et al,* 2013). After analyzing the themes for sustainability assessment based on IP&L, it is argued that "newer" perspectives of impact assessment might help companies highlight areas who need development and also contribute to decision-making.

5.3 Strategy making based on the integrated sustianabltity assessment tool IP&L

To understand the framework and definition of an integrated sustainability assessment, the description will be explained. An integrated assessment regarding sustainability is considered needed to simplify the complexity of the surrounding sustainability issues (Videira *et al,* 2010). Issues like reducing impacts on the environment, how to value ecosystems and retaining a dynamic social environment. The integrated view of this sustainability complexity is to include science, education, management and policy that transcends for the existing frameworks and boundaries that often aggravate sustainability improvements. When comparing this definition to the IP&L tool, it promotes to generate measurable value to the company´s stakeholders and drive sustainable growth (Gist Advisory, 2018). Furthermore, the IP&L tool measure values from corporate performance which is considered to help companies become future-ready from a "wider stakeholder perspective".

Pope (2004) describe Integrated Sustainability Assessment (ISA) as the next generation of integrated assessment frameworks. The main feature that ISA process focus on is the relationships of unsustainable trends and how they can be changed, and not the impacts generated from existing activities (Videira *et al,* 2010). Five stages of an ISA framework are described by Videira *et al, (*2010), and one stage at a time will be analyzed based on Company A and Company B own experiences.

Stage one, Scoping and abstraction

The first stage called scoping and abstraction is according to Videira *et al*, (2010) about defining the sustainability issues or problems by conceptualize the fundamental parts of the unsustainable trends who forms the issue, for example biodiversity loss. For Company B, one issue who they wanted to evaluate was to see what kind of services who stabilize the climate and what services from nature they depend on. They already worked a lot with other analyses

like Life Cycle Assessment, but they wanted a holistic view with an expanded thinking to understand their impacts in a wider context. In their IP&L report, who they developed into the so called 3D P&L report, they first stated the Sustainable Development Goals (SDGs), which are the ultimate goals for leading businesses around the world for generating innovative solutions for sustainable development. These are wide and complex goals, but Company B who operates worldwide needs to have these goals within their problem definition. Company A on the other hand, knew that many of their activities were underrated, and that they contribute to services in the form of natural and social capital through their management of green resources. The assessment of Company A: s capital can be seen as a way to frame their sustainability issues, but also to highlight that several activities they do actually contributes to natural and social values. This first stage can be viewed from different levels, from first seeing the holistic view of the sustainability issues to a more detailed workplan for different parts of the considered implementation.

Stage two, Envisioning and goal setting
Stage two, called envisioning and goal setting, is about creating a shared vision of the future and sustainability criteria´s together with relevant stakeholders. The output of this is to develop a context including the sustainability criteria's and vision with interpretation of sustainability. In practice, this can be done with visioning and scenario workshops of the future. Now, as stated above in the analysis, the two companies in this study have both a clear vision to be a leading business when it comes to sustainability efforts and development. Yet, as this common vision is difficult to build scenarios around. To narrow this vision to be able to understand imaginable goals, is that this evaluation is supposed to provide companies with "true" values of their performances, helping them strive for sustainable growth for both society and the company. In addition, regarding that this stage should also involve stakeholders, is that a company depend on the support of local communities, a dynamic workforce and sustainable supply of natural capital to be able to operate efficiently (Gist Advisory, 2018). Company B has both worked with encouraging supplies to implement activities for more sustainable business as increase the steering committee understanding concerning that a tool like 3D P&L can help to manage risks and possibilities linked to natural and social capital. This is examples of how Company B works with creating a shared vision and development together with stakeholders. As Company A are in the start of the IP&L process, they already notice positive commitment from the steering committee. According to Kallis et al (2009), visioning can play a diversified role in sustainability assessment and a policy-making process, for example increasing motivation towards shared goals and helping participants in understanding a system perspective of the stated sustainability issues.

Sustainability criteria´s and vision can also be used as benchmarking measurements to make it possible to compare and evaluate alternatives for policy initiatives, do follow-up and develop the methodology. Company A: s Political Manager explains that to understand the dimension of values we manage, we also need to understand our responsibilities and our opportunities, and from there look forward and follow-up our work over time.

Stage three, Model formulation
The model formulation is the third stage of the integrated framework. This stage differs depending on which company is analyzed, but this analyzation aim is to see the overall process of an integrated sustainability assessment framework. The main focus of this stage is to form models of each area who is going to be evaluated. To plan a model based on vison and sustainability criteria stated in stage two is of importance to continuously link the stages together. The model formulation should also involve scoping diagrams of information to

define each area of the assessment and define boundaries of the analysis. In addition, identify variables to use for evaluation and structure relationships between the social, natural and economic systems that is supposed to be analysed. Company B who has worked with LCA for many years, used a lot of the data and information generated from the LCA as a base for the IP&L assessment. They have also produced a Carbon Foot Print Analysis every year. Their previous sustainability efforts became handy for their integrated assessment. Company B: s sustainability manager brought up that the IP&L assessment is resource intensive and time consuming. An IP&L implementation and analysis can therefore be easier to adjust and develop within a company who already has ambitious sustainability activities.

Some areas are complex to evaluate, and Company A explained that no given method is created to put value on biodiversity. Unfortunately, no variable or data is considerable to evaluate Company A: s biodiversity at this time. Company B would like to develop the valuation methods for social capital as well, as this is a complex and important area who should not get underrated. This means, that all areas that a company wishes to evaluate do not always has a developed methodology. The model formulation is therefore a stage constantly developing based on the company´s sustainability criteria and vision, and some areas are in need of innovation and further research.

Stage four, Simulation and Assessment
The fourth stage is about the link between the assessment of sustainability impact and policy proposals. When a policy is developed with the aim to for example reduce carbon emissions, it is argued to be important to discuss and anticipate the long-term sustainability impacts from different perspectives if the policy would be implemented within the strategy. In addition, also compare them with the sustainability criteria and vision stated from stage two. The understanding of the outcome of initiatives or policies is important, and creating simulations is an effective way see different perspective of what to come.

From a sustainable perspective, future occurrences are difficult to predict. This leads back to the general theme for sustainability assessment, that is to be aware of that uncertainties are certain, and that they might affect the results of a company´s present actions. Even so, the Climate Strategist of Company A points out that the IP&L analysis is a good way to show how they deliver environmental and social values together with the financial values, and that they necessarily don't have to stand in contrast to each other. Her quote can be analyzed as IP&L assessment brings out the positive sides of a company´s activities and how they generate value. Regarding Company B, the Sustainability Manager argues that the results of the analysis have highlighted "hot spots", which are highly affected areas from their operations that need immediate sustainability attention. Therefore, it is recommended to set a time horizon, alternative scenarios and compare them with each other. Then, interpreted the results. Sterman (2000) do add that this stage of simulation insights may lead to one step back in the ISA process, as this may create doubt concerning the goal setting and problem scoping. Again, this process can be seen as taking action for sustainability even though its uncertain, rather than be passive and do nothing.

Stage five, Evaluation and Monitoring
Policy implementation often follows after the integrated assessment of possible scenarios addressing sustainability issues. This type of participatory modelling framework showing in this five-stage process, has an underlying assumption that insights of these different stages lead to action or at least improve understanding of stakeholder's involvement in the decision-making process (Videira *et al* 2010).

Concerning the stakeholders' value, Company B discusses the results with their customers, and they see an interest from them to also work with sustainability efforts. "This type of understanding creates opportunities to work together with customers and stakeholders to find better solutions. With a valuable dialog with customers, you get closer and integrated your sustainability efforts, generate competence and can work together towards your sustainability goals" says the Sustainability Manager.

A systematic evaluation is regarding this modelling framework preformed in four outcome levels of the fifth and last stage:

1) evaluate the method, if it is efficient in comparison with others.
2) the individuals, their reactions, commitments to the implementation and if the process generated insights and learning.
3) the working group, how they communicated within the group and exchanged viewpoints, and if the process gave a shared view of the actions and problem.
4) the company itself, has the system and strategy changed? Did the implementation of new policies lead to positive results?

All these four levels are hard to analyzed based on Company A: s experiences, as they have just started with their implementation of IP&L. However, the evaluation of the IP&L method is in process, as all the respondents who are involved in the working group of IP&L argues that with the right management and development of the method they do think IP&L will contribute to the company's strategy. "The other great thing about this tool is that it's good for monitoring over time, it helps us see how we affect different values and identify areas who need to be worked with. This tool can be a part of the company's strategy making if it is implemented to its full extend.", a quote by the Climate Strategist.

Company B has worked with evaluation and monitoring for a longer time concerning their IP&L assessment. "The steering group responded to the results and has created a dialog. This is a strength of the assessment, that we can point at something that's minus in monetary terms, it's a strong argument for changing strategy", states the Sustainability Manager. This quote covers all the levels above, very generally speaking. The communication with the steering group helps with the evaluation, which also creates commitment and insight of the assessment.

Follow-up the decision taken from the IP&L process must focus on monitoring the effects of change in behaviors from stakeholders, and also measuring changes within the company´s progress. The last part of the framework suggests to develop suitable indicators as well as monitoring systems for sustainable development. This will hopefully facilitate measurements of the longer-term impacts a company make on socio-economic and natural systems *(ibid).*

5.4 Mangagment of the integrated sustianabltity assessment tool IP&L

This part of the analysis will focus on the management process of an integrated sustainability assessment tool IP&L and analyses experiences and thoughts from respondents. Three of four respondents are titled managers, and one is a climate strategist. This means that the empirical data is looked from a management and strategic point of view, which is also the focus on this study.

To integrated sustainability into a company can be a difficult process and can often fail to be embedded in the company´s strategy. The choice of integrated sustainability assessment can therefore be crucial for a successful implementation (Ness *et al,* 2006). It also depends on the availability of official data, what the stakeholders require and the reliability and trustworthiness of the integrated assessment tool. Company A: s IP&L report has the intention to help answer strategic questions, for example: "What can Company A do better as a business to generate more value?" or "how does Company A affect both Swedish society and its stakeholder?" The demonstration of the wide range of both impacts and benefits that Company A generates across their four capital areas, which in their case is natural, human, social and physical capital. Company B is through their sustainability efforts aiming to make increased use of environmental, social and economic impact assessment, as well as profit and loss accounting, as an incitement for their decision and strategy making. Based on what these two companies aiming to achieve with the IP&L assessment, is that both companies what to use the IP&L tool with the aim to contribute to better decision and affect the strategy. Sterman (1988) highlighted the importance of education and communication on a strategic decision-making level when developing better-informed policies to address complex problems. In addition, a proposed stepwise approach of ISA as a strategic model, engage management teams to make sure that strategy and business processes go in line with stated goals (Sterman, 1988).

The management approach of an integrated sustainability assessment can be difficult because of the complex implementation and evaluations. Three phases will be analyzed based on the respondent's experiences of managing the IP&L assessment, these are the preparatory phase, implementation phase and the follow-up phase. The author want to point out that these phases has not been discussed in detail with each respondent, and the purpose of the analysis is not to confirm if the two companies has followed these exact practices and principles. The three phases will work as a general frame to analyses management of an integrated sustainability assessment tool like IP&L.

Preparatory Phase

The preparation of implementation of an ISA process is crucial and needs careful planning (Videira *et al* 2010). As the IP&L tool is implemented with help of a consultant and the founder of the tool, both companies analyzed has got support with planning from them. This can be seen as positive because of the professional help the company gets from scientifically educated consultants. However, both companies say that this kind of method needs to be developed within a company over time and adjusted to their own operations. This can be analyzed as it may be a fine line when to go your own way and when to cooperate with the consultant, especially when it is a new kind of sustainability phenomenon as the IP&L tool are. As stated in theory, during the preparation phase, it is necessary to define whom is responsible for the process. Management of the process needs to match what resources and capability is required for the goal setting and scope of the ISA process. Concerning the resources needed for implementing the IP&L, both Company A and Company B has pointed out that it is a time consuming and resource intensive process, which might be difficult for smaller companies to perform the same process. A suggestion from (Videira *et al* 2010) is that a steering committee of both internal actors as well as a broader forum of stakeholders should take responsibility of the process. Company B who has been working with the IP&L assessment for a longer time has integrated stakeholder has well encouraged the steering group to commit to the process. Yet, to integrated stakeholders can be seen as a challenge

when working with this complex tool, even though it would likely facilitate the assessment and progress of sustainability efforts.

Implementation Phase
Videira *et al* (2010) argues that development of a model that integrates a shared vision and interpretation of sustainability, will engage participants in discussion and reflection on proposed policies to address sustainability issues. However, this broad purpose needs to be specified. Clear motives must me stated and communicated to stakeholders. Sustainability Manager of Company A describes the IP&L tool partly as a communication tool, and the results will generate transparency. In addition, Sustainability Manager of Company B states that the results in monetary terms, in their cases in euros, makes the communication to stakeholders easier. It is however a bit unclear how motives for the IP&L assessment reach and are communicated to stakeholders. To reach valuable motives, a couple of question may come in handy to ask managers of the process. These will be generally analyzed based on Company A and Company B: s management experiences.

a) is the process purpose to produce knowledge and generate different viewpoints and values regarding decisions utility? Yes, indirectly you might say that the IP&L assessment questions how we value companies' capital and resources today, and how companies' management strive for decision-making involving different levels of sustainability. One motive Company A have is to create a wider range of reasoning for a more sustainable business, and create a discussion of how to use natural resources in a sustainable business. In addition, Company B: s Sustainability Manager state that IP&L provide support in the decision-making process, for example what we invest in and what the focus lies in internal projects and the efficiencies of them, this needs to be identified.

b) is the process going to expose conflicts regarding sustainability issues and solve them? As the IP&L tool is a quite new phenomenon, this question is difficult to answer, how it based on the generated results will tackle conflicts. This depends on how integrated the assessment get within the company´s strategy. Company A has reached a point where they need to develop the IP&L assessment to the next stage. "It depends on how we manage it from now on, we have merely taken the first step ye. We need to take the next steep and develop it further, develop the methods to make them our own, follow-up in about two years and fully integrated it into the company. Then it will be a really useful tool in our sustainability work." says the Climate Strategist. Sustainability Manager of Company B mentions the "hot spots" generated from the IP&L analysis, for example when a business areas financial gain is lower than the cost of natural capital. This has created response from the steering group and has created a dialog, striving for sustainable solutions. "This is a strength of the assessment, that we can point at something that's minus in monetary terms, it's a strong argument for changing strategy" agues the Sustainability Manager of Company B.

c) is the planned IP&L process going to generate innovative solutions for sustainability issues, and at the same time create win-win opportunities of partnerships with stakeholders? To generate innovative solutions is not the main approach of IP&L, but the outcome is argued to be that "it increases understanding which will help to manage risks and possibilities linked to natural and social capital" (Sustainability Manager, Company B). She also adds: "And, in the longer-term, something that can lead to innovation from research projects and so on. With this tool, we see were we have strengths, were we have possibilities, and on these parts, we should focus. When the focus is on those part, we see what challenges we have and can work with those, based on research and innovation." Regarding if the IP&L tool will contribute to create

win-win opportunities of partnerships with stakeholders, the Sustainability Manager of Company A states:

> "Communication to stakeholders is challenging, and there are many new expressions to explain within this IP&L assessment, but this is always the case when something is new. Even tough, I see it most as a possibility. More customers are aware of impacts and so on, and it is a strength for our customers as well that we can report impacts from our business. I think over time it will be a selection, suppliers who aren't interested in reporting their impacts will disappear. Aware customers will set demands, and their customers will also set demands."

Company B: s communication and encouragement to stakeholders regarding sustainability efforts has created a discussion about how to fulfil sustainability goals together:
"We control that our suppliers follow our standards and have a discussion and helping them to develop from a sustainability perspective. Our key suppliers that helps us with big volumes of material are very important to us. Together we have a discussion on how we can fulfil our goals" says Sustainability Manager of Company B.

d) and will the IP&L process have the influence of reaching decisions and set of actions to strive for sustainability? Company A are in the start of the process of integrating the IP&L results into decisions. However, the Climate Strategist highlights the forward going discussion of environmental issues:

> "I think this is a good communication tool concerning all the environmental discussions right now. The national environmental objectives, one objective is for example to include ecosystem services in decision-making. This tool helps to communicate that we evaluate our ecosystem services and show that we work towards the environmental objectives. The method is not perfect of course, but provides a good approach to start with. But we need to work with the data collection concerning several areas, and then integrated the results into the strategy-making."

Company B who has integrated that IP&L assessment on a wider range do see the utility of the IP&L assessment: "To communicate the results to the steering committee do we consider to be the biggest utility of the work, so that it can be used in different type of decision-making. The strength of the 3D P&L assessment is that it helps with strategic decision", states Sustainability Manager of Company B.

Follow-up Phase
Practices and principles valuable when working with the ISA process also includes a follow-up phase. This refers as a careful procedure of evaluation and monitoring. Climate Strategist of Company A has perceived the IP&L to be useful for monitoring over time, and helps to see how they affect different values and identify areas who need to be worked with. Furthermore, the development of the IP&L assessment is important. "The method needs to be developed, but the main thing is that we try to see these values to get the holistic picture and be aware of them. When we understand the importance of these values, it should integrate how to run a business and how decisions are made, that's the overall effect of this method I think, a new view of management of a sustainable company." states the Political Manager. Sustainability Manager of Company B: "There is no complete method ready to apply on your business, you need to develop your own methodology. Also, the transparency is crucial, to generate understanding and see what is relevant to focus on and make conclusions of the analysis."

This states that the IP&L is an ongoing process, and with a longer-term perspective and with the right development can be a useful tool for a company. To develop an integrated tool like IP&L, the most crucial feature is iteration according to Videira *et al* (2010), and should be built into the process to "refine both the questions being asked and the answers being offered" (National Research Council, 2008).

Videira et al, (2009) and Stave (2002) argues that flexibility and open minds is the key concerning integrated sustainability assessments. Decision makers might be uncomfortable to commit to something were the outcome is still unknown, which is a common problem when working with sustainability issues. However, both Company A and Company B has experienced encouragement and valuable communication with their steering boards. The long-term success of the process depends on embedding the sustainability assessment within the company (Videira et al, 2009). A process like the IP&L needs to be flexible enough to generate experiences and allow adjustments that can be convert to future efforts, which both companies are aware of and have in mind during this process. The application needs to be flexible concerning the variety of subjects and participatory context. Flexibility is related to viewing issues from different perspectives and create a dynamic communication between participants and stakeholders. The Political Manager of Company A explains that the IP&L analysis is an abstract approach, and you need some good examples to make it understandable. Subjects like social and economic issues needs to have a flexible approach in the same way as the environmental issues.

Inclusiveness and good faith communication is also crucial when working with an integrated sustainability assessment within a company. It is essential for gaining respect and building trust with all participants. The trustworthiness of the IP&L is considered by the Climate Strategist partly because of the founder and developer of the tool: "We have hired a well-known consultant who use a proven method, but we probably will get questions and critic anyway." The methodologies of the IP&L used are public and scientific proven, therefore is considered that the assessments are repeatable. However, development of measure impacts is at an early stage, not just regarding this Integrated Sustainability Assessment tool, but in society in general. Finally, transparency of the process is important, and to clarify every part makes it easier to successes with the implementation (Stave, 2002). Company A embrace all the evaluations of impacts IP&L gives, both negative and positive, and wants to be transparent about these.

5.5 Summary of analysis and discussion

In table 7, a summary of the analysis and discussion is stated based on the two research questions of the thesis.

Table 7. Summary of analysis and discussion based on the research questions.

Research question 1 What motives does a company have when selecting an integrated sustainability assessment (IP&L) tool for their strategy making?	**Research question 2** What potential affects might an integrated sustainability assessment tool (IP&L) have on corporate strategy making?
* Gives a range of information generating from sustainability assessment and to communicate this information will hopefully influence decision making. * Integrated sustainability assessment (ISA) can create opportunities that can highlight values the company has been aware of for a long time, but not been able to communicate. This can reflect the will to fully evaluate the values one company make so communication to society can happen. * One main motive is that it creates transparency, and IP&L can bring awareness to both positive and negative impacts a company make. * To be humble regarding sustainability efforts make them easier to change or develop if needed. Every company is different and need to approach sustainability efforts differently with own methodologies.	* Gives a holistic view with an expanded thinking to understand a company´s impacts in a wider context. * The assessment of capital can be seen as a way to frame a company´s sustainability issues, but also to highlight that several activities they do actually contributes to natural and social values. * Can help to manage risks and possibilities linked to natural and social capital. This can create a shared vision and development together with stakeholders * The results of IP&L can create a discussion of how to use natural resources in a business, and can provide support in the decision-making process. * Customers are aware of impacts, and it is a strength for customers as well that a company can report impacts from their business. * Another strength of the assessment, is the ability to highlight when a business operation generate minus in monetary terms, it's a strong argument for changing strategy. * IP&L is an ongoing process, and with a longer-term perspective and with the right development, it can be a useful tool concerning strategy making.

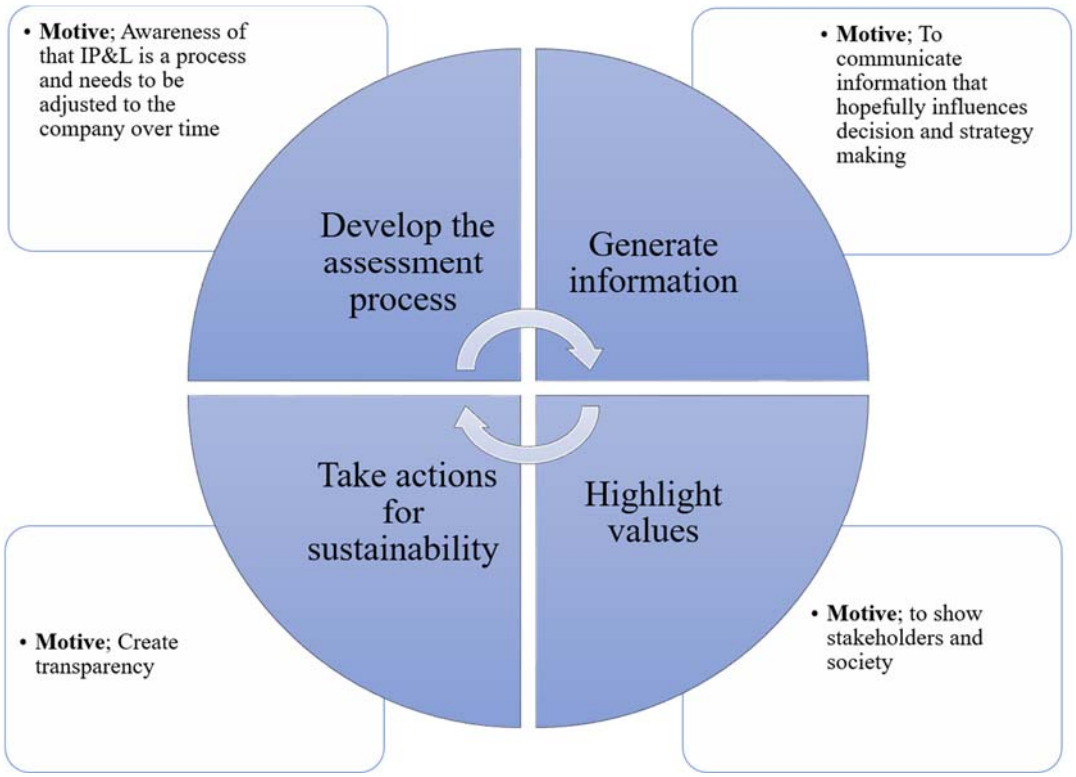


Figure 6. A simplified figure based on the analysis, of motives and what affects they might generate from the IP&L assessment. (Own processing).

Figure 6 is a simplified figure of the IP&L assessment based on the respondents' experiences and perspectives. The author wants to point out that this figure is not supposed to imitate the ISA process figure. It is an attempt to frame the outcome of the analysis. A short description of the figure; the blue areas reflects the affects generated from the IP&L assessment, and each blue area have a motive linked to it which is consider to central for that part of the process.

6 Conclusions

The aim of this study is to investigate how the integrated sustainability tool IP&L contributes to corporate strategy making. The focus lies on the manager's experiences and perspectives working with this tool. One problem with sustainability efforts companies make is that they often fail to be integrated within a company's strategy. This issue has received increased attention in academic literature over the recent years. An integrated assessment regarding sustainability is argued to be needed by firms to simplify the complexity of the surrounding sustainability issues (Videira *et al,* 2010). An integrated assessment refers to determine a company´s full value by using methodologies created to identify value creation of natural, social and human capital within a company (Ekins, 2011). The phenomena Integrated Sustainability Assessment (ISA) is analyzed in this study. The main feature that ISA process focus on is the relationships of unsustainable trends and how they can be changed, and not the impacts generated from existing activities.

A proposed stepwise approach of ISA as a strategic model, argues to engage management teams to make sure that strategy and business processes go in line with stated sustainability goals. Therefore, this thesis intends to contribute to increased knowledge of how management of an integrated sustainability assessment tool can create better strategies.
Respondents from both companies do all think that IP&L can or do contribute to strategy making with the right implementation and development. The motives for selecting IP&L for strategy making is overall to generate more information, both for better decision making and communication to stakeholders. The other main motive is to create transparency, both to external and internal stakeholders.

The affects IP&L has on corporate strategy making is to generate information in an understandable way, even though it is a complex evaluation process. The results from the IP&L assessments have been presented to steering boards of both companies, and respondents from both companies has experiences encouragement from the board, which is seen as a positive effect generated from IP&L. "Hot spots", areas the company operates in which need immediate attention, has also been highlighted through the IP&L assessment, which creates argument to change strategies. An example of an "hot spot" is were the financial gain for the company is lower than the cost of natural capital.

To fulfil the aim of this thesis of how an integrated sustainability assessment tool contribute to better strategy making, the author has made the conclusion that IP&L works a communication tool that converts "invisible" values of capital into monetary financial values. This generates strong arguments for changing strategies and is seen as the biggest utility of the tool, viewed from managers' perspective. Company B has integrated the IP&L results within the strategy on a higher extend, but even so does Company A respondents use the term "communication tool" when explaining IP&L even though the results are not integrated within the strategy yet.

6.1 Critical reflection of the findings

The integrated sustainability assessment is argued to simplify the complexity of surrounding sustainability issues. Further, the IP&L tool helps companies to put monetary values on natural, human and social capital. The critical reflection of simplifying sustainability issues in general, can be discussed. The understanding of that sustainability is complex is acknowledged, and when striving for simplify sustainability efforts, one might lose important perspectives of sustainable development. Further, the author would also like to reflect on the

ethical perspective of putting monetary value on capital. Generally speaking, the IP&L tool converts capital into monetary terms, so the "real" value can be highlighted. The question arises if companies should put financial values on for example nature or humans. The author wants to point out the importance to understand how companies uses natural resources, human capital and so on, and see several benefits to evaluate how they are used. Benefits like identifying areas were business operations affects society and environment and prepare companies for future legislative changes from governments aiming for sustainable development. However, if human capital gets undervalued within a company, what indicates that from an ethical perspective? Transforming capital into financial values is questionable, from an ethical perspective.

6.2 Further research

At last, the author would like to suggest further research. As mention in the critical reflection above, the ethical perspective of using an integrated sustainability assessment tool like IP&L is not considered in this study. A suggestion is to investigate the ethical view further concerning monetary evaluation and integrated assessments in general.

The respondents in this study are employees at two different companies, Company A and Company B. Both companies are well-know and established and have the vision of being a leading company concerning their sustainability work. The IP&L process is time-consuming and requires resources. The question arises if a smaller company would have the possibility to implement and manage an integrated sustainability assessment like IP&L. Therefore, the author encourages further research trying to find cases to investigate in order to see the wider utility of the IP&L tool.

References

Literature and publications

Azapagic A. (2005). *Developing a framework for sustainable development indicators for the mining and minerals industry*. J Cleaner Production.

Aktinson, G., Hett, T. & Newcombre, J. (2000). *Measuring "Corporate sustainability.* Economics For the Environment.

Alvesson, M. & Deetz, S. (2000). *Kritisk samhällsvetenskaplig metod.* Studentlitteratur AB.

Arena, M., Conte, A. & Melacini, M. (2015). *Linking environmental accounting to reward systems: the case of the Environmental Profit and Loss account.* Journal of Cleaner Production.

Berns, M., Townend, A., Khayat, Z., Balagopal, B., Reeves, M.,Hopkins ,M.S. and Kruschwitz, N. (2009). *Sustainability and competitive advantage,* MIT Sloan Management Review.

Berry, T.C. and Junkus, J.C., (2013). *Socially responsible investing: An investor perspective.* Journal of business ethics.

Baveye, P., Baveye, J. & Gowdy, J. (2013). *Monetary valuation of ecosystem services: It matters to get the timeline right.* Ecological Economics.

Bloomfield, J. P. & Wade, S.D. (2003). *A method for investigating the Potential Impacts of Climate Change Scenarios on Annual Minimum Groundwater levels.* Water and Environment Journal.

Brundtland GH. (1987). *Our Common Future. World Commission on Environment and Development: Brussels.* United Nations

Bryman, A. & Bell, E. (2011). *Företagsekonomiska forskningsmetoder. 2nd ed.,* Stockholm: Liber AB.

Bryman, A. & Bell, E. (2015). *Business research methods. 4th ed.*, Oxford: Oxford University Press.

Creswell, J.W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches.* Sage publications.

Devuyst, D. (2000). *Linking impact assessment and sustainable development at the local level: the introduction of sustainability assessment systems.* Environmental Impact Assessment Review.

Dyllick , T. & Hockerts, K. (2002). *Beyond the Business case of Corporate Sustainability.* Busniess Strategy and the Environment. Vol. 11.

Ekins, P. (2011). Environmental sustainability: *From environmental valuation to the sustainability gap.* Progress in Physical Geography.

Elkington J. (1997). *Cannibals With Forks: the Triple Bottom Line of 21st Century Business.* Capstone: Oxford

Fernandez-Feijoo, B., Romero, S. & Ruiz, S. (2014). *Effect of stakeholders' pressure on transparency of sustainability reports within the GRI framework.* Journal of Business Ethic.

Figge, F., Hahn, T., Schaltegger, S. & Wagner, M. (2002). *The Sustainability Balanced Scorecard – Linking Sustainability Management to Business Strategy.* Business Strategy and the Environment.

Galoin, T. & Whittington, J. (2012). *Sustainability leadership: From strategy to results.* Journal of Business Strategy.

Gasparatos, A. (2009). *Embedded value systems in sustainability assessment tools and their implications.* Journal of Environmental Management.

Global Reporting Initative (GRI), (2002). *The Global Reporting Initiative – An overview.* Global Reporting Initaitve.

Guba, E.G. & Lincoln, Y.S. (1994). *Competing paradigms in qualitative research.* Handbook of qualitative research,

Hamilton, K. & Liu, G. (2013). *Human Capital, Tangible Wealth, and the Intangible Capital Residual.* OECD Statistics Working Paper, No. 2013/2, OECD.

Hartmann, T. (2014). *How business values natural capital - Taking Stock and Looking Forward*. Global Nature Fund (GNF), International Foundation for the Protection of Environment and Nature. [2018-01-15]

Hahn, R. (2013). *ISO 26000 and the standardization of strategic management processes for sustainability and corporate social responsibility.* Business Strategy and the Environment.

Hennie, B. (2010). *Analysis in Qualitative Research: Hennie Boeije.* Sage

Kallis, G., Martinez-Alier, J. & Norgaard, R. (2009). *Paper assets, Real debts: An ecological-economic exploration of the global economic crisis.* Emerald Group Publishing.

Kates, R.W., Parris, T., Leiserowitz, A. (2005). *What is sustainable development? Goals, indicators, values and practice.* Environment 47. 8-21.

Krajnc, D. & Glavic, P. (2005). *A model for integrated assessment of sustainable development.* Resources. Conservation & Recycling.

Kvale, S. & Brinkmann, S. (2009). *Den kvalitativa forskningsintervjun.* Lund, Sverige: Studentlitteratur AB.

Merriam, S.B. (1994). *Fallstudien som forskningsmetod.* Lund, Sverige: Studentlitteratur AB

Morsing, M. & Schultz, M. (2006). *Corporate social responsibility communication: stakeholder information, response and involvement strategies*. Business Ethics: A European Review

Ness, B., Urbel-Piirsalu, E., Anderbeg, S. & Olsson, L. (2006). *Categorizing tools for sustainability assessment.* Ecological Economics 60 (2007).

Neugebauer, F., Figge, F. & Hahn, T. (2014). *Planned or emergent strategy making?. Exploring the formation of corporate sustainability strategies*. Business Strategy and the Environment.

Noy, C. (2008). *Sampling Knowledge: The Hermeneutics of Snowball Sampling in Qualitative Research.* International Journal of Social Research Methodology.

OECD, (1998). *Towards Sustainable Development: Environmental Indicators*. OECD

Paehlke, R. (2004). *Democracy´s Dilemma: Environment, Social Equity, and Global Economy.* The MIT Press.

Parris, T.M. & Kates, R.W. (2003). *Characterizing and measuring sustainable development.* Annual Review of environment and resources.

Pedrini, M. (2007). *Human Capital convergences intellectual capital and sustainability reports.* Journal of Intellectual Capital, Vol. 8.

Pope, J., Annandale, D. & Morrison-Saunders, A. (2004). *Conceptualising sustainability assessment.* Environmental impact assessment review.

Porter, M.E. and Kramer, M.R. (2006). *Strategy and society: the link between competitive advantage and corporate social responsibility.* Harvard Business Review, Vol. 84 No. 12, pp. 78-92.

Robson, C. (2011). *Real World Research: A Resource for Users of social Research Methods in Applied Settings.* John Wiley & Sons Ltd.

Sadowski, M., Whitaker, K. and Buckingham, F. (2010). *Phase one: Understanding the Universe of Corporate Sustainability Rankings. Rate the raters*. London: Sustainability Available at: http://www.sustainability.com/library/rate-the-ratersphase-one#.V6rqguCSRaQ

Sala, S., Ciuffo, B. & Nijkamp, P. (2015). *A systematic framework for sustainability assessment.* Ecological Economics.

Schaltegger, S. & Burritt, R. (2014). *Measuring and managing sustainability performance of supply chains: Review and sustainability supply chain management framework.* Emerald Group Publishing Limited.

Singh Kumar. R, Murty, H.R., Gupta, S.K: & Dikshit, A.K. (2008) *An overview of sustainability assessment methodologies.* Ecological Indicators.

Stake, R. (1995). *The Art Of Case Study Research*. Sage Publications, Inc.

Stave, K. (2002). *Using system dynamics to improve public participation in environmental decisions.* System Dynamics Review.

Sterman, D. J. (1988). *Deterministic chaos in models of human behavior: Methodological issues and experimental results.* System Dynamics Review.

Sterman, D. J. (2000). *Business Dynamics: System Thinking and Modeling for a Complex World.* Irwin/McGraw-Hill.

Steurer, R., Langer, M.E., Konrad, A. and Martinuzzi, A., (2005). *Corporations, stakeholders and sustainable development I: A theoretical exploration of business–society relations.* Journal of Business Ethics.

Rotmans, J. (2006). *Tools for Integrated Sustainability Assessment: A two track approach.* The Integrated Assessment Journal.

Verheem, R. (2002). *Experiences on Sustainability Assessment in the Netherlands.* The Netherlands Commission for Environmental Assessment.

Videira, N., Antunes, P., Santos, R., & Lopes, R. (2010). *A Participatory Modelling Approach to Support Integrated Sustainability Assessment Processes*. Center for Environmental and Sustainability Research.

Yin, R.K. (2009). *Case study research: Design and methods 4th ed.* In United States: Library of Congress Cataloguing-in-Publication Data.

World Bank. (2006). *Where is the wealth of nations? Measuring Capital for the 21st Century*. World Bank publications

Internet

Baldock, C. (2016). *Yarra Valley Water Integrated Profit and Loss (IP&L™).* Trucost. Available at: http://gistadvisory.com/admin/pdfs//Yarra%20Valley%20Water%20IPL_November%202016_v2.pdf [2018-01-25]

Gist Advisory (2018). *GIST I-P&L™.* Available at: .http://gistadvisory.com/index.php?a=ourservices&b=financial_institutions&c=gist_360 [Accessed 2018-01-16]

Green House Gas Protocol (2018). Available at: http://www.ghgprotocol.org [2018-04-16]

Natural Capital Coalition (2013). *Natural Capital of Risk: The top 100 externalities of business.* Available at: http://naturalcapitalcoalition.org/wp-content/uploads/2016/07/Trucost-Nat-Cap-at-Risk-Final-Report-web.pdf [Accessed 2018-01-16]

National Research Council (2008). *NRC Assessment Reports.* National Academy of Sciences

Available at: https://www.nist.gov/director/national-research-council [Accessed 2018-04-29]

Research Methodology (2017). *Snowball sampling.* Available at: https://research-methodology.net/sampling-in-primary-data-collection/snowball-sampling/ [Accessed 21 February 2018]

The International Association for Impact Assessment, IAIA. (2018). *The leading global network on impact assessment*
Available at: https://www.iaia.org/ [Accessed 2018-05-10]

United Nations. (2018). *17 Goals to Transform Our World.* Available at: https://www.un.org/sustainabledevelopment/ [2018-04-20]

World Business Council for Sustainable Development, WBCSD (2002). *Sustainable development reporting: Striking the balance.* Available at: http://www.wbcsd.org/Pages/Adm/Download.aspx?ID=265&ObjectTypeId=7 [2018-04-29]

Appendix – Interview guide

1. What do you consider to be motives for starting your work with IP&L, maybe for shorter term perspective? (Research question 1)

2. What motivated your company to select the IP&L as a "sustainability tool"? For example, if you had incitements for a longer-term perspective (Research question 2)

3. What criteria does your company have regarding working with IP&L?

Examples of criteria:
- This methodology can be used in firms all over the world
- Considered to be well-established and trust-worthy among stakeholders
- The results are communicable

4. Did any of your stakeholders encourage you/gave you motives to start working with IP&L or any other "sustainability tool"?

5. Which parts of the IP&L work do you consider valuable (more valuable or crucial) material concerning better strategy making within the business?

6. How do you communicate the IP&L work and results within the company? (Do you communicate the IP&L work consistently within the company?)

7. What do you consider to be the pros and cons of valuating the different capital areas? Any other method/approach that could complement?

8. Do some results need to be developed further to use them as material for better strategy making/be able to communicate them better?

9. Are the results sufficient enough to be used in other areas than sustainability reporting? With sufficient I mean that the material can be used for future actions.

10. Which stakeholders (both internally and externally) do you consider to be the most changing to communicate your IP&L work to?

11. What parts of the IP&L work do you feel need to be developed or changed in order to be a part of the company´s strategy making?

12. What do you think of the future of the IP&L methodology within your company? Something that you are going to continue with ten years from now?