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# **The Economic Benefits of Integrating Sustainability to IT industry**

Study of the impact of sustainability reporting to business incentives

Accounting and Finance

Master's thesis

Author:

Arttu Iivanainen

Supervisor:

PhD Antti Miihkinen

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Master's thesis

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**Author:** Arttu Iivanainen

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As regulative environment in the field of sustainability is evolving and as the businesses need to address sustainability issues comprehensively in mandatory manner the need for adapting sustainability into to core of doing business grows. Sustainability reporting creates an incentive for improving business performance through considering sustainability impact thorough the whole business process and how it affects the stakeholders. IT sector plays a big role in the modern society and holds the capability to have a transforming positive impact in addressing sustainability issues from various sustainability dimensions. As companies subject to Corporate Sustainability Reporting Directive (CSRD) need to improve the sustainability performance and assess the risks and opportunities IT sector has a major business potential in helping other industries by creating more effective solutions and addressing extensive sustainability topics with more developed solutions and design.

Sustainability reporting has been primarily under voluntary basis in the reporting and disclosure framework. The base of voluntary disclosure can be argued not to encourage companies to address the sustainability topics comprehensively hence it does not encourage the economy to make sustainability profitable. By voluntary disclosure companies can be considered to aim for better reputation and public image by positioning themselves as “sustainable” or “green” while the information disclosed is not regulated and thus not comparable and does not tell the whole story. Voluntary disclosure has not particularly improved the level of sustainability integration in the economy, but it provides a great way for companies to communicate the sustainability issues to external stakeholders and improve their credibility. Therefore, voluntary disclosure is argued to benefit the single companies more in short-term than the society and the impact of such dynamic is not sustainable anymore. As for regulative sustainability reporting the dynamic in the economy turns so integrating sustainability in the business becomes a business incentive. The mandatory nature of sustainability reporting creates a need for companies to innovate new ways of coming up with solutions and doing business. The regulation provides an equal framework to work in for all the actors in the market and encourages the businesses to innovate and develop their business to address sustainability topics comprehensively. The dynamic that sustainability reporting regulation brings to the economy and the market is creating business incentives from sustainability which benefits the whole society and builds the economy on a sustainable fashion. The regulative reporting is argued to benefit the whole society more due such dynamic.

IT industry in this context is studied as it plays a big role in the economy and in the society. The sustainability dimensions provide a great framework to assess IT industry from as it has great impact especially on the triple bottom line: social, environmental, and economic dimensions. By addressing sustainability issues in design through every phase of solution development IT industry can impact positively to their clients, stakeholders and eventually to society by addressing sustainability in solution efficiency, user friendliness and inclusiveness. By doing so the industry answers the future challenges in sustainability and utilizes the opportunity in business provided by sustainability transition.

**Key words:** Regulation, Reporting, Sustainability, IT industry.

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Kestävyyden raportoinnin regulaatio kehittyä jatkuvasti ja tarve sisällyttää kestävyysteemoja liiketoimintaan pakollisen raportoinnin ohjaamana kasvaa. Kestävyseraportointi luo yrityksille kannustimen parantaa ja kehittää toimintaa kestävyden kautta ottaen huomioon se vaikutukset läpi liiketoimintaprosessien ja sen vaikutuksen sidosryhmille. IT sektorilla on valtava rooli nyky-yhteiskunnassa, sillä teknologisilla ratkaisulla ja niiden kehittämisellä voidaan edistää kestävyden positiivista vaikuttavuutta. EU:n kestävyseraportointidirektiivin CSRD:n (Corporate Sustainability Reporting Directive) tullessa voimaan, sen alaisten yritysten on raportoitava kestävyysvaikutuksistaan ja IT sektorilla on suuri liiketoiminnallinen mahdollisuus auttaa muiden alojen kehitystä tarjoamalla tehokkaampia ratkaisuja ja ottamalla huomioon laajasti kestävyysteemoja kehittyneille ratkaisuille ja suunnittelulla.

Kestävyseraportointi on pääsääntöisesti perustunut vapaaehtoiselle raportoinnille. Vapaaehtoiselle raportoinnille pohjautuvan järjestelmän voidaan ajatella olevan huono kannustamaan yrityksiä huomioimaan kestävyysteemoja kokonaisvaltaisesti, sillä järjestelmä ei tue kestävyden kannattavuutta rahallisesti. Vapaaehtoisen raportoinnin avulla yritykset voivat luoda itselleen parempaa mainetta ja imagoa asemoimalla itseään kestäväksi toimijaksi. Samalla kuitenkin raporteja ja julkaistua informaatiota ei ole reguloitu, joka tekee informaatiosta vertailukelvotonta sekä alttiin väärinkäytöksille. Vapaaehtoinen raportointi ei erityisesti ole parantanut kestävyden integroimisen tasoa taloudessa, mutta se on loistava tapa yrityksille kommunikoida kestävyystoimistaan ulkoisille sidosryhmille ja parantaa julkisuuskuvaa. Näin ollen vapaaehtoisen raportoinnin voidaan ajatella hyödyttävän lähinnä yksittäisiä yrityksiä lyhyellä aikavälillä ja se vaikutuksen yhteiskunnalle olevan resursseja kuluttava. Puolestaan reguloitu kestävyseraportointi kääntää dynamiikan niin, että kestävyden integroimisesta tulee liiketoiminnallinen ajuri. Kestävyseraportoinnin pakollisuus luo yrityksille tarpeen innovoida uusia ratkaisuja ja tapoja edistää liiketoimintaa. Regulaatio tarjoaa markkinoilla kaikille yrityksille tasa-arvoisen viitekehyksen ja kannustaa innovoimaan sekä kehittämään toimintaa kokonaisvaltaisemmin kestäväksi. Kestävyseraportoinnin regulaatio luo markkinoille liiketoiminnallisia kannustimia kestävydestä, mikä hyödyttää koko yhteiskuntaa sekä kehittää taloutta kestäväällä tavalla, joten regulatiivisen raportoinnin voidaan ajatella hyödyttävän kokonaisvaltaisesti koko yhteiskuntaa.

Kestävyyden ulottuvuudet tarjoavat kattavan viitekehyksen arvioida IT teollisuuden vaikuttavuutta eritoten sosiaalisen, ympäristöllisen sekä taloudellisen ulottuvuuksien kautta. IT teollisuudella on laaja vaikutus yhteiskuntaan sekä talouteen, joten sen rooli on erittäin tärkeä kestävä kehityksen edistämisessä. Huomioimalla kestävyysteemoja suunnittelun sekä designin kautta ratkaisujen kehittämisen joka vaiheessa, voi IT teollisuus vaikuttaa positiivisesti asiakkaihin, sidosryhmiin ja yhteiskuntaan ratkaisujen tehokkuuden, käyttäjäystävällisyyden sekä osallistavuuden kautta. Ottamalla kestävyysteemat huomioon liiketoiminnassaan IT yritykset kykenevät varautumaan kestävyysteemojen tuomiin haasteisiin sekä hyödyntämään liiketoimintamahdollisuuksia, jotka syntyvät kestävyssiirtymän myötä.

**Avainsanat:** Regulaatio, Raportointi, Kestävyys, IT teollisuus.

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# 1 Introduction

The aim of the master's thesis is to find the economic incentives in IT-industry to build and find the sustainable and responsible ways to create software solutions. With the growing need of sustainable transition powered and regulated by public authorities there is a need of adapting the sustainability in every aspect of society. With this research the purpose is to discuss the possible benefits in sustainability in the IT-sector and how to implement the sustainability aspect in the IT industry. The topic is covered through the economic point of view which means the aim is to find the incentive in sustainable IT through the monetary benefits it generates.

Sustainable development was defined already in 1987 by World Commission on Environment and Development (WCED) as follows: "Sustainable development requires meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life". (Brundtland 1987). When it comes to modern world requirements and needs the message is still valid but need to be modified for the current reality. With technology there lies huge opportunities to solve sustainability issues but also major questions to answer like social equality by data economy, the energy consumption of software and the social impact of IT to society.

As the regulation in sustainability reporting is developing at a high pace the need to take advantage of the situation is becoming more and more relevant. EU launched new directive active in 2023 in sustainability field that concerns vast number of companies in the European soil. CSRD (Corporate Sustainability Reporting Directive) entered into force in the early 2023 and the new rules will be applied in financial year 2024 due to the first reporting year being 2025. The directive concerns all the large companies of over 500 employees and requires those companies to disclose the possible risks and opportunities in social and environmental issues as well as the impact of their actions in those respective topics. (European Commission: Corporate Sustainability Reporting).

The sustainability and responsibility are taken in account mainly in environmental and economic dimensions of sustainability. The four dimensions of sustainability (economic, environmental, cultural, and social) are all covered but the focus is on the triple bottom line of social, environmental, and economic dimensions.

Traditionally the frame of reference in sustainability have been divided into three dimensions: social, environmental, and economic dimensions (Krajnc & Glavic 2005). The concept of sustainability helped and powered businesses to measure and to convert the information in a measurable form so the sustainable actions that the businesses execute could be followed and transferred into competitive advantage.

As an addition into a sustainability discussion a cultural aspect was presented as a fourth dimension. While traditionally the cultural dimension was considered as a part of societal dimension (Chiu 2004) it has been raised to be a dimension of its own in later research. All the dimensions in sustainability framework should be considered when looking into sustainable actions and how to measure or interpret them.

The software industry has been lacking the research and the incentive to think and invest into sustainability related issues. The aim when creating a software solution is reasonably focused on business benefits of the enterprise that uses the software and usually the sustainability aspect is left aside. The solution might serve the business problem but at the same time be extremely energy and computing power consuming.

We are facing an even more increasing need of data use and storing when businesses and private users are strongly moving even more into a very technological focused reality. The daily services and actions that individuals, businesses or public sector use are in a vast transition into a cloud-based services and applications. The yearly need of data transfer according to research conducted by IDC (International Data Corporation) in 2012 (Gantz & Reinsel 2012) would be doubled by the end of year 2020 (Munan & Porter 2019). Due to the increasing need of data transfer the need of data centres are growing as well and so is the energy consumption. The impact of the data centres in climate change are remarkable and should not be left unconsidered. According to Ahmed et. al. (2021) the data centres will indirectly affect to CO<sub>2</sub>-emissions by the energy demands by projection of 720 million tons by 2030. The reliability models to calculate the energy consumption are needed to tackle the operational problem in a fight against the climate change.

The cloud-based future provides huge opportunities for technology companies to make profit by the need of businesses to keep up with the pace of technology transformation. But at the same the software houses and the parties implementing and building the systems should be considering the sustainability impact of the solutions they come up

with. The green aspect in IT industry should be considered as one of the main drivers when creating value. By creating sustainable solutions, the businesses can improve their public image and reputation, avail tax incentives, be more attractive for possible clients and simply reduce energy costs (Spiceworks.com). The sustainable actions do not even provide a competitive advantage anymore but can be considered as a mandatory thing to be able to compete in the market.

According to Brundtland (1987) the definition of sustainability consists of using the existing resources in a way that future generations have the same possibilities for them and that applies to every dimension of sustainability. When trying to find the best practices to generate profit from software development or implementation projects the businesses need to take into consideration every one of those dimensions to be able to maximize the monetary benefits. Hence, in this research all the dimensions will be covered to have a comprehensive state of understanding of the economic dimension.

### **1.1 Research questions and the objectives of the research**

The objective of this research is to find whether the mandatory sustainability reporting generates profit in IT industry through encouraging IT companies to address sustainability topics in business activities. Since CSRD (Corporate Sustainability Reporting Directive) entered in force starting January 2023 the period of transition towards the mandatory sustainability reporting has started and the transition is set to take place from 2024 to 2028 (European Commission: Corporate Sustainability Reporting). As CSRD brings sustainability a mandatory part of the reporting and processes of companies in the EU the need to turn sustainability into profitable business rises.

The sustainability issues are discussed through a framework of dimensions of sustainability. As in prior literature multiple dimensions in sustainability has been recognized the framework for this research needed some trimming. The dimensions chosen in this research ended up being the traditional triple bottom line that consists of environmental, social, and economic dimensions. In addition to that cultural dimension is added to framework since through that some perspective can be achieved that would add some value to those dimensions in triple bottom line. (Krajnc & Glavic 2005; Chiu 2004.)

Referring to prior literature of corporate reporting it is expected mandatory reporting to primarily improve businesses sustainability performance and then the monetary performance. Sustainability has been a big driver in economy as the climate change has been accelerating and public authorities as well as private sector has seen the need and possibilities in that field. As the need for sustainable economies and societies rise and the pressure from the market and customers towards sustainable options are growing the sustainable business could be argued to be the direction to seek success from.

As sustainability could have been seen as a competitive strategy in the past it should be considered as the direction where to aim not only because of the mandatory requirements but because of the pressure from the market and because the business potential it holds. Due to CSRD the businesses need to start reporting about the sustainability performance and then to improve on it so the way to succeed is to adapt to the change in the business environment.

Reflecting to the research problem the main research questions are as follows:

- *How could IT companies generate profit by covering sustainability issues in their business?*
- *What impact does the sustainability regulation have in the IT industry?*

## **1.2 Motivating the research problem**

The sustainability crisis is changing the environment with a pace never seen before and that makes it one of the greatest threats humankind has faced. We are already facing the reality where huge areas globally are starting to be unliveable due to natural disasters and extreme temperatures. The course should be changed, and every industry has the responsibility to make a change. In technology there lies a huge potential to find the solutions to stop the climate disaster while maintaining the standards of living.

By technological transition many issues have been solved by reducing the use of material resources and by reducing waste. Still the impact of energy consumption and social issues in technology and data focused solutions has replaced the concern in sustainability discussion. The profits of technology in making businesses more effective and life easier and world more accessible than ever are indisputable so the transition into more technology focused future will not be stopped. Therefore, there lies a need to

find the ways of executing the tech transition in a way that the climate impact of it is at a scale that our ecosystem can copy with. From that logic there can be found an economic incentive to make sustainability a competitive aspect. Like stated above the financial benefits can be generated for example through a better public image, organizational innovations, tax benefits and a reduction in energy costs (Spiceworks.com).

### **1.3 Overview of the EU green transition**

The European Union has been a pioneer in creating and launching sustainability initiatives as a public authority. Currently the EU's new growth strategy the European Green Deal aims for comprehensive green transition in the societies and in the European economy. As the main objective of the Green Deal is that the EU is climate neutral by 2050 the Green Deal works as a public policy instrument to help steer the development towards sustainability. Aiming towards the climate neutrality the transition is set to decouple the economic growth from the resource use while considering the social impact of the transition. (European Commission: The European Green Deal.)

The Green Deal is in line with other global climate agreements and treaties such as the Paris Agreement. The result of the Paris Agreement was to limit the global warming to 2 degrees Celsius and the agreement binds the nations to determine to contribute to reaching that goal. The Green Deal was presented in 2019 and it holds in various initiatives and packages to set the transition into execution such as Just Transition Mechanism, European Green Deal Investment Plan, and the European Climate Law. The Climate Law is an important piece of the Green Deal as it sets the objectives into legislation and determines the Member States to apply to the transition.

The Green transition has emerged regulation and legislation to sustainability. The CSRD is transforming the sustainability reporting field and speeding up the sustainable development in the EU. It applies from the fiscal year of 2024 for the companies that are already in the scope of the NFRD (Non-Financial Reporting Directive) and progressive to 2028 it applies to all large companies, SMEs and certain micro-enterprises (European Commission: Corporate Sustainability Reporting).

## 1.4 The role of IT-sector in the sustainable transition

When aiming to tackle the climate crisis in IT sector quickly one will face a term of Green IT. Green IT initiatives includes topics like material use in device manufacturing, reducing the use of hazardous materials, increasing the energy efficiency in computing devices and the software. Green IT also takes in account the issues of the efficiency of data centres and redesigning them into more sustainable direction, promoting virtualisation, cloud computing and green networking. (Bluecube.tech).

While aiming to act as per the goals of sustainable IT the businesses will benefit from it economically. As the sustainable IT addresses all the sustainability dimensions the business impact comes from addressing every dimension. The characteristic of the IT industry is that the sustainability impact of the industry is very indirect but affects societies comprehensively. The impact that the IT companies can generate can be divided to how to develop a software sustainably and to aim to improve sustainability by the IT solutions.

Calero et.al. (2022) raises two angles about sustainability in IT-sector; Software Sustainability (SOS) and Software as a part of Sustainability (SAPOS). In the first angle SOS the goal is to think how to develop a software in a sustainable way while the developed software is not in the middle of focus. As of the other angle SAPOS the focus is in considering software as almost as a new dimension of sustainability. Through considering a software as a new dimension of sustainability we include it in the interaction with the other dimensions among environmental, societal, economic, and cultural dimensions (Krajnc & Glavic 2005) (Chiu 2004). By both angles the sustainability in IT can be interpreted as well as by the concept of Sustainability by Software whereas the idea is that software acts as a tool to achieve the sustainability goals. Sustainability by Software is covered in both SOS and SAPOS but in a different perspective.

Traditionally the discussion in sustainability in IT has been focusing on the direct environmental aspects of IT sector covering mostly the areas of energy efficiency, energy performance and cloud and data centre energy consumption practices (Moises de Souza 2023). The economic side of the discussion has been left focusing yet on the indirect impact from what has been found as a result from socio-environmental

practices. These practices are still mostly focusing on the sustainability initiatives in companies and the impacts can be seen in economic measurements.

### **1.5 The method to conduct the research**

The research is conducted as qualitative research the focus being on the motives and economic incentives in building and implementing sustainable software solutions. The information for the empirical part of the research is conducted through interviewing people from the IT-industry and people who are working in sustainability field.

Interviewing people from the sustainability field the purpose is to understand the environmental and social needs and impacts that the IT systems cause. Combining the knowledge in sustainability and executive level industry knowledge the interviewees got selected by such criteria. The aim is to find mechanisms and incentives to gain monetary profit out of sustainable business practices in IT industry and how to measure the profits gained through sustainability.

### **1.6 The research gap and the novelty value of the research**

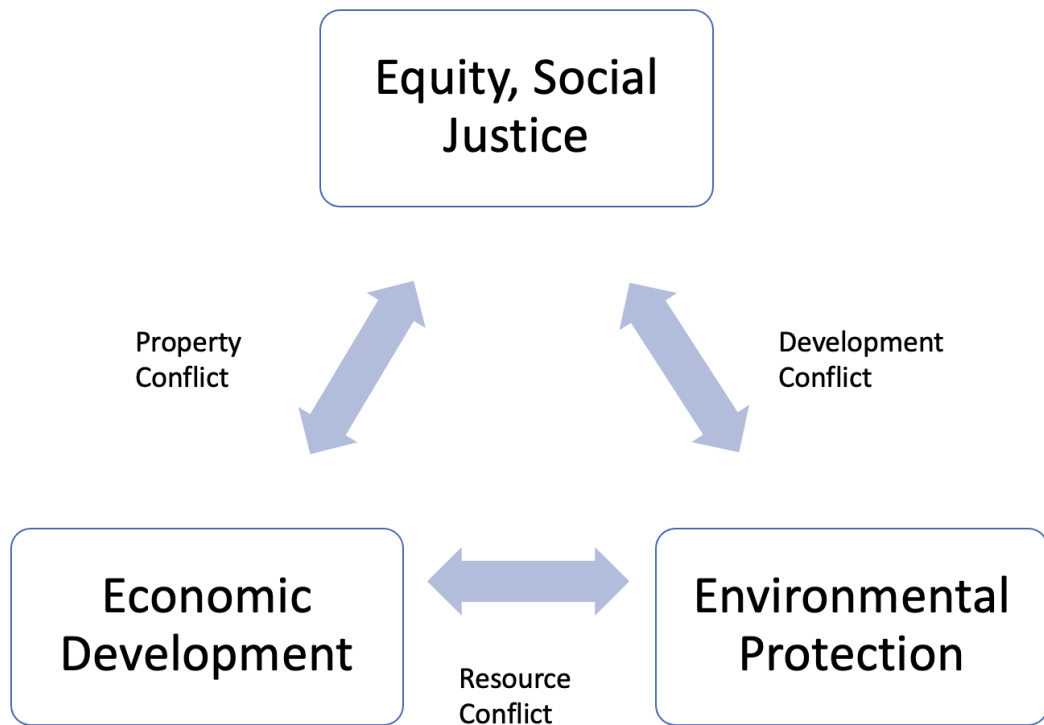
The need for this research arises from the lack of information and knowledge about how sustainability could be integrated to the IT industry and to the operations of the IT companies. The sustainability framework has not been applied fully to the context of IT industry and the development of sustainable practices are not as matured in the IT industry as they are in other i.e. manufacturing industries. As the impact of IT is arguably indirect but vast in modern society in both negative and positive the impact on addressing sustainability to the IT companies are to be researched. The sustainability reporting regulation taking place in the EU addressing the sustainability becomes mandatory for a significant number of companies which emphasizes the need for combining sustainability initiatives and the business development. There lies a gap in academic writing about how addressing different dimensions of sustainability could encourage the business development through reporting practices in the IT industry.

## 2 The framework for sustainability

There is a positive correlation between welfare and how income compares to produced carbon footprint. Dasgupta (2021) notes that in high income countries live around 17% of the total global population but these countries accounts for 49% of global GDP. At the same time around 50% of the global carbon emissions can be accounted for only 10% of the population. This population comes mainly from the high-income countries. These numbers underline the responsibility that advanced economies and private actors have in their hands. The need to act towards more sustainable way of living is inevitable and here lies a major chance to find profit as well. The sustainable solutions can be approached by the dimensions of sustainability which all need to be addressed to reach a comprehensive result.

The research concerning sustainability has been traditionally divided in three different dimensions. The three dimensions are economic, environmental, and social dimensions. Every dimension affects each other (Campbell 1996) so to achieve real sustainable development all the dimensions need to be considered. Krajnc & Glavic (2005) also notes that sustainability has been often based on the three elements the so called “triple bottom line” covering societal responsibility, environmental performance, and economic contribution. These three dimensions have been the basis of sustainability discussion and has shaped the businesses through reporting standards, corporate social responsibility and for example public pressure in the market.

The green transition is not performed only by focusing on environmental aspects of transition, but every dimension of sustainability needs to be covered to reach the sustainability goals set globally and locally. In sustainability discussion Campbell (1996) found conflicts between different dimensions and how they interact. The triangle of conflict pictures well how every dimension needs to be covered to thrive in one of them. Even though the graph is from 90's it describes the topic clearly as the basic logic remains the same.



**Figure 1: The Triangle of Conflicts (Campbell 1996)**

Later the discussion around the dimensions of sustainability evolved into finding fourth dimension to consider. Soini and Birkeland (2014) raises culture to be an important aspect besides the triple bottom line. Traditionally in the sustainability research the cultural dimension has been considered as an aspect or part of social dimension. For example, Chiu (2004) notes that in early research the cultural dimension was indeed considered as a part of social dimension or even dismissed completely. Later on, the cultural dimension has gained a position as one of the dimensions of sustainability.

The position of cultural dimension remains somehow unnoticed compared to the triple bottom line or “the three pillars” as it is left out eventually. Al-Emran and Griffy-Brown (2023) lies the basis of sustainable development on the three pillars but introduces a general category as a fourth category to interpret sustainability. According to Al-Emran and Griffy-Brown (2023) the general category can be included into either of the three pillars and it holds different research agendas that can be defined under those three dimensions.

Al-Emran and Griffy-Brown (2023) notes in their paper the Sustainable Development Goals created by the United Nations in 2015. The Sustainable Development Goals (later

SDG) address global issues concerning climate crisis, biodiversity loss, inequality, poverty, and peace among other topics. The aim is to achieve these goals by 2030 and according to Al-Emran and Griffy-Brown advanced artificial intelligence technologies are predicted to solve and achieve 79% of all the SDGs. Through the sustainability dimension framework all these SDGs are categorized into different dimensions of which Al-Emran and Griffy-Brown only address the three pillars: environment, economy, and society. The role of technology in sustainable development is remarkable and it should be considered in every dimension in order to achieve the sustainability goals and in business context to create profit. In technology there lies a huge potential to reduce injustice, inequality and to slow down or even stop the raging climate crisis so the need and potential for IT-industry to act is significant.

## **2.1 Software in sustainability**

In the context of software sustainability Calero et. al. (2022) has an approach to dimensions of sustainability. As stated before, the sustainability in software industry can be divided into Software Sustainability (SOS) and Software as a part of sustainability (SAPOS). In earlier research the dimensions in SOS have been recognised to be aligned with the traditional divide into three pillars: human sustainability, economic sustainability, and environmental sustainability. The SOS approach is more focused on the software development community and industry itself. By human sustainability the idea is to discuss about how software development and maintenance have an impact on the people in the industry by sociological and psychological aspects. It includes the rights of employees in the industry, the working circumstances and how employees and their wellbeing is taken into consideration inside the industry. By economic sustainability the focus is on how the software lifecycle processes generate money for the stakeholders, make sure that the benefits are achieved and that the solutions reduce risks and the assets and capability to compete. (Calero et. al. 2022.)

In SAPOS approach Calero et. al (2022) note that some scholars raise the issue that software should be considered as an aspect to achieve sustainability with. Sometimes the sustainability in software context is seen as just developing the software itself sustainable but in SAPOS the aim is to achieve sustainability with IT solutions. In the paper of Calero et.al. (2022) scholars find several dimensions take into consideration in SAPOS approach. The human dimensions can be divided into social and individual

since some dimensions concentrate more on multiple people and some more on individual approach.

In general, Calero et. al. (2022) looks further into five dimensions in SAPOS and add technical sustainability into the string of social, economic, environmental, and individual sustainability. These dimensions are defined in the context of SAPOS, so they differ slightly from the approach of SOS. By individual sustainability is referred to maintaining individual assets such as education and knowledge. Social sustainability then refers to maintaining different social communities and the solidarity of theirs. The economic sustainability aims to preserve capital and added value to create a future financially. The environmental sustainability concentrates on natural resources and preserving them and eventually improving human welfare. The human welfare preservation is seen through ensuring the protection of the natural resources and the limits of Earth. As a last dimension the technical sustainability refers to longevity of IT systems and infrastructure as well as the needed capability to develop along with the surroundings.

In this paper the focus will be in the four dimensions that consist of social, economic, environmental, and cultural but the approach of SOS and SAPOS will be applied in discussion as well since they give a rich template to exploit in the IT industry in sustainability context.

## **2.2 Dimensions of sustainability**

As mentioned above the context of the sustainability dimensions has been evolving over the years. The triple bottom line is a very commonly used framework in sustainability discussion as it provides a clear foundation to examine different dynamics in society. Referring to Campbell (1996) he raised the concern of the conflict between social, environmental, and economic desires. As there appears to be conflict between the dimensions of sustainability it goes other way around as well in the form of dependency. In the prior literature it has been raised that to achieve a comprehensive and effective transition towards sustainability every one of these different aspects need to be considered.

As Kristensen and Mosgaard (2020) raises in their research all the dimensions should be included to fully achieve the objectives of sustainable development in the context of

circular economy. As the nature of sustainability is comprehensive the approach in this research takes into account the triple bottom line and cultural dimension as well.

Cultural dimension was considered as part of social dimension (Soini and Birkeland 2014) for long time but in current literature it has been recognized as a dimension of its own.

### 2.2.1 Social dimension

The concept of social sustainability origins the approach in sustainability from various angles. According to Vallance et. al. (2011) the idea of sustainable development was originally very focused on social mechanisms and the impact of different actions on a social level. Vallance et. al. (2011) refers to a definition of social sustainability through three different research and definitions. The first definition is by Sachs (1999). That definition says social sustainability consists of various elements like equal pay, equal chances for different goods or services or employment. A common aspect in social sustainability is social homogeneity.

The second definition used by Vallance et. al. (2011) is from Godschalk (2004). According to Godschalk the definition rises from different aspects of social sustainability aligning and impacting each other but even more importantly how the aspects and elements conflict. What makes Godschalk's definition interesting and important is that it challenges the usual way of thinking where every outcome is desirable for all stakeholders. The idea is that every decision has an impact on everything and the discussion about social sustainability is actually very multidimensional itself. The definition challenges the society to take a different approach to social equality and reality than where it is used to in order to achieve the actually sustainable outcome for all. Referring to Godschalk (2004) and Campbell (1996) in social sustainability it is important to recognize and acknowledge the different values affecting sustainability issues and how they interact with each other. In social sustainability it is crucial to consider different stakeholders and their needs to achieve the maximum common value. At this point social sustainability comes close to cultural sustainability where in the focus is the different values and habits to interpret things and how to navigate through different interpretations.

The third definition used by Vallance et. al. is from Chiu (2002). Chiu defines social sustainability to be divided into three elements: equality, social limits, and ecological

limits. The social limits mentioned in the definition refers to Brundtland report (1987) and to the definition of sustainable development and how we should be able to improve future's generation's chances "meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life" (Brundtland 1987).

Based on these three different definitions of social sustainability, Vallance et. al. (2011) notes that social sustainability builds on three aspects which are development social sustainability, bridge social sustainability and maintenance social sustainability. In this tripartite, the development refers to acts and objectives to globally improve the quality of life, preserve, and use the natural resources responsibly and reduce global risks by aligning economic and environmental goals in decision making. Globally the preferred and aspired social sustainability initiatives can be recognized to differ based on the wealth of different countries. Where developed countries focus on social capital or cohesion the developing countries the needs are more primary. The objectives and needs that fall under the development social sustainability contain a wide scale of needs that depend on the subjective.

By bridge social sustainability Vallance et. al. (2011) refers to creating a better connection between human and bio-physical environment. The term bridge refers to finding connection, "bridges", to the surroundings. The social aspect here is to find the social conditions that support the aims of environmental sustainability. The social conditions are divided into transformative and non-transformative approaches by Vallance et.al. (2011). The non-transformative conditions can be considered focusing on aspects that cannot be transformed and encourages us to find better solutions to our actions without changing the interpretation of the relationship with our surroundings. This encourages for example to technological development or other innovation that don't demand us to change the established way of living but is a better solution. On the other hand, the transformative approach changes and disrupts the relationship with people and the surroundings. The approach underlines the need to change the attitudes of humankind towards sustainability related topics in order to find a balance between its actions and environment. (Vallance et. al. 2011.)

Kim (2018) raises up that the current focus in the social dimension studies is on social capital related discussion. Kim mentions that the social dimension highlights the impact that businesses have in their local communities and societies. As for social capital, it

includes the invisible power to bind people in the society together by shared interests and values. Kim (2018) notes that social capital linked through communities can make it possible to “leverage institutional resources, ideas and information”. As per Orekhova et. al. (2020) the attention of the academic discussion has been centred on the establishment of social capital as it constitutes the foundation of the enduring prosperity of enterprises in ecosystems, guarantees the exchange among stakeholders, and ultimately impacts the ethics of business (including social and environmental dimensions) as well as their efficacy.

The social capital topic around social dimension discussion has made a foothold in the research. Ortiz et. al. (2019) defines social capital as an immaterial resource based on knowledge that can act as a bridge between organizational resources inside or outside of the organization. According to them social capital holds three dimensions; internal, external, and neutral. Internal approach includes the utilization and development of social capital inside the organization. It is developed between the stakeholders and the company itself that share the common interests. External approach focuses on the relations between the company and other actors with whom the actors do not have an established relationship. More specific it can be defined as the relationships to other agents when positioning itself in the environment of its business context. As of neutral approach it concludes both the internal and external approaches and enables to observe company from both internal and external points of view. In reality all companies operate with both internal and external approaches taking influence from the internal relation structure and from external agents. (Ortiz et. al. 2019). Therefore, understanding the importance of the concept of social capital is undeniable when implementing social sustainability into the corporate’s operations and culture.

Social capital is seen through all levels of economy from individuals to businesses and even states. It has been notified to hold a vital role in achieving sustainability goals and understanding the corporate sustainability foundations. To be able to integrate the long-term sustainability initiatives into culture of businesses or even societies one must understand how to recognize the social capital and communicate it to wider audience.

According to Orekhova et. al. (2020) social capital should be seen as key element in making corporate sustainability function at all levels of economy. It is commonly left outside of consideration and underestimated its value due it is considered as a public

good. Orekhova et. al. (2020) notes that core elements of social capital that have the most influence on organization's performance are trust between work community, social ties of management that get the access to external knowledge and the readiness to cooperate.

### 2.2.2 Economic dimension

The economic dimension in sustainable development framework is one of the dimensions of triple bottom line. In the business context the economic dimension can be considered probably the very basis of any action since if the business is not working there is no other operations to execute in other dimensions either. The balance still needs to be considered a responsibility of any business. Referring to Brundtland report (1987) it was stated that the economy must be in responsibility of all impacts it causes to environment. To work this system needs economic incentives in addition to juridical public regulations to achieve a change in common mindset and attitude towards sustainable business.

Hart (1997) says that already in 1990's the businesses started to recognize the potential to benefit and grow the business by acting responsibly. Fast-forward from the 1990's to modern day there lies a major potential for business in sustainability and doing business in sustainable fashion. It can be argued that doing business sustainably there is not a potential to growth anymore, but it is almost a requirement for successful business. The businesses need to create a positive impact in their surroundings and stakeholders to maintain the chances for competitive advantage or even competitiveness and to grow the business.

The development of economy in a modern world is seen as a fundamental need for the society to ensure its future wellbeing. In the developed countries the economic situation represents the stability and the future possibilities for younger generations and so therefore it goes closely with social dimension. In socio-economic framework where the current wellbeing is in the focus the basic idea of the triple bottom line still sometimes tends to break since as per Kuhlman & Farrington (2010) the social dimension and the economic one focuses mostly on the current generations and the environmental is focused more on the future generations. Whereas the definition of sustainability stated in Brundtland report (1987) that development should ensure the needs of future generations there can be found the need to integrate all the dimensions concerned. The

close relationship between economic and social dimensions in this approach underlies the logic in sustainability and its interconnected nature that no goals can be achieved without considering every dimension.

The economic sustainability focuses a lot on doing business in sustainable way. As mentioned above to achieve sustainability goals there needs to be an economic incentive to make it attractive and beneficial for businesses. With the economic model that we have the purpose of businesses is to create profit for its shareholders so the way of making sustainability attractive is to find the angle of making it profitable. Epstein and Buhovac (2010) raises up an important note that when it comes to measuring the profitability of sustainability the economic topics are quite easily seen and measured whereas other dimensions of sustainability have an impact in longer period of time which makes it difficult to measure and find the profitable patterns. There lies the difficulty in measuring the profitability and impact of sustainability initiatives since sustainability should be perceived as a whole. When considering the economic dimension itself we can think every dimension as part of economic one referring to the interconnected nature of the dimensions. As mentioned, the global business model and the purpose of businesses is to create wealth and profit to its shareholders the initiative to do sustainable business action is that there is monetary benefit to gain. Therefore, the actions and impact of every dimension of sustainability should be possible to be measured and the business connection should be possible to be found.

Epstein and Buhovac (2010) states that sustainability should be seen as a business case to make it long-lasting in the corporate culture. Integrating sustainability to business have been a challenge since as mentioned the measurability can be quite difficult to recognize. Clear and measurable goals are one of the basic starting points in integrating sustainability. It is important that the initiatives can be justified business wise which also increases the support from management. The financial incentives are extremely important here since as short-term earnings are often preferred and managers are pressed to generate profit in short-term periods. As sustainability actions tend to take rather longer than shorter time the importance to point out the financial incentives are vital. (Epstein and Buhovac 2010.)

Stakeholders and their reactions are good to take into consideration as well. As sustainability and the corporate responsibilities and priorities evolve constantly the

opinions and reactions of different parties should be under continuous observation. Public opinions and the image of business can change dramatically and damage the reputation of the business so following the reactions of the stakeholders are to be followed to be able to make the right decisions (as per Epstein and Buhovac 2010).

Blinova et. al. (2022) in their research notes economic sustainability refers to using the limited economic resources by creating systems that enables rational use of those resources. The actions that can be used to improve economic sustainability raised by Blinova et. al. (2022) includes actions that optimize the business. Adopting new and innovative technologies can reduce costs and improve productivity as well as investing in research and development actions. As R&D actions and investing in new technological solutions are important the main focus should be on how management succeeds to optimize the use of resources. Engaging responsible supply chain management can help business to foster and ensure that it follows fair trade practices and simultaneously minimizes the negative impact for its supply chain and local communities. By working closely with the stakeholders globally and locally improves the relationships between businesses and the public. Close collaboration with public actors and the local communities can help businesses to integrate better and gives a possibility to develop common plans and initiatives. (Blinova et. al. 2022.)

### 2.2.3 Environmental dimension

The environmental dimension in sustainable development is one of the three pillars and perhaps the first when one thinks of green transition and responsibility. As stated before, we are facing a huge threat as humankind when it comes to climate crisis and its consequences. In 2021 Sir Partha Dasgupta published a major paper concerning the biodiversity loss that earth is facing. The environmental dimension can be defined to be a framework of how humankind can use the natural resources just as much as the earth can offer and that the amount of resources we use, earth is capable to reproduce.

In the centre of the environmental dimension there is an idea that without taking care of the one planet we have there is nothing to build and trust on anymore. As global society is developing and the industrial development is spreading as well as the global population is growing, we are in a position where the resources are not enough anymore to fulfil the needs of humankind. Therefore, we are using more resources that we can afford with an increasing pace which causes environmental changes. One of the biggest

threats in climate change is the biodiversity loss which impacts everything in our ecosystems.

As Dasgupta (2021) raised concern about the biodiversity loss to be one of the greatest threats to existence of humankind. As per Dasgupta the environmental dimension of sustainability culminates in an idea where human led action and use of natural resources goes on only to the point where Earth can provide them and renew the same amount we have taken. In the focus point of environmental dimension has been the environmental concern and the external threat caused by climate crisis. The industrial development, the continuous growth of global population and the development of the societies has caused a continuous increase in the need of natural resources. The ever-growing number of people whose needs are to be satisfied has drove us to the point where the capacity of Earth has been exceeded and we are living to debt when it comes to natural resources. This continuum is creating imbalances in our surroundings as one of the greatest being the biodiversity loss, as mentioned before.

As Sir David Attenborough mentions the biodiversity loss causes natural disasters and accelerates the climate crisis. The biodiversity itself and the benefits from it can be compared to benefits gained from decentralizing assets in investment portfolio. The idea is that losing one asset does not break the whole system and conditions to function still remains. (Dasgupta 2021.)

The Brundtland report *Our Common Future* from 1987 have had a significant impact to literature and research in the field of environmental sustainability. Compared to modern world and it's needs and common attitudes the reality was very different when the report first was published. Still the basic idea in sustainability remains the same than it was stated in 1987 and the message of Brundtland report is still valid. The definition of sustainability as it was defined in the report: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland 1987) can be considered in the very heart of environmental dimension since without our planet and ecosystem the future is no longer. The situation in the current world again is very different still from the 1980's as when the Brundtland report was written the effects of climate change was not as visible as they are in the 2020's. The knowledge of climate change has grown remarkably and the attitudes and awareness

towards the sustainability issues has changed which has helped to achieve the goals and aims of sustainable development (Sneddon et. al. 2005).

The environmental dimension can often be left without proper integration to other dimensions which leads to not achieving the desired goals and solutions. Beck and Ferasso (2017) notes in their research that stakeholder value creation (SVC) in urban sustainability is fully integrated with the sustainability dimensions but there is a need to integrate the environmental dimension better. By adapting the environment in decision making and understanding the monetary value in preserving our biophysical system the solutions and outcomes will be more effective and will provide value for greater audience than just focusing on few of the dimensions.

The environmental dimension is considered long-term, global, and cognitive focused dimension (Catlin et. al. 2017). People consider the impact of environmental issues to be long-term and more importantly be affecting things that human is not in control with like biodiversity loss and the healing of nature. Also, it is considered global, and the impacts be affecting global population than in contrary social dimension is considered to affect mostly the local communities. Catlin et. al. (2017) proposes environmental dimension to be considered to affecting more cognitively and it is approached analytically.

In table 1 there is explained what the dimensions in triple-bottom line consist of. The dimensions can be considered as capital as per the context. Orekhova et. al. (2020) in their research raises the importance of social capital in the process of making corporate sustainability more sustainable in long-term. All the dimensions can be considered as capital business-wise. To create monetary benefit out of sustainable actions and operations the dimensions should be seen as resources that can be used in business. The capital in all these dimensions should be considered in way where it is possible to measure it and to invest in it. As the world and our surroundings are in constant change the demand for a beneficial way to do business sustainably becomes more and more bigger. As Orekhova et. al. (2020) mention about social capital that stakeholders commonly are not willing to invest in it due to its public good kind of nature the same goes for other dimensions and capitals as well. Economic capital is more exclusive, but it has some features which can be considered as common good such as silent knowledge that can be transferred into business value and advantage.

Aspect of sustainability	Economic Capital	Natural Capital	Social Capital
What is it? (essence)	1) financial; 2) material; 3) non-material (reputation, knowhow, organizational procedures)	Natural resources and ecosystem services	1) human capital (skills, motivation and loyalty of employees and business partners); 2) societal capital and quality of public services
Sustainability (what sustainability implies)	Company can guarantee a continuous and sufficient cash flow to provide liquidity, while producing stable above-average returns for their shareholders	Companies: 1) utilize exclusively natural resources; 2) are not involved in activities that can compromise the quality of ecology	Companies manage social capital in such a way that stakeholders are able to recognize its motivation and generally accept the company's system of values

**Table 1 Types (structure) of corporate capital (Orekhova et. al. 2020).**

#### 2.2.4 Cultural dimension

The cultural dimension is rather new in the sustainability framework and discussion. As mentioned, the cultural dimension was historically considered to be part of social dimension or even left unconsidered (Chiu 2004). Soini and Birkeland (2014) notes that the cultural dimension has been present in the sustainability research, but it has been indeed considered to fall under social dimension. Referring to the Brundtland report (1987) the development and discussion in sustainability has been built on the triple bottom line so it is recognized that the cultural dimension is still not that integrated nor researched area compared to the “traditional” dimensions.

The cultural dimension takes into the focus point the cultural aspects when implementing sustainability. Referring to Throsby (2001) cultures play a significant role in interpreting the ways of how people act. It is important to acknowledge that how culture affects the way people behave and interpret the surroundings and how they use their knowledge. The cultural capital needs to be covered by historical approach so that it is understood how the cultural capital is perceived currently and how it is carried on to future generations. By understanding the logic here, it can be understood how different cultural aspects effect on the use of natural resources and how they are considered.

Through such understanding it is possible to mirror the effect of culture in the approach of sustainable development.

The power of culture is undeniable in shaping the reality of life of a population through adopted values. The culture is evolving continuously inside the certain demographic groups and is shaped by its members without external forces. These values guide the people in everyday life and form norms which people are acting by. Bakri (2018) raises up the importance of cultural implementation in sustainability initiatives due to the logic where success is achieved because the society is willing to adopt the initiatives since they are suitable in the local culture.

Culture plays a crucial role in shaping society's outlook on life and fostering the development of local knowledge. In more depth, culture serves as a guiding force and a mechanism for social regulation. As a result, it influences individuals' behaviour towards their environment, as well as their social and economic activities. In essence, culture has an impact on how society approaches the pursuit of sustainable development. (Bakri 2018.)

Hajer and Versteeg (2005) notes in their research that cultural aspects and discourse used can have a major effect on how different policies and standards are perceived. Therefore, the language used, and the topics raised in the focus point can make a huge difference in how different actors act and understand the issues on table. It is recognized that even though the terms used in the sustainability discussion are rather established the perception of them can vary significantly depending on the actor.

Referring to the research of Hajer and Versteeg (2005) it could be argued that paying attention to different cultures and their effect on communication and the expression affects a lot in effectiveness of communication. In the sustainability context the cultural dimension plays a big role in communicating the common goals, finding common solutions, and finding a way to execute the changes in different demographic locations. It should be noted that how communication is done and how the discourse is perceived can shape remarkably on how one defines a truth.

The correct way to implement any sustainability initiatives is to use the local culture as a basis. By doing that it is ensured that culture is integrated by default in all sustainability considerations and actions. The cultural impact has been noticed to be a

significant and decisive element in sustainable development through the sustained values in the societies and its power to shape the way of life. Therefore, the implementation of any sustainability initiative should be approached by bottom-up approach so that the society feels to be heard which will improve the bond between the initiatives and the society. (Bakri 2018.)

### 3 Corporate disclosure practices

Reporting is one of the fundamental operations that corporates conduct. The operation of corporate reporting is considered a formal and common source of information from organisations. According to Anwar et. al. (2022) the reporting has been focusing mainly on financial information. Anwar et. al. (2022) notes the point that traditionally the reporting has been limited to include only historical accounting and financial information due to legal reasons.

The reporting needs are evolving as the public regulation towards reporting are developing and the need to communicate company's operations and performance to different stakeholders are growing. In the context of IT industry, the development of technology and the society the need for transparency is needed. As megatrends such as AI (Artificial Intelligence) and digitalisation are emerging the need and desire in the state level for regulation and reporting transparency as the impact to societies are rather vast.

Referring to Unerman et. al. (2018) the importance of comprehensive approach in the business reporting is important as the external stakeholders are increasingly more interested in the operations and the long-term overall performance. Unerman et. al. (2018) in their research discusses the dynamic between financial reporting and business operations and the interactions and impact they have on their environment. As per usual the environmental impact is not visible in the financial statements, they tend to be remained issues without internal impact. The external issues such as environmental or social issues are in a growing pace becoming internalized due to several drivers such as increasing regulation, increasing demand for transparency and the pressure from the market forces. (Unerman et. al. 2018.)

Cronjé (2010) notes that the corporate annual reporting information consists of two main types of information, mandatory information, and contextual information. Mandatory information is information regulated and powered by national and international accounting standards and practices. Usually, this sort of information focuses on financial accounting and therefore is rather one-dimensional. Then according to Cronjé (2010) the concept of contextual information focuses more on contextual

topics such as environment. Contextual information disclosures have been traditionally voluntary and therefore not as much focused on.

Cronjé (2010) raises up the problem in corporate reporting that the traditional reporting has excluded information from certain stakeholders without the resources and capacity for the same information and such continuum causes economic inequalities eventually. Cronjé (2010) discusses about the benefits of full disclosures in corporate reporting as a solution for asymmetrical information among stakeholders. By full disclosure the companies can improve their image and reputation as transparency enhances. Stakeholders are able to base their decisions on more comprehensive set of information and the company can build trust among their stakeholders.

As we see the rise of mandatory reporting in the EU it is well reasoned to discuss whether the growing amount of disclosed information benefits the companies, or does it become a burden that requires more resources for reporting practices. Information disclosures have been considered as transparency and credibility level improving acts (Ioannau and Serafeim 2017) so reflecting to prior literature and research the benefits seem to be undenied. Then again, the extent of the sustainability reporting requirements due to adoption of CSRD may at least first affect problems for companies trying to adapt.

### **3.1 Voluntary disclosure in sustainability reporting**

In corporate reporting practices there have been various drivers and pressure to conduct voluntary disclosures. As traditionally reporting has been concentrating merely on financial information, that has been under regulation, the information considering for example sustainability or responsibility issues has been left without attention. As of Unerman et. al. (2018) the need for voluntary disclosure has been rising due to companies have recognized the business potential in transparency. By voluntarily disclosing information companies may increase the transparency of their operations and improve the trust between them and their various external stakeholders. For IT industry the incentive for voluntary disclosure has emerged mainly from the urge to please the stakeholders and to create reliable bonds with the clients.

Bushman and Landsman (2010) remind in their paper that even though by regulation lots of benefits can be achieved, the regulation is not always a good solution. As

markets can be imperfect and unbalanced so can the regulative party be. When it comes to making decisions about the balance between regulation and discretionary in reporting it is important to avoid the so called “Nirvana Fallacy” where the government is competent and possesses only perfect information (Bushman and Landsman 2010; Demsetz 1969).

Companies can find many reasons to apply voluntary disclosure in their reporting practices. In prior literature and as mentioned earlier, it benefits companies for example by increased trust towards the company among the stakeholders generated by increased transparency. Therefore, the companies and the managers may have an incentive for opportunistic behaviour when in power of what kind of information is disclosed. As companies are under power of their stakeholders the need to satisfy their needs are obvious. Companies, by voluntary disclosure, try to disclose the kind of information that suits the needs of their stakeholders to benefit from it themselves (Meek et.al. 1995). As in IT sector the regulative side for comprehensive sustainability reporting has been historically slim so the framework for reporting has come from private sector and from seeking improved level of trust and reputational benefits, which can have decreasing impact to the credibility level of sustainability reporting.

In voluntary disclosure there lies a potential for bias and opportunistic behaviour. Referring to Meek et. al. (1995) if the incentive to disclose information voluntarily is based on to disclosing certain selected information to benefit by looking better for stakeholders. The benefits may not come by improved processes but on image the managers are trying to show to stakeholders. The incentive is then vulnerable to lay on the urge to manipulate the disclosed information. Einhorn and Ziv (2012) discuss about the credibility of voluntarily disclosed information through whether the information disclosed is truthful. Referring to their paper the voluntarily disclosed information is vulnerable to bias as per information is selected internally.

Shehata (2014) divides the determinants for companies to voluntary disclosure into two categories, motivations and constrains. Motivations act as incentives to do voluntary disclosure. The motivations can be information symmetry, better analyst coverage, stock compensation or limitations in mandatory disclosures. As for constraints they act as boundaries to not do voluntary disclosure as it can generate disclosure precedent or additional costs (Shehata 2014).

### 3.2 Mandatory reporting

Reporting can be considered based on reporting the companies are determined to conduct. By reporting requirements, the companies can be supervised to act responsibly and prevent any misconduct. Ioannau and Serafeim (2017) found that adopting mandatory corporate sustainability reporting the social and sustainable issues became more important for companies to focus on. Furthermore, what Ioannau and Serafeim (2017) notes is the impact of the adoption of mandatory reporting increased transparency, increased the level of ethical practices and improved the credibility in the managerial level. What's worth notifying as well is the mandatory sustainability reporting led to decrease of energy usage and waste for example and generated investments to employee training. (Ioannau and Serafeim 2017.)

Bushman and Landsman (2010) raise up the benefits of financial accounting regulation through improved transparency and increased accuracy and credibility in corporate reporting. By regulating reporting activities misrepresentation of information or fraudulent behaviour can be prevented. Also, by regulation the interests of external stakeholders are protected effectively through transparency of the activities of companies and fair competition. (Bushman and Landsman 2010.)

Despite of the benefits of the regulation there can appear downsides as well caused by mandatory reporting. Especially companies with less resources can face difficulties trying to adapt to reporting requirements as it imposes additional costs and takes resources off from the core business and innovation operations (Bushman and Landsman 2010). For SMEs (small and medium-sized enterprises) the challenges to adapt to requirements and regulations can appear more easily. In this context it is reasonable to consider the balance of how strict the regulative environment is to achieve the optimal level of regulation and flexibility. Important point Bushman and Landsman (2010) notes is that in the context of financial reporting true harmonisation internationally is unlikely to be achieved. Prior literature has proven the difficulty or even impossibility that regulations and standards fit all sizes of countries or companies.

Mandatory reporting can lead to incentive for voluntary disclosure to emerge. Xi and Yang (2016) researched the interaction between the mandatory adoption of International Financial Reporting Standards (IFRS) and the incentive for voluntary disclosure. In the paper of Xi and Yang (2016) a connection was found between the adoption of IFRS and

the likelihood of management earnings forecasts which implicates that by regulation the incentives for greater voluntary disclosure can be found. As prior literature provides a framework and results that improvements in mandatory reporting context can generate an increase in voluntary disclosures and improve transparency and market dynamics.

Even though the mandatory reporting can generate an increase in voluntary disclosures the balance between mandatory and flexibility is important to find (as per Bushman and Landsman 2010). Schneider et. al. (2018) found that in Canada, US and EU mandatory reporting on environmental and social issues increased the amount of information disclosed compared to voluntary reporting. Their paper notes the impact of mandatory reporting to the information disclosed as without the obligatory nature of the reporting some of the information was not considered worth reporting for. Therefore, by extending the scope of mandatory reporting more important information was included in corporate reporting.

### **3.3 Impact of reporting to IT sector**

As discussed, the reporting whether voluntary or mandatory can improve the markets and the operations of the companies towards more efficient and transparent. In the IT sector the improved level of transparency and disclosed information can be argued to benefit the society as the digitalisation strongly transforms the societies. As by Seo (2021) the peer effects in corporate disclosure decisions have forming impact on companies' disclosure practices. Seo (2021) suggests the environment of the company affects its reporting habits and information environment positively. The impact of the company's peers can be significant and form the set of information disclosed to be even with the peers.

Put in the context of sustainability reporting the harmonization of the framework can benefit the society by increased transparency and effectiveness of the reporting in IT industry. As for the companies the peer effect in disclosure strategies acts as a driver to even the level of information disclosed as by doing so, they avoid negative impacts from ignoring the actions of the peers. By ignoring the level of average disclosure behaviour in the market the negative impact generates from consequences on liquidity and stock prices and by adjusting the disclosure practices the companies can avoid such consequences. (Seo 2021.)

Reporting also increases costs and ties resources from the core business. It must be kept in mind that if the cost of reporting rises on a high enough level the incentive to conduct such reporting disappears. The high costs of reporting may lead to decreased level of disclosure (Verrecchia 1983). Verrecchia (1983) suggests that even the positive performances can lead to decrease in disclosed information if the positive performances increase the costs of disclosure.

Referring to the findings of Seo (2021) about the costs of disclosure that the peer effects of disclosure behaviour are bigger when the company is more dependent on external financing, the IT companies vary in this spectrum. The impact in this sense can differ between companies and their size as for example smaller IT companies which are more dependent on external investors are more vulnerable to the costs of disclosure.

Therefore, the growing requirements for reporting can act both negative and positive to the companies in the market and to the society. As per Schneider et. al. (2018) the implementation of regulation increases the number of disclosed information and makes the industry more transparent but comparing those to the findings of Bushman and Landsman (2010) that additional reporting requirements increases costs of reporting and takes resources off from the core business makes the balance harder to find.

Micek and Aydin (2017) in their article raise up the characteristics in reporting in the IT sector. According to them by the reporting the aim is to assure the stakeholders about the reliability and trustworthiness through transparency reporting. The transparency reporting is already an assumed part in reporting, and it is used as a communication channel between the IT companies and the public about the risks and possibilities and ethical considerations about the business of the company and its products and how transparent the companies are about the users interests and privacy. Micek and Aydin (2017) also suggests that more extensive and standardized reporting could lead to better outcomes ethically. The benefits of reporting regulations in IT industry can be considered to improve the sustainability and responsibility impact in society as the business practices and risks and opportunities are brought to public reporting. Although the costs of more comprehensive reporting can create difficulties and boundaries for some companies the sustainability impact gained in the society is improved.

An interesting point of view about sustainability reporting by Arvidsson and Dumay (2021) is that in their research they found out that in Sweden the ESG reporting quality

improved over the time but during the same period of time the sustainability performance stayed on the same level. In the sustainability context the interest around conducting sustainability reporting had increased by the quantity of the reporting as the focus being on the quality of the information disclosed. The interesting point is while the quality of the reports improved the performances lacked improvement which indicates that the voluntary nature of such ESG reporting did not provide such framework that would improve the transparency and would make an actual impact. With the regulative reporting the rules are the same for every actor and the data provided in the reports is comparable which makes it easier to perceive and assess. In the IT sector it provides clearer framework on how to address the development of the industry and generates information to the companies on what and how to report as the society benefits from better transparency and improved level of credibility to the companies.

## 4 EU legislation and standards in sustainability reporting

The greatest threat the global society is facing is the existential climate threat and biodiversity degradation. The economic mechanisms and the societies around them should adapt to the development where we only use the amount of resources that the environment is capable of renewing. Examining the dynamics of the global economy and resource utilization, Dasgupta (2021) discusses a trilateral interaction involving well-being, the economy, and natural resources. The movement of labour and innovation contributes to the economy's prosperity, while commodities, services, and income flow in the opposite direction. Concerning natural resources, well-being generates pollution, land use, and waste, and in return, it receives benefits like food, health, and coastal protection. The economy, in contrast, obtains natural resources and experiences improvements in natural quality, such as water quality, from nature. However, nature bears the burden of air pollution and waste in this scenario (Dasgupta 2021). Comparing to the study by Managi and Kumar (2018), the correlation between the use of natural resources as a tool for economic growth is a major cause of biodiversity loss, so the problems caused by climate change that we solve must generate economic growth in other ways (cf. Managi & Kumar 2018).

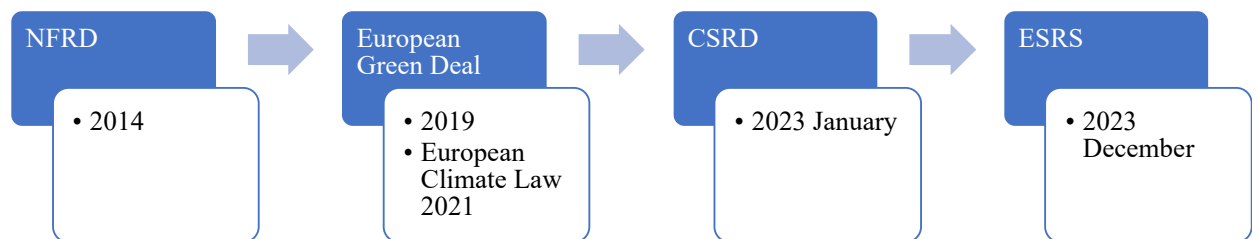
The European Union has been aiming to ambitious sustainable development goals, for example the EU is aiming to be climate-neutral by 2050 which means the net emissions from the Union would be zero. In the very heart of the objectives is the European Green Deal, which was presented in 2019, that aims to ensure the net zero emissions of greenhouse gases by 2050, decouple the economic growth from resource use and that no place nor person is left behind. (European Commission: The European Green Deal.)

The development in adapting new regulations and global agreements has been rapid during the last decades and the desired direction by the authorities is starting to be clear. In European context the Green Deal initiative is a major driving force and change while it is in line with the current global agreements in climate issues. The Paris Agreement in 2015 was a major milestone in global climate politics and opened the long-lasting gridlock in finding a new global climate treaty. The driving forces in finding the common understanding was the need to address the existential threat of climate change and its impact on societies. The negotiations leading to the Paris Agreement were characterized by extensive international cooperation and diplomacy, with countries

coming together to find common ground and reach consensus on key issues (Allan et. al. 2021). By the Agreement it was agreed that the global climate temperature rise should be limited in 2 degrees Celsius as the agreement determines nations to contribute to reaching that goal.

The direction to more ambitious and comprehensive climate actions develop constantly due to ever-growing regulation of different industries. The newest climate agreement COP28 in Dubai in 2023 was characterized by the agreement to end the fossil fuel era. In the agreement there is recognized that the greenhouse emissions need to be reduced by 43% by 2030 to limit the global warming to 1,5 degrees Celsius. That implies nations need to come forward with plans that cover all the sectors to reduce emissions (UN: COP28 Agreement Signals “Beginning of the End” of the Fossil Fuel Era).

As we see multiple initiatives globally aiming for a better future it can be said that the future economies will be run by different logic than the linear economy we are in currently. While it is possible to generate profit from doing business in traditional way and not putting effort for sustainability issues it gets increasingly difficult to do so due to international treaties and agreements. Inside the European Union due to the Green Deal, the Climate Law and now for CSRD it is now binding by law to adapt sustainability issues in reporting and into the business. Therefore, under these circumstances, when adapting sustainability is mandatory the businesses should start looking for ways in making profit out of sustainability.



**Figure 2 Timeline of EU sustainability legislation**

## 4.1 The European Green Deal

The European Green Deal can be perceived as a reaction and sign from the political authorities that the environmental threat we are facing is indeed threatening the existence of humankind. As the Green Deal acts as European Union's new growth strategy, it acts a very important role in which direction the European economy is moving. While aiming for the environmental goals there still exists the need to be able to compete economically in the global context. The Green Deal is meant to give guidelines for inclusive transition into more just and clean future which gives not just regulations but also guidance for the companies inside the European Union on to which direction to move. That can be considered as a message from the regulators as well that the future profits are to be found from sustainable actions.

All the sectors of the economy are covered by European Green Deal but especially "transport, energy, agriculture, buildings, and industries such as steel, cement, ICT, textiles and chemicals." (European Commission: The European Green Deal). As every sector is covered the aim is to execute a transition to sustainable economy by increasing the use of renewable energy sources and adopting energy efficiency measures and to promote sustainable agriculture packages as well (Krämer 2020).

As the Green Deal has been approved by all the 27 member states of the union it has a great mandate to support the change. In the heart of the package to make the change are initiatives to reach first the milestone of 2030 to reduce the emissions by 55% and ultimately to become climate-neutral by 2050. The Green Deal package includes targets to reduce the emissions by all the sectors, to increase the volume the natural carbon sinks, to adapt an updated emissions trading system and to provide social support for the residents and small businesses in the union. To highlight the updated emissions trading system, it sets a price for polluting which generates investments that can be used for green transition. By the revenues generated by the emissions trading by a Member State of the Union shall be invested in projects in climate and energy industries or in the social impact of the transition. (European Commission: Delivering the European Green Deal.)

The transition towards climate-neutral economy and society plays out different in different regions inside the EU. Some regions are more developed when it comes to the green transition as some regions are lacking from the development. To ensure a just and

smooth transition for the people in the weakest position in the society and in the regions that are the least developed there are more investment and support needed than for the regions with higher level of development. To help the regions facing socio-economic difficulties due to the transition the Just Transition Mechanism is supposed to support the regions by investing to growth and jobs (Krämer 2020). The objective in reaching climate-neutrality by 2050 requires support from the EU for the regions with difficulties to not just to reach the climate goals but to maintain the economic competitiveness in all regions. Equally strong and competitive EU is what generates well-being for the citizens but as well ensures the capability to execute the green transition and to also turn sustainability into good business and profit.

To execute the Green Deal there are investments required to boost the transition. An important initiative under the Green Deal is the Green Deal Investment Plan which is designed to mobilise the EU funding for the green transition. The Green Deal as a growth strategy requires economical contribution from the EU as well as from private sector to effectively ensure an inclusive transition. The Investment Plan, as mentioned, will mobilise the EU funding but will also create attractive framework for private sector to invest in targets that boost the transition towards climate-neutral and inclusive but competitive economy.

The Investment Plan is to complement other initiatives under the Green Deal to make it a comprehensive whole. It consists of three base elements: financing, enabling and practical support. Financing includes mobilising 1 trillion euros or more during the coming decade in the sustainable investments. The EU budget will be more emphasized in the climate and environment which is expected to raise private funding. In the private funding the European Investment Bank is planned to have a key role and will facilitate resources to desired targets. By enabling the EU is planning to provide tools and suitable attractive context to invest in sustainable initiatives and setting sustainability in the heart of the finance system. Practical support is provided by the Commission to different parties mobilising the transition by helping with planning, designing, and executing sustainability projects (European Commission: Financing the green transition: The European Green Deal Investment Plan and Just Transition Mechanism.)

To execute a just and smooth transition as big as Green Deal is, it is important to address the impact it has on society on multiple dimensions. There lies a great challenge

to ensure the transition is inclusive and just for every party by the social and economic impacts. This issue is taken into consideration since the importance to address those issues in question has been emphasized. (Krämer 2020.) In the framework of the sustainability dimensions the best outcome can be achieved only by addressing all the dimensions with equal consideration. The Green Deal as a growth strategy aims to economic sustainability and growth but through environmental and social improvements which is an important aspect of the initiative. The impact and importance of the comprehensive consideration over the transition can be significant while the global economy is facing disruptions. The green initiatives bring possibility for the EU to boost the economy by creating a framework where businesses can develop their processes by the direction given through public regulation.

## **4.2 The European Climate Law**

The most significant announcement of the Green Deal is the adoption of a legislative package the “European Climate Law” which is set to ensure the progress towards climate neutrality. The European Climate Law includes measures of which are meant to follow the progress and guide the direction of which the member states are going to. The Green Deal is in line with the Paris Agreement about global climate objectives to keep the temperature increase globally below 2 degrees Celsius. The Climate Law includes different measures to follow the progress and actions towards the objectives of the Green Deal. The progress is to be checked in five-year span that is aligned with global stocktake under Paris Agreement (European Commission: European Climate Law).

In more depth the Climate Law brings into legalisation of the objectives set to the Green Deal. The first objective, as mentioned before, is that the Union reaches climate neutrality by 2050 and after that is committed to reach negative emissions. By 2030 towards the 2050 target there is a milestone to be reached that the net emissions would be reduced by 55%. In table 2 there is the content that the Climate Law holds in to write into law respecting the goal given in the European Green Deal. As mentioned before, the objectives in the law are to set the long-term plan to reach the climate neutrality by 2050 and to set EU wide ambitious milestone target by 2030 on the way to 2050 goal. Also, by the law it is meant to create a reliable system to follow the progress in reaching the climate neutrality goals and guiding the process if needed. By enacting the above the

EU can provide predictability and safety for investors and economy in general. (European Commission: European Climate Law.) By all the objectives the aim is to create a sustainable transition which would be permanent and irreversible. It provides longevity for the economic area of European Union, sets example and a message of direction globally and of course brings tranquillity and predictability to the market which is one of the main objectives of the law.

The tie between the European Green Deal and the Climate Law is that implementing the law makes the Green Deal as a strategy programme legally binding and politically approved among the Member States. As Krämer (2020) notes the EU is placing the different elements of European economy to their environmental context. Krämer (2020) also raises the important point of adopting the Climate Law that it is a chance to assess the likelihood whether the proposed measures to monitor the progress of the transition would be approved by the European Parliament and the Council.

It is worth noticing for that implementing the Climate Law and the objectives of the Green Deal the effect to the economy is notable. The Green Deal requires heavy investments which will shape the direction of the economy. To achieve the 2030 climate goal will require 260 billion euros additional investment annually by estimate which is approximately 1,5% of the GDP of 2018 (European Commission: The European Green Deal).

Schlacke et. al. (2022) notes about the implementation of the Climate Law that the package's design demonstrates that the Commission continues to pursue a climate legislation that is generally characterized by a combination of instruments and policies, encompassing both price-based and regulatory approaches. That can act as a weak point in the package whether there is a chance for perception and incoherence.

As there is the objectives set in the Green Deal and in the Climate Law, the content in table 2 addresses the steps and more precise actions on how to reach the respective objectives. Due to the law the main objective of the climate neutrality is binding for all the Member States which works as an incentive to improve and develop the actions EU wide.

<b>The European Climate Law content</b>
A legal objective for the Union to reach climate neutrality by 2050
An ambitious 2030 climate target of at least 55% reduction of net emissions of greenhouse gases as compared to 1990, with clarity on the contribution of emission reductions and removals
Recognition of the need to enhance the EU's carbon sink through a more ambitious LULUCF regulation, for which the Commission made a proposal in July 2021 and which entered into force in May 2023
A process for setting a 2040 climate target, taking into account an indicative greenhouse gas budget for 2030-2050 to be published by the Commission
A commitment to negative emissions after 2050
The establishment of European Scientific Advisory Board on Climate Change, that will provide independent scientific advice
Stronger provisions on adaptation to climate change
Strong coherence across Union policies with the climate neutrality objective
A commitment to engage with sectors to prepare sector-specific roadmaps charting the path to climate neutrality in different areas of the economy

**Table 2 The European Climate Law contents (European Commission: European Climate Law)**

### **4.3 Corporate Sustainability Reporting Directive**

The European Union launched a new directive considering sustainability reporting effective from January 2023. The directive is called CSRD (Corporate Sustainability Reporting Directive), and it will have major effect on businesses in the European soil. The reporting and the application of the directive becomes mandatory starting from fiscal year 2024 for “all large companies and all listed companies (except listed micro-enterprises) to disclose information on what they see as the risks and opportunities arising from social and environmental issues, and on the impact of their activities on people and the environment.” (European Commission: Corporate Sustainability Reporting).

The directive is part of the European Green Deal as it will help different private parties and other stakeholders to evaluate the companies’ performance on sustainability issues. The directive makes sustainability reporting mandatory for a bigger group of large companies and listed SMEs. The adoption of the CSRD will make the disclosure of

non-financial information as well required and high-quality as traditional reporting requirements.

The CSRD is a substitute for the previous sustainability reporting directive NFRD (Non-Financial Reporting Directive) which included a smaller number of companies. Nevertheless, the old NFRD rules stand in power before the companies responsible must apply for the new rules given due the launch of CSRD (European Commission: Corporate Sustainability Reporting).

NFRD rules apply for a smaller group of companies by covering approximately 11700 companies inside the EU. NFRD includes large companies with public interest and over 500 employees. As a predecessor for the CSRD the NFRD has more limited scope and less specified requirements for the disclosed information. Under NFRD rules the companies that fall under its scope must report the information regarding “environmental matters, social matters and the treatment of employees, respect for human rights, anti-corruption and bribery and diversity on company boards” (European Commission: Corporate Sustainability Reporting). The main difference between NFRD and CSRD is the enhanced transparency of companies progress in sustainability. By CSRD the aim and ambition are to move towards development where sustainability reporting inside the EU would be harmonized. By CSRD the obligatory sustainability disclosures are suggested to be included to the company’s management report and should cover what risks and opportunities in sustainability issues the company faces, how the sustainability issues are implemented (factors and targets) and how the company has performed in the sustainability issues (Glaveli et. al. 2023).

#### 4.3.1 Scope and timing

The transposition of CSRD will be executed during the period from 2024 to 2028. The timing of the transposition is stated in Directive (EU) 2022/2464 Article 5(2), first starting in 2024 the large companies that are already subject for rules under NFRD will be responsible to apply for the requirements given under CSRD and the first reports are to be expected in 2025. The companies responsible in applying for the CSRD rules starting in fiscal year 2024 as per defined in Article 3(4) of Directive 2013/34/EU that are publicly listed and exceeding the average number on 500 employees on average per year. As per meaning given in Article 3(4) of Directive 2013/34/EU the companies that

exceed at least two of the following criteria need to comply to CSRD effective from January 2025:

- More than 250 employees
- A turnover of more than 40 million euros
- Total assets of 20 million euros

In more detail, CSRD also applies companies that have securities listed on a market regulated by the EU whether the respective company is established in the EU or foreign country outside of EU. This criterion applies not only for companies that exceed the three criteria above but also SMEs excluding certain micro-enterprises as per defined in Directive 2013/34/EU.

From 2025 onwards large companies that exceed at least two of the criteria mentioned above will apply for the CSRD and the first reports are to be produced in 2026. From the fiscal year 2026 onwards, listed SMEs will be a subject to CSRD. The criteria to define the size of the enterprise are given in Directive 2013/34/EU. As per Article 3(2) small enterprises are defined to small whether they do not exceed at least two of the following criteria:

- Balance sheet over 4 million euros
- A net turnover over 8 million euros
- Average number of employees during financial year more than 50

As per Directive 2013/34/EU Article 3(3) a medium-sized enterprises are defined to be enterprises that are not micro-enterprises or small enterprises but do not exceed at least two of the following criteria:

- Balance sheet over 20 million euros
- Net turnover over 40 million euros
- Average number of employees during financial year over 250

Directive (EU) 2022/2464 Article 1(14) says that as of January 1st 2028, the Member States of the EU shall apply the rules of CSRD to enterprises that are under governance

of a company that is established in a third-country. CSRD will have an impact on non-European Union enterprises which possess yearly revenues of more than €150 million generated within the European Union and which also possess either a large or publicly traded European Union subsidiary or a notable European Union branch generating revenues of €40 million. The corresponding subsidiary or branch will bear the responsibility of issuing sustainability reports in the fashion of CSRD for these non-European Union enterprises at a consolidated level starting from 2028.

#### 4.3.2 The content of CSRD reporting

CSRD reporting covers wider range of disclosed information comparing to NFRD. Under CSRD is reporting standards that the companies subject to CSRD must follow. The standards are called European Sustainability Reporting Standards (ESRS) developed by EFRAG (previously known as European Financial Reporting Advisory Group). The ESRS are built on EU policies as simultaneously aligned with international standardization initiatives. The CSRD also requires companies to provide assurance for the sustainability information they disclose and will establish the framework for digitally categorizing sustainability information. (European Commission: Corporate Sustainability Reporting.)

ESRS Standards		
<i>Cross-cutting standards</i>	ESRS 1	General requirements
	ESRS 2	General disclosures
<i>Topical Standards</i>	ESRS E1	Climate change
	ESRS E2	Pollution
	ESRS E3	Water and marine resources
	ESRS E4	Biodiversity and ecosystems
	ESRS E5	Resource use and circular economy
	ESRS S1	Own workforce
	ESRS S2	Workers in the value chain
	ESRS S3	Affected communities
	ESRS S4	Consumers and end-users
	ESRS G1	Business conduct

**Table 3 ESRS Standards (Regulation (EU) 2023/2772)**

The ESRS contains of 12 standards which are divided into three different categories: cross-cutting standards, topical standards (environmental, social, governance) and sector specific standards. First, there are general cross-cutting standards ESRS 1 and ESRS 2

that define the main principles of reporting as well as the essential concepts of CSRD such as double materiality and reporting boundaries. Furthermore, these standards encompass the overall disclosures that are required to be made by all companies falling within the scope of the CSRD. ESRS 1 describes the architecture and structure of the standards and lays the foundation of what and how a CSRD-subject shall report. ESRS 2 then is about the disclosure requirements concerning the provision of information by the companies in subject, which is required to be provided at a broad level encompassing all significant material sustainability matters. These matters pertain to the reporting areas the governance, strategy, impact, risk, and opportunity management, as well as metrics and targets within the reporting areas. (Regulation (EU) 2023/2772.)

Topical standards cover sustainability topics in ESG-areas due to the standards being focused on environmental, social, and governance. The topical standards are specified to certain area of sustainability and includes specific reporting requirements of the specific area. While the standards aim to cover the whole economic field in Europe the political will and direction is that more industry specific standards are coming for every industry.

#### 4.3.3 Double Materiality Assessment

The sustainability reporting under CSRD is based on double materiality assessment that includes all matters reported under sustainability. First, the subject to the reporting shall report on the stakeholders and their impact or relevance on the materiality assessment process which are divided into two main groups. First group is the stakeholders who are affected by the subject company's activities and business relationships directly or indirectly across the value chain. The stakeholders in this group can be individuals or groups. The second group of stakeholders are the users of the sustainability reporting, meaning the stakeholders that are interested about the sustainability performance of the subject company. The relations to the stakeholders in the two groups are relevant to the reporting due to due diligence process and the materiality assessment as it includes the assessment of the potential negative impacts. (Regulation (EU) 2023/2772.)

As for the materiality assessment the subject need to conduct assessments for the impact materiality and financial materiality. The double materiality assessment includes identifying impacts, risks, and opportunities in the subject company's activities. Impact materiality and financial materiality assessments are closely inter-related and the subject for the reporting need to consider the interdependencies and causality between the two

dimensions. Impact materiality includes the negative and positive impact or potential impact on people or the environment including the parties in the value chain who are affected by the subject company's activities and the business relationships. As for the financial materiality focuses on the relevant information about the general financial reports directed for the primary users of such information. Also, in the financial materiality there should be identified matter that can generate opportunities or risks that can affect financial effects. (Regulation (EU) 2023/2772.)

Referring to the Regulation (EU) 2023/2772, the assessments are to be considered about short-, medium- and long-term effects for both impact materiality and financial materiality. For the assessment it is important to recognize what is important for the business and its stakeholders and identifying the relevant sustainability matters for the business. As the assessments are dependent on the nature of the business and the industry the framework leaves quite some space for the subject company to recognize what are the most important matters to the business.

## **5 Methodology**

For this research the objective is to find incentives to integrate sustainability issues to IT companies core business through the impact of sustainability reporting regulation. As the reporting regulation, especially in the field of sustainability, is developing rapidly globally and in the European Union, the companies must adapt to these rather comprehensive changes in their reporting practices. As for the nature of the topic of this research, there is only little or no data of how the sustainability reporting impacts the businesses. Therefore, the empirical part of the research is conducted as qualitative research.

By this research there is a purpose of finding the dynamic behind the decision-making process in the IT industry when it comes to sustainability issues and how they are covered. The regulative environment of the EU and the framework from the prior literature of reporting are considered in this research as very important aspects in integrating sustainability so by the empirical part the purpose is to find out how companies react to regulation and does the regulation generate improvement in the internal processes. The impact the regulation has on companies through reporting practices and the balance between mandatory and voluntary reporting is the angle the sustainability adoption is discussed in the research as well as with the interviewees and the respective angle is used to connect the sustainability aspect to the field of accounting.

By the methodological approach the objective is to enlighten the topic of the research by producing quality information by combining traditional accounting field in reporting to sustainability issues and the current policies in the European Union. By the empirical part of the research the interviewees provide their insights of their experiences of reporting practices and sustainability coverage used in their businesses and in the IT-industry and the transition on hand which ties the literature used to the empirical data.

### **5.1 Method for empirical data collection**

The method used to collect empirical data in this research is semi-structured interviews. The respective method was chosen due to it provides a framework to collect the data and information that would be hard to access but lets the interviewer to be in control about the topics discussed and to guide the discussion. The aim of the execution of the

interviews was that the interviewees feel themselves comfortable and the interview turns out to be rather a discussion than a question and ask-session.

Semi-structured interviews may contain questions that are incorporated with the theoretical background but also more casual, open-ended questions (Galletta 2013). By the approach it is possible to get to the knowledge and data hidden inside the expertise of the interviewees. An area of interest in conducting qualitative research by interviews is that it provides possibility to access more in-depth information from the experiences and opinions of the interviewees. An interesting resource of information that is aimed to reach is the silent knowledge and expertise of the interviewees that could lead to inspiring findings and information that may not be covered in prior literature.

By using semi-structured interviews as a methodology, it provides tools for the interviewer to get insights about the topic that perhaps could not have been reached by a fully structured interview. Turner (2010) describes three types of qualitative interview as interview design. The three types described are informal conversational interview, general interview guide and standardized open-ended interviews.

Informal conversational interview builds on spontaneous and informal conversation between the interviewer and the interviewee. By the conversational approach the idea and dynamic of the interview is that the interviewer lets the participant to guide the flow of the conversation and builds on the interaction within the conversation. The structure of the interview is as well rather informal or even does not exist but constructs as the conversation proceeds as of which allows flexibility. Despite of the benefits of flexibility and flow of the conversation the informal conversational interview has been considered unreliable and difficult to conduct due to the lack of structure thus makes it difficult to compare the data between different interviews. (Turner 2010.)

As of general interview guide there appears to be more structure compared to informal conversational interview but still holds the possibility for flexibility. Questions in this approach can be designed to be more open ended to give the chance for the participant to express their more personal approach. As the questions are open ended and gives room for flexibility it means that the interviewer, depending on the answers of the participant and the flow of the interview, can change or modify the questions based on the previous answers. This characteristic in general interview guide can make the analysing process of the data gathered bit difficult as the interviewees may not have

answered the same questions depending on how the interviewer has expressed the questions. (Turner 2010.)

Unlike the two approaches above, standardized open-ended interviews follow strictly the structure by using the same questions in every interview. The questions are designed as open-ended which makes it possible for the participant to express their experience and points of view around the topic. For the design of the questions, they should leave space for the participant to get into the depth and details in their answer while maintaining the structure in every interview. As Turner (2010) notes the open-ended questions might affect difficulties in coding the transcripts and analysing the results, even though the structure provides some comparability and reduces the researcher bias.

### 5.1.1 Semi-structured interviews

As by Galletta (2013) the semi-structured interview draws from the versatility of the questions in the question pattern. As per the name of “semi-structured” the semi-structured interview provides a spine for the interview but leaves space for open discussion and flow of the conversation.

Galletta (2013) introduces the three segments of the semi-structured interview of how to construct the interview. The example of the three segments starts with more open, wider questions and eventually moves on to more specific theoretically focused questions. By starting with more open-ended questions, the purpose is to encourage the interviewee to scoop from their experiences and create a connection between the interviewee and the topic of the research.

Referring to different types of qualitative interviews by Turner (2010) the semi-structured interview has similarities with the “general interview guide” approach. Like Turner (2010) describes the approach is more structured compared to informal interview approach but offers room for flexibility in the design and execution of the interview. In the general interview guide approach the design of the interview ensures that the interviewer is capable of covering the same core areas in all the interviews. Turner (2016) describes the interview guide approach as a “cheat-sheet” for the interviewer as the structure contains themes or questions that are to be covered during the interview. The list of the themes and the questions, the spine for the interview, are to help the interviewer to guide the interview in staying inside the desired topic area but as the

nature of the semi-structured interview it is encouraged to go in-depth and detail level of the participants experiences and expertise.

In qualitative research there lays a threat particularly in data collection methods as they might be vulnerable for a lack of diversity in interpretation which is very tied to the researcher. Therefore, it is important during the interview to reflect how the interaction builds and how the researcher guides the direction of the interview. As Galletta (2013) mentions, the concept of “researcher as instrument” is usually emphasized in qualitative research which requires self-reflection from the researcher about how their act impacts to the nature of the interview. (Galletta 2013.)

### 5.1.2 Selecting interviewees

The selection of interviewees consists of people who have expertise or great experience in the IT-industry and are in a position to discuss about the impact of sustainability regulation and reporting to business. The approach to find suitable people for the interviews started by narrowing down the segment of where the people would be found. The segments chosen were IT-consultancy, software development industry, digitalisation professionals and sustainability professionals.

The channels used to find and contact the suitable interviewees were mainly LinkedIn and email. By searching by the segments mentioned above and by using the authors professional network the potential interviewees were possible to find. A preferred characteristic for an interviewee were that they have a strong industrial experience, they are in a managerial position, they have responsibility in business planning and that they have knowledge and understanding of the impact that sustainability reporting has to business or can think about a prediction of what the impact could be.

Referring to Creswell and Poth (2016) the selected participants need to be narrowed down by the wanted characteristics so as they are accessible and they are willing to share insights and information by decoupling them from their own success. It is also vital that the participants for the interviews share the basis that they have experience and prior knowledge about the phenomenon or topic studied. Corbin and Strauss (2014) describe theoretical sampling where the idea of gathering the data is to go to places or persons which can provide information about the topic of research. The idea of

sampling starts with sampling the concepts and then finding places where information about the respective concepts can be found. (Corbin & Strauss 2014.)

In this research the theoretical sampling was used in finding the persons, in this case, to find the information about the concepts of topic. Reporting processes and industry knowledge coupled with the business processes and the impact of sustainability to the industry were the concepts that was to be found. By narrowing down the requirements as mentioned the pool of interviewees started to take shape.

### 5.1.3 Interviews

The interviews took place during February and March and were conducted as similarly as possible. The interviews were designed as semi-structured interviews, so the participants had room to express the professional experience and opinions to reach more depth in the discussion. The participants will be referred anonymously as Interviewee 1, Interviewee 2 etc. just as referred in table 4 but further on as an abbreviation (I1, I2, I3...)

Interviewees	Position and the description of the company	Date of Interview	Language	Length (hrs)
Interviewee 1	Board Professional, multiple leading organisations in Finland. Strog expertise and experience in digitalisation.	29.2.2024	Finnish	01:03:38
Interviewee 2	Sustainability Business Transformation Lead, global leading IT-consultancy company	1.3.2024	English	00:49:05
Interviewee 3	Chief Sustainability Officer, Leading Digital Transformation Consultancy Agency	11.3.2024	Finnish	00:52:58
Interviewee 4	Head of Engagement Area, Leading global strategic digital service partner	20.3.2024	Finnish	00:51:43
Interviewee 5	Co-Founder and Board Member, Digital transformation company	28.3.2024	Finnish	00:43:32

**Table 4 List of Interviewees**

As mentioned, the interviews for the collection of empirical data were conducted during February and March. Simultaneously as scheduling and conducting the interviews the

already conducted ones were under transcription process. That sped up the process of going through the results and provided a great chance to reflect on the previous interviews while preparing for the upcoming ones.

The process of every interview was similar to each other. First after the prospect for the interview had accepted the invitation for the interview, they were sent a formal invitation via email that included a short introduction to the topic, instructions for the technical execution of the interview, an estimated time the interview would take and the data management plan (Appendix 1) as well as the structure / themes of the interview (Appendix 2) as an attachment.

In general, the interviews started by more open-ended questions which give room for the discussion to accelerate. The approach was taken in use as Galletta (2013) mentions it helps building connection between the interviewer and the participant. Referring to Galletta (2013) starting with more wide questions it helps the participant to scoop from their previous experiences and provides a basis to move on to more specific and theoretically focused questions.

## **5.2 Data analysing process**

The data used in this research consists of prior literature and the empirical data collected by interviews. The data used in the empirical part consists of interview transcripts and video recordings of the interviews. The data is managed as presented in the data management plan (Appendix 1). The data gathered via the interviews were analysed by using content analysis and referring to Tuomi and Sarajärvi (2018) it is a widely used method in qualitative research. As for the method of content analysis the square one is to find the most interesting angle to delve into the empirical data compared to the research problem and questions. The process then follows to identifying the applicable parts of the data for the research and coding such parts into relevant categories sufficient for the research. The analysing work can be conducted based on such category coding of the data as it helps to work through vast amount of data systematically.

As per Williams and Moser (2019) emphasizes that coding the data is a fundamental part of conducting qualitative research. Coding acts as an important aspect in organising and thematic sorting of the collected data which further on facilitates the analysis of the data and construction of meaning (Williams and Moser 2019). Referring to the content

analysis (Tuomi and Sarajärvi 2018) Williams and Moser (2019) present manual coding as one coding technique that can be used in organising and validating the data collection. It includes going systematically through the data manually and categorising the data by criteria defined by the research problem and questions. By manually coding the empirical data collection the patterns and recurring themes are highlighted and the dataset organised into easier form of conducting analysis.

Williams and Moser (2019) highlight the importance of iterative working with coding process. By going through and reviewing the dataset continuously allows the researcher to identify the patterns and relevant themes which helps to construct the meaning from the data. The process of data coding included reviewing and refining the empirical data collection continuously which helped to combine the information between different datasets but to discuss the empirical data with prior literature as well. In this research the analysis of the data is conducted by using the content analysis by using the manual coding as well (Tuomi and Sarajärvi 2018; Williams and Moser 2019). The empirical data is reflected to prior literature in the analysis phase as a supportive tool as the analysis is not directly relied on the theory. The prior literature is used by supporting the understanding of the phenomenon found in the empirical data.

## 6 Results

Interviews were started by discussing first about reporting in general and how it is considered in the company the respective interviewee represents or what kind of experience they had in that field. By starting with the theme of reporting it laid the foundation for the further discussion about sustainability and how sustainability could be integrated to business. As by the topic of this research the sustainability and its integration build on reporting and how business is developed through reporting actions. Thus, the interviews were started by discussing first about reporting and how the participants and their companies consider it.

### 6.1 Results: Mandatory reporting

The framework provided by prior literature of reporting raises the importance of regulation in improving businesses and gaining impact on the development of the business processes. All the interviewees shared the idea that regulation indeed can be a driver in guiding businesses towards better future and to be a business driver. Reporting is seen as a reflection of what has happened and as an opportunity to see what could be improved and less as a burden.

It was widely recognized that the starting point in corporate reporting is its mandatory nature. The mandatory nature can lead to reporting being considered as a burden and a must-do or as an opportunity to benchmark the business to competitors and improve the operations through the reflection provided by well-organized reporting practices.

*“I have seen both ways of considering reporting and maybe something in between as well. In some industries, the reporting emerges from the must-do. The process of reporting development starts from the fact that it must be done.*

*In my opinion, that process always starts out from recognizing that we have to start reporting and define certain time spans for reporting. Then it needs to be discussed how the reporting will be carried out. Usually for this, a person is appointed who starts to think about responsibility comprehensively and developing such activities. Although the driver initially is a “must-do”, eventually it develops to a broader business activity.” (I1)*

Every participant shared the perception about reporting that it is a very important part in running a successful business and that it is in the heart of following the course where the company is heading. The reporting consists of both mandatory reporting given by external authorities and voluntary reporting. Mainly the discussion around reporting and the especially regulatory reporting spins around the balance between the regulatory reporting and the amount of voluntary reporting. As every participant considered reporting important, the viewpoint to developing and guiding businesses varied a bit towards internal management accounting and its importance.

Regulative reporting practices were seen effective and rather desired by I1, I3 and I4 in the reporting field and as a business driver. I1 sees opportunities in regulation especially in the sustainability framework through it simplifying and clarifying the sustainability requirements by harmonizing the very shattered sustainability reporting framework into more comprehensive and standardized whole. As companies have faced and are still facing multiple reporting frameworks in the sustainability field arising from authorities as well as from private sector actors such as investors and financing parties the reality with reporting have been messy and causing inefficient use of resources. Therefore, I1 says that the regulation is well-needed as there has not been a common regulation base which has led to investors and other parties creating the frameworks of their own that companies must try to comply with. Referring to I1 the common framework for regulation would only be a benefit for the businesses responsible of conducting sustainability reporting.

I3 thinks that the regulation and regulative parties should have more impact on what businesses can do. I3 says that the CSRD framework seems to be rather clear and fitting well for its needs. Referring to I3 the reporting practices could be even more significant process to guide businesses to better practices and to actually change the way companies do their businesses. Regulation could also work as a balancing tool in the EU market so the requirements would be same for everyone. Regulation would also make the investments made to sustainability monetarily profitable and rewarding through making sustainability reporting requirements mandatory.

I4 raises up the importance of regulation when it comes making the market equal for all the companies and tackling the problem of using selected pieces of information for marketing purposes. For I4 the reporting is considered the most vital action in tracking

the course of the business. Therefore, for the experience and the reality knowledge in the current company for I4 the reporting practices are being developed proactively to be ready for regulation and to gain competitive advantage from doing so. The approach for sustainability and responsibility reporting is that the respective company voluntarily follows the same sustainability thresholds globally that they face in the EU. By operating that way, they communicate their commitment to sustainability and export the working culture globally.

An important aspect that came up in the interview with I4 is that the company culture plays a big role on how regulation affects and influences the companies. In the case of I4 it means the preparation for CSRD has started already by building the readiness to report on sustainability comprehensively. I4 raises up that there can be various approaches to regulation – some companies might consider that only the minimum level of reporting shall be done to meet the sustainability requirements whereas some companies take the high road and build the reporting framework extensive enough to provide information to meet the minimum requirements but also information that is extent to minimum. I4 says that doing reporting and business that way communicates the sustainability better to stakeholders and creates a better image around the company. I4 considers regulation to be among the starting forces to initiate that kind of behaviour and approach in sustainability reporting.

*“Well, currently it seems that if all the growth plans are correct then from the beginning of 2025, the organisation in the EU must address the CSRD requirements, and from 2026 onwards we must be able to publish CSRD reporting. We don't want to be that kind of company that addresses the bare minimum required so, we have an ESG strategy, and we have evolved it so that when that transition comes to responding to that regulation, we are capable of conducting the report already.” (I4)*

As I1, I3 and I4 agreed that the reporting regulation can be an effective way in guiding and developing the businesses towards sustainability so does I2 think that regulation can spark the need to start measuring insights that has not been measured before. By starting to regulate something it raises the attention around the topic and encourages companies to pay attention and track the impact of that something.

*“The thing is, once you start measuring things then you start improving on it. I think when people started measuring revenue and profit, they started steering on increasing those right, and the same goes for sustainability and data or sustainability KPIs and metrics. So yes, I do believe that through the reporting things become visible also the items where you can make an impact from a sustainability perspective, but also from a profit perspective, because you start including new measurements in there. So, I think that's a very positive element that comes out of this entire regulation.*

*I think initially, of course, the reporting is triggered by regulatory purposes, but in the end, once you start reporting on it, people can actually see how you're performing in certain areas and does that align with what their vision is on using your product or not or as an investor, does that align to how you want to do investing or as an insurer, do you want to ensure companies that still do whatever kind of bad behaviour. So, absolutely I think there is a huge potential for the reporting resulting in efficiencies and more sustainable business.” (I2)*

Despite the benefits of reporting regulation through being the starting force to encouraging tracking sustainability issues and finding the insights for improving business it can also be perceived as a must-do activity. It is important to note that in reporting framework the total framework consists of regulation and voluntary reporting and the authorities as well as the companies subject to the reporting requirements are trying to find the right balance between the two.

The regulatory side of reporting can indeed be seen also as a burden since it is something that the companies cannot affect so it would suit their own needs. As regulations come from legal authorities and includes vast number of different companies, understandably the regulative requirements do not suit everyone optimal. I2 and I5 raised the concern that regulation might be found as a burden and at least not as effective way to develop businesses, but they also see the need for the regulation and the purpose behind the regulation in society. I2 mentions the costs of mandatory reporting which are especially an important item in the CSRD-implementation and that the regulation is more of a stick to companies rather than an incentive. I5 thinks the main issue in regulative reporting is that it is not well-connected to business realities and

developing the business operations. I5 says the main issue in regulative reporting is that the requirements and things needed for reporting and for executing business successfully do not meet.

*“Often the basic challenge is what is needed for a business and what is needed for reporting, regulation-set reporting or external parties reporting, and they do not meet. Then it easily goes to the direction that it is reported what is required, but it has no relevance with business development or responsibility or anything else. With reporting the real business impact is not reached yet. I think this is reflected in companies as more and more reports are skewed, but does it have any impact? – I think the question is who would be able to build bridges so that the gap between forced reporting and actually directing and doing business could be linked.” (I5)*

## **6.2 Results: Voluntary disclosure**

Some companies feel the need for better balancing between regulatory and voluntary reporting and many of the participants mentioned voluntary reporting to be the more important side of reporting when steering the business. An important item besides of regulative requirements to reporting to publish sustainability disclosures is the pressure from market. In growing numbers, the investors and other stakeholders are demanding transparency and information about sustainability performance from the companies which generates the incentive for the companies to disclose insights about their sustainability performance. I1 reminds that companies which operate in industries that are in straight touch with customer interface have been under pressure to operate sustainably and to communicate the sustainability strategies and objectives clearly for a longer time than companies in manufacturing industries.

I1 says that the sustainability has been in the heart of strategy work in the companies in B2C-business and those companies have understood that addressing sustainability and responsibility issues is a major business driver. Therefore, voluntary reporting has been playing a big role in sustainability reporting and the regulative requirements are just additional on top of the comprehensive voluntary reporting basis. When companies have a wide voluntary disclosure framework the regulation only gives some guidance on to which direction to develop the reporting practices.

Referring to I1 the companies who are prepared proactively to upcoming changes in the business environment will succeed and perform better than the companies who consider the change just as a mandatory issue to address by the minimum effort. Even though the change is sparked by the mandatory nature, the development comes from the combined impact of the regulation and the public pressure from the market and as a result the competitive ability or even advantage will emerge.

The importance of voluntary reporting can be considered a high priority in finding the business incentive. I2 reminds that to make sustainability a core value and a driver in business there is a need for data to base the business decisions on. For this purpose, I2 raises up internal accounting practices and that how important it is to combine information and data sources from different departments. I2 emphasises the need for integrating different data sources and that different departments should be co-operating. By breaking the silos and combining the resources and information companies can optimize the business and revenue while taking the sustainability aspect into account.

*“I think combining the data sources and making a real trade off based on what is the business priority for us, what do we think results in the biggest revenue or profit increase, right? Or maybe there is a higher revenue increase against a lower profit? I mean those are the choices that need to be made by companies and I think you can only do that if you do the data collection. – – I think there should be just businesspeople and they should make the trade-off of how this should look like for our company and I think then you can really start thinking about how can we optimise for revenue taking into account sustainability impact.” (I2)*

I3, I4 and I5 also consider voluntary reporting a vital part of their companies' reporting practices. I3 shares the same approach with I1 that it is favourable to have a proactive approach to upcoming trends in the business environment as it is much easier to adapt the possible regulative requirements when the reporting framework is comprehensive voluntarily. I3 thinks that it is a good exercise for company to produce comprehensive sustainability reporting that is more extensive than required by current requirements. As the company I3 represents is a subject to CSRD requirements already starting 2024 they have published extensive sustainability reporting for many years already that exceeded the thresholds given in NFRD. I3 feels that the voluntarily conducted extensive

reporting under NFRD have prepared the company to address the reporting requirements of ESRS under CSRD. Although, I3 thinks that since the ESRS standards are rather comprehensive, and the framework is quite heavy it may not be reasonable to continue the extensive voluntary reporting. As a sidenote I3 raises the importance of the voluntary disclosure as it generates better image and gives information to communicate to external stakeholders that helps the company to position themselves as active actor in addressing the sustainability issues.

I4 thinks the voluntary reporting is the most important tool the company they represent uses for steering the business as well as sustainability performance and communicating them externally. Also, I4 mentions the company they represent is not a subject yet to CSRD and have not been subject to NFRD either, but they have conducted voluntary ESG-reporting and aim to reach the same level of sustainability inside the organisation globally regardless of whether regulation would be rather lax in some other areas than inside the EU. The company uses the EU regulative threshold as a level to reach within the global organisation and conduct the reporting. The incentive to conduct such voluntary reporting referring to I4 is that it helps building a better image and position as a responsible partner. As it is nice to report about good sustainability performance it is also useful for business in communication and marketing wise. For the company that I4 represents the growth strategy leans on acquisitions which makes transparency and good reputation a vital part of company's objectives from reporting. I4 raises up the importance that the acquiring party can be trusted in M&A (merge and acquisitions) operations as it is an important interest for the target company and for such purpose reporting is extremely important to communicate the sustainability and responsibility issues externally.

*“When the reporting is not only on mandatory base, there's also a part of it that is conducted for business control. For marketing purposes, it is nice to be able to report on sustainability issues so it is also for commercial use.*

*So, in every M&A case, the potential target of the acquisition is interested in who they would be hooking up with, so reporting is paramount in such situations.” (I4)*

As of I5 the balance between regulation and voluntary reporting would be emphasized more to the side of voluntary reporting. As mentioned earlier, I5 is rather sceptical about

the impact of regulation as it is not as connected and relevant to the reality in business. For I5 the voluntary reporting is more effective and relevant as for the company there is an actual chance to decide the relevant areas to conduct reporting.

*“I would say it (voluntary reporting) is more efficient because there's usually some sort of choice, though. After all, you don't usually voluntarily choose some kind of random regulatory reporting that you don't feel you can benefit from.” (I5)*

I5 thinks the framework and freedom given in voluntary and internal reporting makes it much more efficient in steering and developing the business and operations by the freedom of choice on what to report. Through those characteristics the voluntary reporting provides a better perspective to reflect on relevant aspects in the company performance as the best knowledge of the characteristics and the nature of the company and its business is inside of the organisation after all.

I5 mentions that the IT industry is still lacking in the development and maturity of voluntary reporting as the direct impact of the industry is quite minor. As the impact of manufacturing industries are way more concrete it is easier and more straight forward to develop reporting and regulation to such industries. The characteristic of IT industry in sustainability sense is that the impact is very indirect and thus it has not been paid attention too much.

In voluntary reporting there also lies some limitations as it comes to reliability and transparency when communicated to external stakeholders. As all the participants shared the idea that external voluntary reporting is always strategic, and it holds a commercial purpose it is vulnerable to opportunistic behaviour and that the information disclosed might not be comparable to other companies. As the freedom for the companies to choose the information to be disclosed provides chances for effectiveness and business relevance for the respective company the information is not entirely reliable as the companies get to choose the information what to communicate externally or even internally.

Still, the incentive for voluntary reporting is to be found from strategic objectives. I1 says that the sustainability reports are starting to be rather well-constructed and for example for companies that have recognized that sustainability issues are in the core of

the industry and that sustainability is one of the aspects the strategy builds on the reporting might actually be so comprehensive that the regulation is just a subchapter in the reporting. I1 also recognizes that in some cases sustainability is perceived quite loosely and sustainability reporting includes areas and topics that might not belong there.

*“Sometimes you can see how almost everything that happens in a company is reported under sustainability or under responsibility and it is quite problematic. In a way, you can say that the whole strategy is responsible, as it should be, of course, but if the sustainability report includes everything that has been done in the company and all the possible indicators and all the possible stuff, it gets a bit messy from the governance model and the operations point of view. For example, if customer satisfaction is a responsibility parameter, it is a bit weird already. In that case there is already double reporting when the company reports on the normal business progress once in its entirety and then separately on responsibility and then there is an awful lot of overlapping topics. – For example, if a company has not defined responsibility in the strategy, then it is easy to get mixed up with normal activities. So that normal operative things that are anyway done are reported under responsibility since it has not been thought about what is the specific area in which we would like to develop in the responsibility perspective.” (I1)*

In order to gain the benefits from the voluntary disclosure the reporting need to be based on reliable foundation. As mentioned, voluntary disclosure can be vulnerable to reporting bias as companies can choose the data and information to disclose. Also, as every participant agreed voluntary reporting being strategic reporting there is always commercial objective as an incentive. As for the reporting bias I5 raises up an important aspect of how good reporting should be conducted. I5 reminds that if company reports false information or opportunistically tries to polish the public image it is a fast lane to ruin the reputation and public image.

The way the voluntary reporting is conducted is also an important aspect to the positive influence the reporting could generate. As the information should be valid and transparent so should the reporting practices be. As for I5 the reporting process acts an important part in creating reliability and credibility.

*“It is important how transparent the reporting process is. That requires transparency from the companies about where the results have come from, as faking figures and their origin still happens too much, the way they have been conducted can be fluctuating. Not only the content of the reporting in terms of transparency, but also how the reporting is conducted is pretty essential for creating credibility as well.” (I5)*

I2 also addresses the problem in voluntary sustainability reporting as the reports and sustainability has been subject to opportunistic behaviour and faced a loss of credibility due to misuse. Therefore, I2 thinks that some people take sustainability and ESG-reports rather sceptically as those have been subjects to opportunistic reporting behaviour such as greenwashing. As for addressing this kind of misuses and problems I2 hopes the regulation and legislation provide solutions.

I3 thinks the regulation would improve the transparency for the companies subject to sustainability regulations. For I3 voluntary reporting and different sustainability frameworks from investors and financing partners creates only vagueness for the companies. Therefore, for I3 it is hoped that the CSRD and the requirements it includes would provide more clarity and transparency for the companies and the market.

I4 also recognizes the nature of voluntary disclosure for marketing and commercial purposes. The reporting and information disclosed has been possible to be used the way companies need for their marketing as there has not been any clear format or framework on how to address the sustainability issues. I4 says that purely reporting for marketing reasons is rather short-sighted activity as usually in the end companies that conduct reporting opportunistically end up being responsible for that. I4 also states that when sustainability became a hot topic various companies were doing reporting about addressing sustainability, but it was more just words than real figures and actions.

I4 considers the transparent way of reporting being very much as important as the subjects inside the reporting. Just like I5, I4 shares the idea that it is a crucial aspect in responsible reporting that the company stays transparent about how the reporting is conducted and where does the figures and content come from. Here I4 recognizes that some actors may have had an incentive to communicate to external parties to address the same issues as competitors as in reality the issues may not be covered. For this

purpose, the regulation is seen by I4 to come in help as it makes the market more transparent and cuts the purely opportunistic commercial reporting.

The aimed objectives and the benefits by voluntary reporting in private sector are usually valued by how much is to profit from the resources put in the reporting. I4 refers to reporting in private sector and notes that it is not reasonable to report on something voluntary if there is nothing to benefit out of it. So basically, voluntary reporting is considered as business operation as any other activity that companies do and as far as it benefits the company it is reasonable to conduct. It is still crucial that reporting is based entirely on achieved performances even when the company cannot perform something. I4 says that communicating externally about issues that are not ready yet builds the trust and transparency between the company and its stakeholders.

Also, I4 notes that reporting the same things to everyone is a vital aspect in voluntary reporting as transparency also improves the commitment internally as it does externally.

*“It is important here that reporting is genuinely based on what has been achieved. We also conduct forward-looking reporting, as what are we planning. That means that it is fine to inform the market and internal stakeholders if we are not ready with something. – It is proven to increase customer and staff engagement if news do not come as a surprise.” (I4)*

### **6.3 Results: Sustainability dimensions**

About integrating sustainability into operations, the participants consider reporting very important as through the process of reporting there is data collection. As every business decision is made by collecting data and reviewing what works and getting insights about the operations. Also, for sustainability issues the participants raise the importance of getting historical data to build the business decisions on. In order to develop the business to include sustainability in its core there needs to be measurements and information about the sustainability performance but also about financial performance. As for I2, the way to make sustainability an internal business driver is to find the insights about business and sustainability and then to have a clear business strategy about where to go and where to aim. I2 thinks the impactful decisions are made by having both financial and sustainability data and finding the right balance between them as sometimes to have more sustainable impact it needs a bit more investments.

In making profit from business there is different approaches to it as by I2. The business can be done in profit maximizing way but that might affect the business to be down rather quickly or then have bit less profit but have the business growing for the upcoming decades. I2 brings up the concept of sustainable profit as one cannot optimize the business only in monetary sense but have other perspectives considered as well. There lies a room for consideration of what the companies value important, short-term profit or longevity or profit compared to better sustainability performance. There is a balance that the companies need to optimize in their business to find the best fitting way of doing business.

I1 also considers that it is important to acknowledge the position of money in the market system and in society. As it is for the money as concept it is only a mean of exchange and the businesses will generate profit when the business performs well in their industry. In the sustainability point of view the approach should be focused on the outcome of the actual operations and not only making profit as that can twist the incentives of doing business. What is and have been historically vital in developing businesses is that investments are needed to grow and develop business. Investments to certain parts of organisation and the operation can indicate the direction organisations are aiming to. Investing to sustainable solutions and development enables organisations to answer for the need for development over future generations.

For the maturity level the sustainability reporting has currently, I5 thinks we are still practising how to report and what to report. Therefore, as companies are still lacking the historical data, the impact of sustainability reporting to business development is still quite low. To reach the level for the reporting to have some impact there is still some development to do in historical data collection side.

The challenging part in developing the sustainable business in the IT industry is that the impact is usually indirect which makes it difficult to measure. A characteristic in IT industry is that it has the ability to be a catalyst for other industries to reach direct positive sustainability impact which balances the direct negative impact that it generates through computing rooms and server halls in form of energy consumption. I5 brings up the discussion between the footprint and handprint (action that decreases the footprint; makes world more sustainable) in the sustainability framework. As considering the characteristic of the IT industry as being the catalyst between better sustainability

performance in other industries the handprint should be considered as an important aspect on how to assess the whole industry and its sustainability impact.

*“Handprint is also an important aspect, i.e. how those solutions we provide improve the operations of our customers. It is probably the next eternal question in sustainability reporting, as regulation now focuses a lot on footprint, but some companies are already considering what their handprint is, what kind of positive impact they have.*

*And I would think that in the big picture, the situation in the IT industry is that although there will be more data centres that will consume electricity – hopefully renewable energy – the productivity and efficiency and sustainability impact that the IT industry generates will be significantly bigger than its footprint.” (I5)*

I3 raises up a challenge the IT industry has in integrating sustainability when it comes to building software solutions for clients. As many IT companies provide consulting services, they do what the client wishes and pays them to do and still many clients are not eager to pay or include sustainability issues in the solution. Therefore, as what the companies can do is to include sustainability work for certain amount in the project offers. The aim is that addressing sustainability issues would be a standard procedure just as data security is a standard field covered in every software project. I3 reminds that a major driver in consultancy business is what the market and clients are demanding and the same works for the sustainability aspect. As external parties set pressure for the companies to perform sustainably and to provide knowledge and resources to address the sustainability requirements the clients are facing the companies in the IT industry must transform to be able to solve the challenges. Still, for I3 the main driver to sustainability transition is regulation as I3 approaches the topic from the point of view that the transition should be powered by authorities and not leave it as a responsibility for consumers. Referring to I3 it is the responsibility of the regulator to bring all the companies on the same line, to follow the same practices and standards.

I4 refers to addressing sustainability in business through considering what kind of clients the companies accept. As sustainability impact in IT industry is indirect, as mentioned, the impact needs to be considered from indirect sources. I4 thinks in consulting one of the main sources where the indirect footprint and sustainability impact

comes from are the partners that companies work with and the clients the companies provide the services for.

*“We consider environmental matters seriously and think about what assets are used in our business. Yet the footprint is quite small as we have people, tools, and premises from which to operate. We don't have any kind of big manufacturing facility, or we don't manage any extreme real estate assets, where the footprint is much bigger. Where we see the impact is what kind of customers are selected, i.e. we do not work with such customers who do not take responsible care of environmental issues. — We work a lot with the old-fashioned manufacturing industry, where requirements for environmental responsibility have tightened infinitely, which is a really good thing, and there is a need for big innovations about how to grow the business within the limits of the new tightened requirements, and that is where innovations come from. Processes like this are where we help our clients to succeed, to make processes more efficient.” (I4)*

As of how sustainability issues are covered currently there is various ways to approach the topic. Generally, in the sustainability context and in reporting the environmental dimension has been acknowledged and covered quite well and the environmental impact is under discussion quite extensively. Other dimensions are yet developing, and the interest is rising around them as environmental dimension has been acknowledged for a longer period of time already. It says that with the environmental dimension the maturity level in reporting is starting to be good and that there's measurements, reporting standards and understanding on the impact already. Naturally, in environmental impact and therefore in the reporting maturity there is differences between industries as some have more direct and visible impact, such as manufacturing industries. Still, there is difficulties and challenges in addressing and understanding the environment and especially measuring it in commercial context.

For all the interviewees the environmental dimension is recognised as very indirect dimension for IT industry as for IT companies the assets that generate directly environmental impact are the employees, computers and office spaces and how sustainably are things organized in the office but the impact of such assets are relatively low and therefore the impact flows from the stakeholders such as partners that the

companies work with, the clients the companies have and how the solutions the IT industry is able to come up with improve the sustainability performance of the clients.

Therefore, especially for environmental and social dimensions it is recognised that it should be observed through the stakeholders of how the impact of IT industry constructs. I3 notes an interesting point about project work in IT. The company I3 represents uses a checklist for sustainability which includes issues that should be covered in every project when it comes to environmental impact. The issues and topics in the checklist cover that the possible impact is assessed and based on that the information is included in the software design.

I4 raises the client work as the most impactful source or sustainable impact that the company I4 represents has. As the IT solutions can help clients to reduce resource usage or to make the processes more effective and through that more sustainable environmentally and most likely economically as well. For I4 the impact comes from helping other companies and providing solutions to society that addresses the challenges in sustainability field.

I5 is in the same steps as I4 with the environmental impact that IT industry has as I5 refers to the concept of handprint when discussing the environmental impact of IT industry. Referring to I5 the handprint should be considered more important than just the footprint of IT companies because as mentioned the impact comes from creating better and more effective solutions for the clients and to society. On the other way I5 says that it is easy to hide behind the handprint so it wouldn't be necessary to consider the footprint which obviously is not how to address sustainability issues. In the big picture when it comes to IT industry the impact should be considered more comprehensively and through indirect impact.

Still, even though the sustainability discussion has risen it is still in its infancy as for the software developing side the sustainability issues are only rarely considered. I5 says that some discussions for green coding have emerged but the narrative around sustainability is not as developed in IT industry as it is in some other industries. Sustainability in IT is not facing such a big demand yet as I5 thinks that making sustainability issues a core function in the company strategy would not succeed too well yet.

*“If you want to be a pioneer, that's (sustainability) probably one of the themes there along with the others. But the fact that if you positioned yourself as a green coding house, it would probably make a positive reputation. But does it have business impact yet, that's what I'm pretty sceptical about.” (I5)*

I2 thinks that currently sustainability in general is more of an add-on to IT projects rather than a standard part of it. Although the current phase, I2 thinks in the future as the market and the regulations develop, sustainability will be embedded to project work as a standard element. The situation in the industry is that the development to integrate sustainability issues is still lacking but as for I2 there is signs the IT industry will be addressing sustainability as well due to market pressure and the regulation. The development of the integration is taking steps forward in the industry by the pressure and direction of the market, but also from inside of the industry as the data we have been measuring has not been sufficient. As for I2 to integrate sustainability there need to be a change on what information is gathered, as for now the data is not sufficient.

*“Like I mentioned that without the data, you can't really report on it, you can't integrate it. And I think we're currently not measuring sufficient data” (I2)*

Social dimension is at rise in the sustainability framework referring to I1. The social dimension has gained a lot of interest and the quality of reporting it is improving. The raise of AI and other trends in continuously more data focused society powers the need and interest to address the social issues alongside already well acknowledged environmental dimension. In the IT industry the social dimension is considered indirect for its impact, as mentioned, and as how it affects stakeholders for the depth of the whole stack. I1 raises up a problem that the IT industry has had for its paradigm where the approach to build a software so that the design would be end-user friendly. In practice the end-user friendly design has not materialized entirely as for a lot of projects are executed by efficiency as a priority and the end-user is forgotten totally.

In the big picture I1 wants to think that IT is not and has not been just a separate part of company operations but is indeed deeply linked to the core business operations. I1 says there should not be a question about whether a company desires to be technologically competent that if the users are considered in the design of the software the company uses. For I1 measuring the performance of IT is an important part of measuring company overall performance and it is an important part of the social dimension as well.

*“The metrics need to be rather broad and one of the most important metrics is whether people want to use those systems. After all, it's a lousy investment to put fifty million into a system that nobody wants to use. And yes, unfortunately, such things happen in business from time to time, that IT projects don't succeed due to complexity.” (I1)*

I1 raises the importance of the employment impact the organisations have which links the internal and external stakeholders of the company. The employment impact for the company internally and then how the company has generated employment for example for its value chain combines the social and economic dimensions. From the IT point of view, it could be observed that how easy is the software to use and does it actually help people to perform in their work.

Internally the impact of IT socially can engage the employees to the company as well as the stakeholders. As I3 says, socially sustainable design may not be included in the project proposals, but it is a quality requirement in assessing how well was the project executed. When sustainability can be included in the operations it also provides data and information to report about. An important aspect for the companies is also how the reputation of the company is built and how the company is perceived among the stakeholders and the current employees as well as the employee prospects. For the companies a major source of power is naturally its employees and I3 thinks in the sustainability framework the fact that employees can share the same values and idea of doing business boosts the engagement and leads to better efficiency and social impact through the feeling of relevance in the work. Being able to report on real good sustainability performance data creating the atmosphere of relevance in the company engages the employees and gives the company a huge resource to use in the future and helps to hire and keep the best possible talents in the house.

I4 raises up the social responsibility that companies have on their clients when it comes to the clients' businesses. For example, I4 says their company do not work with companies that work in an unethical industry or do have not engaged to sustainability. As for IT companies the social impact for the clients is that the services are to enhance the business and help the employees to make the work more efficient. Therefore, for IT companies they are in very powerful position when considering the social impact by selecting the clients and partners.

The social impact in the context of IT is very much external through the nature of the industry. As in IT the companies provide software services or build an entire system for the client the impact comes through the client's stakeholders and how it affects the society. As for some companies the social impact limits inside the company, in IT the software and IT solutions can steer the operations of an entire corporation or public authority. Here it comes very important to address the whole IT stack when designing and building an IT solution, referring to I1. In order to build and develop a well-functioning IT solution, addressing the social impact starts from considering the user friendliness in all stages.

In developing an IT solution there is multiple aspects that are to be considered in the design. I2 reminds that it is crucial to think about biases that should be considered so the system would work equally and transparently. When designing an IT solution, the design should be tested various times to be sure that the system does not create any unnecessary negative impacts which can be significant. Small errors can create big negative impact depending on the context.

*“If you make one error in a tax system and due that people suddenly have to pay no taxes and then two years later, the error is found, and people suddenly have to pay a couple thousand back to the government and there's an enormous social impact” (I2)*

Then again, a challenge in addressing such issues is that the impact is very hard to turn into a sustainability metric as I2 raises. Even though the impact is very much in the social dimension the design part for I2 should be under a standard risk assessment. The sustainability dimensions should be embedded into risk assessments as the risks can be divided into different sustainability dimensions. So, for I2 the integration of social sustainability should be included in risk assessment work and considered as a standard procedure and not as a separate topic in the design.

I3 raises up as well the risk assessment topic around the discussion about social dimension in the IT business. For I3, the main risks that has been recognised are the data security related issues which are deeply linked to external risks and social impact the industry has. Although as per I3 says, the data security is deeply rooted to the basic professionalism in IT it cannot be ignored as a sustainability issue. I3 reminds also about the ethics of tech-social systems and how big the impact to society is with such systems.

To some extent, technological solutions and digitalisation can be blamed upon the unequalizing forces and movements in the society, I3 says. The challenge in such complex phenomena is that the reporting frameworks, voluntary or regulation, cannot provide framework broad enough to give a comprehensive look on what the companies do. I3 thinks the social impact of IT to be very big in modern society and that addressing such issues should start from the very beginning of design work and the ethical thinking should be emphasized during the whole process.

I1 shares the idea of importance of the design thinking and its impact on the end-product. To avoid the negative impacts and to reach the most value creating, work-supporting IT solution the starting point and the emphasis of the IT should be the on the end-user and the client. The stakeholders and the surrounding world are the ones experiencing the impact of the system so the system should be designed the way that they see added value of the system or a product which then generates value to the company. For I1 as I2 raised as well, the challenge here in the sense of reporting comes from how to measure such impact and how to generate sufficient data.

I5 would also want to see the social sustainability to be considered thoroughly in the whole paradigm of IT development. I5 says that the starting point in IT industry and in software development has been focusing on wrong approach. Considering the idea of IT solutions in the companies being to help people to perform better and to improve the work efficiency, I5 thinks that the prevailing paradigm focuses on the system itself and not the people.

*“Currently, in my opinion, the paradigm in IT systems is wrong. The paradigm is that the systems force people into the process and consolidates information for management. The IT systems paradigm should change into helping people to succeed in their work. There are several examples where changing the paradigm improves the level of results to next level. The difference is whether to provide a system that forces into process and produces reports for management or to help people succeed in their work and management gets the reporting as a by-product. This is a big theme, in my opinion, which should be brought up more.” (I5)*

It is clear for all participants that for the economic dimension the sustainability starts with creating sustainable basis for the business and that the monetary foundation is

healthy. As I2 referred to sustainable profit in how to address the sustainability in the development of the company and business. In economic point of view, it may not be sustainable in long-term to maximize the profit at cost of other aspects but as I2 says by finding the right balance between generating profit and paying attention for example on environmental and social issues it may not generate as much profit per fiscal year, but it lays the foundation for long-term profit through building the company on solid and healthy values.

I1 considers the economic dimension to be characterized best through investments. By investing the companies can develop the operations and create the possibilities for future success. I1 says that the investing aspect is very important in sustainability reporting as well as that shows where the company is aiming to and what are the areas of interest for the company. To make sustainability a successful business in IT industry it needs investments as well, so the companies are able to provide sustainable solutions for the clients and understand better the complex causalities in different sustainability dimensions on how IT has impact there.

In the sustainability context the current transition in the EU can be considered as economically beneficial for the companies. I3 thinks that the regulation around sustainability supports companies through creating an environment where the investments and resources put to sustainable initiatives turn out effective and profitable. I3 considers the economic dimension through the benefit of society as whether the economy and the society are healthy then the companies in the IT sector have clients and have the possibilities to have success. As I3 notes, if the society and the environment crisis start to get out of hands, buying software solutions might not be a priority. Therefore, the economic sustainability is tied to all other dimensions very deeply and it should be considered when doing business. In the IT industry all the indirect environmental and social impact the companies create affect also straight to their business environments which means that addressing sustainability in all dimensions it affects positively the monetary side.

I4 approaches the economic side of sustainability and responsibility by the responsibility of a supplier or a consultant house in providing a service as agreed. I4 refers to many projects done for public sector by different actors that have swollen out of the budget and schedule agreed. For I4 it is a responsibility of an IT company to

provide a project in agreed limits as it is fair for the buyer as well as it is good business by creating positive reputation and image around the company that can generate future projects and power business forward. I4 also raises up an interesting point in the Finnish market that it is a benefit for every company when the market grows and that there is no dominant company in the market. I4 thinks that the growth of the IT sector and every actor in the sector improves the efficiency and quality in the IT sector and benefits the society as well as the companies better in the economic dimension point of view.

In the economic dimension the impact of addressing different sustainability dimensions might not provide a direct competitive advantage through reporting as per I5. The reporting frameworks and business development through such frameworks provide a foundation for discussion around the topic. Therefore, I5 thinks that for example the CSRD will have the biggest impact from creating discussion in the society and transforming attitudes and approach to sustainability issues in business. In the IT industry context, the biggest benefit through sustainability will come from addressing the sustainability issues in the basic operations and through business and the reporting aspect will not be as important in finding the economic sustainability. For I5 as well the economic sustainability builds on how the company can address the other dimensions, build the positive public image, and communicate the performance to external and internal stakeholders.

I1 raises up the term of effectiveness in the sustainability discussion as well as in the context in doing business. The idea is in doing business so that the impact generated is something that any other couldn't do and that it makes difference in society. I1 thinks in IT industry doing something with the idea of having real impact and effectiveness creates the healthy basis for the economic state for the company. It is not reasonable nor long-term to do business with the focus only on making monetary profit. As every dimension is tied very closely the economic dimension is covered the best when addressing all the other dimensions carefully.

## 7 Discussion

By this research the aim is to find the incentives to integrate sustainability practices in a core business in IT industry by finding the incentives from the regulative reporting field. As in IT industry in many cases the impact generated is rather indirect it is complex to find the causalities and how the sustainability issues should be addressed in a way it becomes profitable business as well. Reporting and corporate disclosure act a major role in steering business, and it is a tool for authorities to supervise the activities of companies but works also as a reflection point for the companies on what went well and what to improve.

In the reporting context the field is divided into mandatory reporting and voluntary reporting which act both an important role for external stakeholders as well as for the internal stakeholders. As the regulative framework for sustainability reporting expands and hopefully harmonizes in the EU soil the integration of sustainability practices is more topical than ever and for IT industry the environment to address the sustainability issues is very vast.

The sustainability initiatives and the development of sustainable business and addressing the sustainability issues is very new to the IT industry and with the regulative requirements the need is urgent to integrate such practices. The maturity of sustainability initiatives and reporting in IT industry is quite low especially in comparison to some manufacturing industries which has very direct impact on sustainability issues i.e. environmentally and socially. In this context IT industry is arguably in the square one but the need for development in sustainability practices is in hand as for the regulation but also because of the public pressure.

The causality between addressing sustainability issues and profitability in the IT industry is lacking academic information and the sustainability dimensions provide a comprehensive framework to discuss the impact and issues to cover in business activities. As IT industry and the society as well recognize better the risks and opportunities the industry holds, the pressure to conduct reporting on it grows and so does the business potential in sustainable ways of doing business and creating solutions.

The benefits of regulative and mandatory reporting can be found around the topics of improved transparency and prevented misconduct. As per Ioannau and Serafeim (2017)

notes that adopting mandatory corporate sustainability reporting raised the importance and focus on sustainability issues. With the CSRD being effective from January 2023 a broader range of companies are subject to the reporting requirements which indicates the rising level of transparency and for the companies a need for better sustainability performances. The desired outcome of regulative reporting is to have a more favourable impact on enterprises' interactions with society and as per Ioannau and Serafeim (2017) found out that due to mandatory reporting the companies started to adopt more sustainable and ethical practices.

Compared to the prior literature the empirical data from the interviews supports the idea of regulation being a catalyst and an incentive to apply sustainability initiatives. Prior literature supports the idea of regulation steering companies to improved transparency and better credibility due to the information disclosed and the interests of external stakeholders to be protected. In the empirical data of this research for example I5 and I4 emphasized the transparency and reporting through real data and activities to be very important as conducting fraudulent and opportunistic reporting behaviours eventually generates harm. If company wants to be healthy in the long-term the business and the reporting needs to be based on real figures and the company must be able to perform as the public image says. All the interviewees agreed on healthy business to start with fulfilling the desires of a client and so should the business be transparent for creating trust and credibility.

In sustainability context the regulative reporting has the potential to improve the reporting practices and develop the IT industry towards more comprehensively sustainable direction. As I5 indicated, the sustainability reporting in general in IT industry has not reached a high level of maturity yet so there is room to develop such activities. The impact of the IT industry is arguably very vast so the need for reporting to develop for the companies is big as the public pressure from the market and the society is growing. The real positive impact for the companies come from fulfilling the interests and desires of its external stakeholders so for the companies the regulative reporting may not be beneficial strictly from business perspective but indirectly from providing transparency. Referring the insights of Schneider et. al. (2018) regulation was found to encourage the companies subject to such regulation to disclose more information compared to voluntary reporting.

The benefit of regulation can be argued to go for the society as the activities of the companies become easier to supervise and the misuse of the position in the market and in the society can be prevented. In the empirical data collection, it was found that in the perspective of one company the benefits of regulative reporting were hard to see as added regulation brings more rigidity in the short-term business wise. I5 brought up in the interviews that the real benefit goes to the society through improved transparency, credibility, and sustainability performances at least in the long-term. But I5 thinks as well that for the single company in the market the benefit comes back to them through market development and the improved environment where to act.

As Seo (2021) notes the reporting practices in the industry or in the context group of a company can encourage peer effects. Seo (2021) suggests that the peer companies can have a major impact on the companies' reporting practices and that companies start to disclose the same amount of information as their peers to sustain the competitive ability. IT industry is relatively in the breaking point between the era of sustainability reporting being voluntary based towards it being more regulation based. At the same time the public knowledge of the impact of IT in the society is growing and the societies are extremely data focused so the industry is facing pressure for the sustainability information disclosure. Yet I3 indicates the regulation from CSRD to provide structure for the desired reporting practices but still leave room for the companies to consider the relevant themes to focus on. By regulative base the sustainability reporting is set on a higher level than before but along maturity of the reporting practices there can be signs of increased level of disclosure due to peer effects as per Seo (2021).

As sustainability issues are more publicly acknowledged the companies can feel the need for standing out by more comprehensive sustainability disclosures. With the more comprehensive sustainability reporting and improved transparency in the IT industry and in the reporting the true winner is the society that can be argued to be the final objective with the regulative reporting requirements. The balance between voluntary and regulatory reporting is a vital question trying to find the most effective framework. Voluntary approach does not encourage the companies to integrate sustainability into the core of business and as I5 views sustainability as a key component of the company strategy, establishing a business around sustainability is still considered costly and risky.

By regulation the IT companies are set to develop the businesses and reporting practices towards the desired direction and the misconduct can be prevented or minimized. As the technological details can be difficult to understand, and the sustainability impact is very indirect it can show as a black box of some sort outside. Therefore, it is important for the interest of the society to gain some understanding of the activities of the companies as the societies are quite tied to technological solutions on multiple surfaces. I1 reminds disruption to provide chances to take advantage in the market and the sustainability reporting regulation works as a major market disruptor. As the regulation benefits the society the disruption it brings provides an opportunity for finding a competitive edge.

Voluntary reporting has been a tool for companies to communicate the desired information to external stakeholders and sustainability reporting has been clustered historically under voluntary disclosure. Unerman et. al. (2018) finds that due to recognized business potential in transparency the level of voluntary disclosure has been rising. The situation in IT industry has been that sustainability issues has been reported voluntarily but there has not been any emphasis as the sustainability impact is very indirect. The interest around sustainability in IT companies has been limited to direct impact such as energy consumption of the company facilities and business travelling but the real impact that comes from indirect sources has not been under full focus.

Therefore, as I2 notes as well by voluntary disclosure about sustainability issues the information could have been used to improve the reputation and public image and IT companies can easily profile themselves as green companies and as a solution for responsibility challenges. There lies an opportunity as well because the IT industry has the ability to be the catalyst towards sustainable future. As the impact of IT industry is mostly indirect sustainability dimensions, by helping other industries to improve their performances and create more efficient solutions they can boost the society towards net-zero emissions and social sustainability.

In the empirical part the interviewees shared the idea that in commercial context nothing should be done if the resources put into something do not generate profit. The idea goes with reporting as well as it is a business activity whereas core solution building is as well. It is not reasonable to conduct such reporting that does not generate any benefit for the company as it only then takes resources off from something else that could be profitable. As I2 and I4 refers, sustainability reporting has been used as a marketing tool

and as a result lost the credibility to some extent. Yet, voluntary disclosure has also been a tool to build a story around the reporting as regulative reporting has not prescribed sufficiently how to tell the story. As regulative reporting has lacked such characteristics voluntary disclosure has filled in. Anyhow, referring to I2 the sustainability reporting regulation needs to give relevant framework of how to tell the story just as financial reporting has a standardized form of sufficient way of reporting.

As in the business voluntary reporting or disclosure is not done if it is not for the business benefit the ones gaining the benefit from the voluntary reporting is the companies. The benefit to society is to some extent the improved transparency but limited by the will of the companies to share the information and insights about their performance and activities. After all voluntary disclosure is based on market forces and profitability not the benefit of the society so therefore in the short-term especially the winner from the voluntary based reporting is the companies. The peer effects suggested by Seo (2021) can affect positively in the voluntary based reporting system but the more effective transition to equal and sustainable market can be achieved through developing a regulative framework.

Still, it is important to consider the benefits to economy from the freedom in the reporting and the room it gives companies to innovate and direct the resources in innovation activities rather than reporting practices. Sustainability topics are very comprehensive and as per I1 and I5 in IT to integrate sustainability to solutions it should penetrate the whole business and development process as well as the whole value chain. It can be argued whether it is better to have more freedom to innovate or does the innovation emerge from regulative framework. The voluntary reporting can also spark the business development towards a desired direction more efficiently than the regulation, but it must be considered that the incentive to do that may not be to improve the state of society. It can be argued if reporting were only based on voluntary basis the sustainability initiatives would not be primary objectives to reach with innovation and development. As I3 notes, regulation comes in hand to steer the direction as if sustainability goals are not aimed for the climate crisis will continue and eventually challenges in sustainability are so vast it destroys the economy. The balance between the voluntary and regulative reporting must be found so that there is enough steering for the companies but enough freedom as well to encourage to innovation.

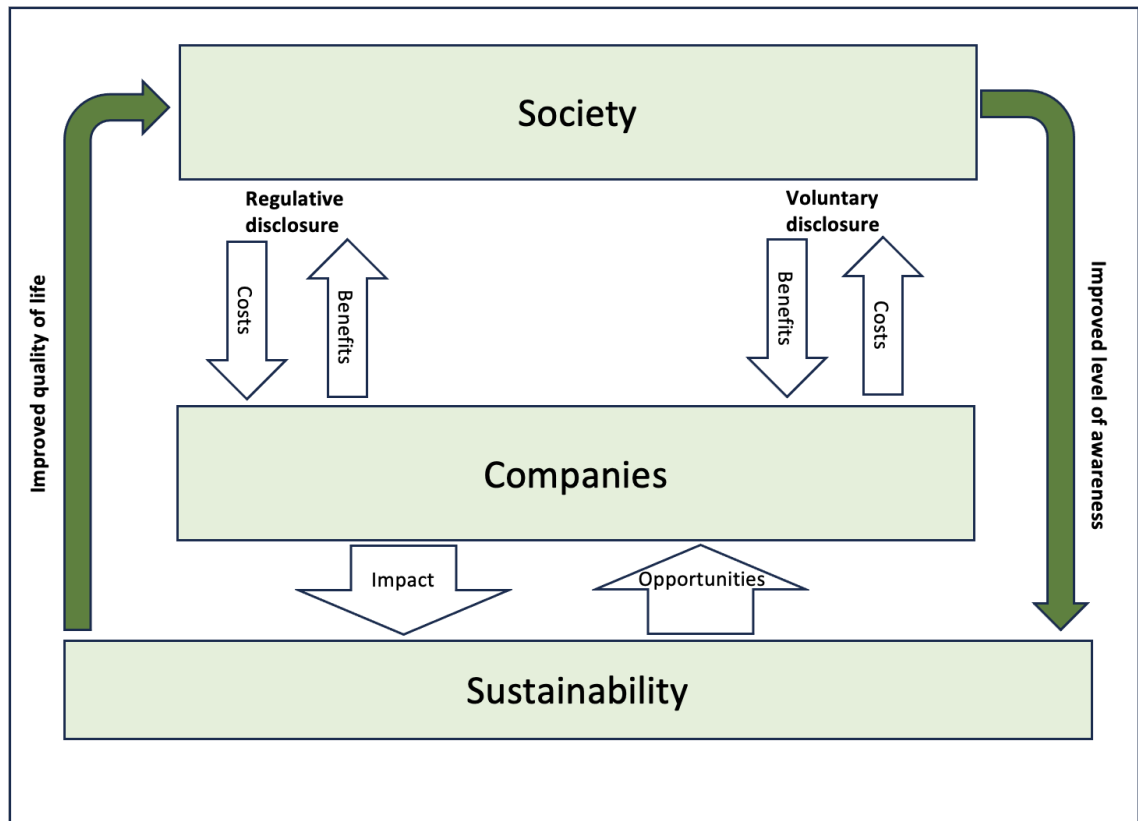
Despite regulation can have a positive impact on guiding companies and the market towards more sustainable society it has its downsides as well. Like mentioned the regulation can decrease the level of innovation and creativity which arguably is not a desired direction in the economy. Also, especially for SMEs the implementation of CSRD can cause difficulties for companies to survive and preserve the competitive ability due to regulation package being rather heavy. Referring to the interview with I1 in the empirical part it is a risk that some companies may not have enough resources to cope with the extensive reporting requirements. It is worth notifying that does regulation decrease the level and number of companies in the market and decrease the level of development causing deterioration of the economy. Then again if a company is not capable of reporting the sustainability performance and impact it creates it is worth considering does the society benefit more from the company exiting the market.

In the context of sustainability in IT the impact of the industry is so comprehensive the companies must be able to report and answer about their responsibilities about the impact on society and environment. The logic goes also the other way around as if the company is able to communicate about its impact and sustainability performance it generates positive reputation and image which then boosts the business. The development of the market through the exit of some companies can be considered as a positive development to society and as I1 reminds after all that is natural for free market.

To fulfil the reporting requirements is resource consuming so it decreases the amount of resources companies can put into developing the business processes and development of IT solutions more sustainable. There lies a risk that the sustainability issues are not going to be achieved as the development and innovation are not a priority. On the other hand, as I3 indicates when the companies are required to report on sustainability issues and impact it encourages them to develop the business towards addressing the issues as it is mandatory. Referring to Seo (2021) about the peer effects in reporting the same effect takes place in business development as the peer companies are developing their business to address the issues better. As all the interviewees agreed on sustainability regulation to create a business incentive it supports the prior literature about regulation improving business development (Ioannau and Serafeim 2017; Bushman and Landsman 2010).

On the contrary voluntary reporting has been an important aspect in sustainability reporting and that has provided room for companies to focus on the core business and left more room and resources for innovation. The business incentive to address sustainability impact effectively in developing IT solutions is not tempting enough yet if there is no authoritative requirement to do so. In IT industry it is characteristic that in a society due to digitalisation no company can survive without IT systems and solutions. As IT systems are a must in digitalized reality in modern societies the IT companies have a strong negotiating position on how to provide such services. The dynamic supports the IT industry to conduct the business by the most cost-effective style which may not include innovating and developing new sustainable ways of solving challenges.

As in the empirical part especially I4 raised the dynamic in voluntary reporting that no activities are done in private sector if there is no benefit or profit found from putting resources into something. Therefore, in perspective of IT companies it may not be beneficial to voluntarily start to address sustainability issues comprehensively as it produces additional costs for the clients and for the contractors. If there are no requirements to address sustainability issues the clients may not be willing to pay extra money from sustainable IT solutions. Referring to Shehata (2014) for voluntary reporting additional costs can act as a constraint. It can be applied to developing sustainable IT solutions as addressing all dimensions of sustainability requires a lot of resources and probably a change in the paradigm in IT systems. Also, as the impact of IT industry is so indirect the clients and other stakeholders do not know to require more sustainable practices as the impact is hidden. Through dynamics like this the side who benefits economically more from the voluntary basis of reporting is the companies and the benefit the society gains may fall short.



**Figure 3 Impact of sustainability on society and business through sustainability reporting.**

As presented in Figure 3 voluntary disclosure benefits the companies more and regulation benefits society more in the context of sustainability reporting. Sustainability is a comprehensive topic that is strongly interconnected to the economy and society. Companies represent the economy in Figure 3 as they are subject to reporting requirements and are the actual actors in the market.

In IT industry the sustainability issues and impact go through the whole company and value chain and to integrate sustainability in the business it need to penetrate the whole organisation and its activities. Social dimension is in the heart of IT industry as IT is used by humans to help working and performing more efficiently. Referring to Vallance (2011) and bridge social sustainability, IT industry can be a catalyst between human and bio-physical environment by finding more efficient solutions and reducing the environmental load the society currently has. The social aspect is to find social conditions to support the development towards environmental sustainability which turns out as a benefit for the society, environment and eventually for the economy. The solutions need to address social issues through the whole IT stack so the whole value chain is considered. Designing is crucial part of building a successful solution as it

creates the foundation on where to build and as I1 emphasized the design approach needs to stay thorough every phase to build a good solution. For the design of the IT solution the industry needs to focus more on the aspect to enhance the working performance of humans and to help them in their work. Therefore, as I5 mentioned in the interview part, the paradigm of the IT systems needs to change more towards helping the people to work from forcing people into a business process and consolidating reporting information.

Comparing the empirical part to the prior literature of sustainability in IT the SAPOS approach (Calero et. al. 2022) as where IT is considered as an aspect to reach the sustainability objectives with. In IT industry there lies a huge business potential as companies need to address sustainability issues more sufficiently due to requirements in CSRD. By providing solutions and services that help the clients to improve their social impact through the whole value chain of their own and their clients the business potential is arguably huge. By considering the design of IT solutions thorough the whole development and design process the internal and external stakeholders can be considered which then generates to more efficient and inclusive impact. As I1 indicates by considering the end-users and the user friendliness of the system the positive impact snowballs through the whole value chain generating positive reputation and better business for the company.

As for environmental dimension the direct impact that IT industry has is rather insignificant as the footprint consists of energy consumption of office spaces and possible computing halls, business travel and i.e. food served in the office premises. The environmental impact generates from the value chain, from the clients and other external stakeholders. The impact derives from indirect sources by providing better solutions for other industries that have direct environmental impact. In this context the SAPOS approach (Calero et. al. 2022) can be considered as well since by developing IT solutions the environmental SDGs can be achieved to preserve natural resources and human welfare. The dynamic here connects social and environmental dimensions deeply as by addressing environmental issues and concerns the social issues can be covered as well. The use of natural resources needs to be reduced as currently the capacity of Earth has been exceeded so that we use more resources that nature can produce. (Dasgupta 2021.) As in the empirical part of the study I4 raised examples of how IT industry has the capabilities to improve the environmental performance of other

industries and likely to improve the monetary performance of their clients as well through reduced resource waste and more efficient processes.

For IT industry developing the business towards environmentally sustainable direction creates a huge business potential and supports preserving the environment for the future needs. Regulative reporting provides the market an incentive to invest in sustainability. By creating the environment where addressing sustainability is the profitable way the development benefits the companies able to cope with the development and especially the society. Reporting based on voluntariness does not encourage businesses to transform the business paradigm into sustainability focused so far as not doing so is cheaper and more cost-effective.

Referring to Epstein and Buhovac (2010) measuring and assessing the sustainability dimensions the economic dimension is easiest to measure as the purely economic topics are rather easily seen. As for other dimensions the performance and impact are far more difficult to measure. As other dimensions are more difficult to measure the decision making may lack the non-economic sustainability information. I2 indicates about collecting and generating sufficient sustainability data to lay the foundation for integrating it to core business. Epstein and Buhovac (2010) raises up about measuring the impact that the other dimensions usually take longer time to have a significant impact than a fiscal year. Referring to Epstein and Buhovac (2010) I2 raises the importance of combining the data and resources of different departments so the sufficient insights of profitable patterns are found, and sustainable business model can be integrated in IT.

After all, to integrate the sustainability to business effectively every aspect needs to be addressed as every dimension is deeply interconnected to each other. In the interviews it came clear as well that the interviewees think that by providing such services and solutions for clients that satisfy their needs and address sustainability issues it shows in the economic performance as well. Referring to I1 the only way to succeed in the IT industry is to do business as the client as a priority. By considering the external stakeholders as priorities the impact in different dimensions of sustainability will improve and that will generate future growth for business.

Culturally the sustainability through IT can be addressed by considering differences inside the organisation but also in society. The IT design need to be designed so that

every group of people are treated equally, and the differences are accepted. For example, currently trending AI has risks in that field as the AI is taught by existing data which can be exclusive as it is reflected to our societies. The cultural dimension is easier to consider from the internal point of view as how the IT affects the company culture and wellbeing in the workplace. In that context the cultural dimension is tightly connected to the social dimension just as in prior literature it has been considered a part of social dimension (Chiu 2004).

In the interviews it was raised that the cultural dimension has an impact on how organisations organise their HR-activities in different international offices. For I4 it was an important topic that through the whole global organisation all the employees get the same benefits despite the location. By the IT solutions companies need to consider how it fits the target locations culture, i.e. language wise and by the design to the way of living and working.

For IT companies to address the sustainability dimensions in the business and in the solutions they provide for the clients, in long-term that builds competitive capability or even advantage if the issues are taken into account more proactively. As sustainability issues are mandatory to report on the incentive builds from that foundation. Companies are being analysed based on the performance and sustainability issues are an important area of performing. Doing business in the way that only the bare minimum is covered in the sustainability areas is not economically sustainable way of doing business as the other dimensions are so connected to the economic dimension.

As presented in Figure 3 the sustainability offers opportunities for the companies which then generates back as impact. The future of business will be tied around sustainability issues and the CSRD requirements are a strong message from the authorities as well as from the society that sustainability is needed and there lies the business potential of the future. The mandatory sustainability reporting for companies can be considered as a catalyst for sustainable development and green transition as it acts a driver and sets a direction. The benefit can be considered to go to society and businesses need to address such conditions and business environment to survive in the market. Being able to report the sustainability performance creates positive message from the company to external stakeholders and supports the growth of the company.

The reporting must be based on real actions and figures and the way of how reporting has been conducted need to be transparent as well. The balance between mandatory and voluntary reporting can be delicate and the optimal level of regulation and freedom of consideration can be hard to find. The benefits of both are roughly divided in figure 3 so that mandatory disclosure benefits the society in form of improved transparency, level of credibility and equality in the market and in the society. In contrary the voluntary disclosure benefits the companies more as they have the freedom to disclose information that benefits them and releases resources from reporting for more productive activities.

The incentive to integrate sustainability emerges from the mandatory reporting as it creates the economic need for companies. In the EU, CSRD serves as a business driver making it profitable to address sustainability issues. At the same time as the regulation acts as an incentive to integrate sustainability it reflects the pressure and direction of the market and the society. Sustainability has long been used as a differentiating strategy, but it is becoming a basic requirement to have capability to compete in the market. Providing comprehensively sustainable and efficient solutions and transparency to the internal and external stakeholders benefits the IT companies more than IT based on generating reports and forcing people in processes. Such transition in IT paradigm and industry is powered by regulative sustainability reporting and it disrupts the market so without addressing sustainability issues it is hard to penetrate into IT industry.

## 8 Conclusions

The research problem that how IT companies can generate profit from the mandatory sustainability reporting requirements combines the corporate reporting and the dimensions of sustainability in the context of IT industry. As in the EU the sustainability reporting directive CSRD entered into force in January 2023 addressing the sustainability topics to be covered by all the companies subject to the directive. Therefore, integrating sustainability into the business activities has become more relevant than ever. The research problem was approached with the following research questions:

- *How could IT companies generate profit by covering sustainability issues in their business?*
- *What impact does the sustainability regulation have in the IT industry?*

IT industry has very vast impact on our society and can impact in all dimensions of sustainability due to the rapid digitalisation and data focused reality of the society. The impact of IT is arguably very indirect as the direct impact of IT companies consists of office spaces and employee travels. The impact is relatively small and compared to companies in manufacturing industries much harder to calculate and direct to the source. Then again, the impact IT industry has reaches to a very broad range in the society. The sustainability reporting and the business activities in the IT industry need to be extended to include the consideration of how the solutions provided impact the surrounding environment and people. IT industry has indirect impact in all the dimensions and all of them need to be considered through the IT stack and the design.

Reporting and corporate disclosure has an important part in developing the IT industry towards addressing the sustainability issues comprehensively and considering sustainability as a business opportunity and a driver. A main driver for sustainability as a business opportunity in the EU is the CSRD that forces the companies subject to it to address the sustainability by inclusive sustainability assessment. The mandatory nature of the reporting creates a business incentive to invest and develop the business towards the requirements sustainability reporting holds by transforming the market dynamics to the sustainable direction. Because of regulations, the economy is evolving in a direction

where sustainability is one of the fundamental requirements to be met in order to compete in the market.

For IT industry this development means opportunities both internally and especially externally. By providing comprehensively sustainable solutions the IT industry can provide solutions for other industries trying to perform better in the field of sustainability. By the comprehensive impact IT industry has there is the space for economic growth and major market shares to be grabbed. For IT companies that address the sustainability issues most effectively and are most prepared for the transition in the market dynamics will perform the best in the future markets.

Being able to perform well in sustainability themes creates the IT companies better public image and reputation which are the traditional benefits gained from sustainability disclosure. Voluntary disclosure acts a major role in improving the public image of the company but the problem with the voluntary reporting has been that it has been for the companies to decide how and what information to disclose which has not been equal for all the actors in the market neither has the information been comparable. By equal and transparent market, the IT industry lays the foundation for healthy growth for the whole industry which benefits all the actors eventually.

With this research it was found that regulative disclosure in sustainability topics makes such topics business drivers through the mandatory nature of the reporting. By addressing the sustainability topics raised from the regulative reporting requirements IT industry has a major opportunity to gain economic success. Considering sustainability as a comprehensive and interconnected topic and including every dimension to consideration it will generate the most efficient outcome for the society and for the company.

Limitations of the research is that it addresses the research problem in the general level and does not delve into the specific technical topics of IT development. For future research this thesis leaves a need to discuss the impact of the CSRD after some experience how it really has affected the economy in the EU soil. For the sustainability dimensions this research focuses to the comprehensive consideration of sustainability and discusses them as deeply interconnected. For future there is a research gap that focuses deeply to single dimension in the IT industry to gain more specific insight about individual dimensions in the IT sector.

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## 9 Appendices

### Appendix 1: Data Management Plan

The interviews shall be conducted via Microsoft Teams and the interviews are recorded. The files are saved in the cloud-service called Seafile which is provided by University of Turku.

Access management for the used data storage choices. Seafile is encrypted by SSO-login and saves the files automatically. It can be used despite of the location of the author so the author is capable of working nevertheless the geographical location. Author's personal iCloud is logged in his personal computer and phone that are both protected by password to which only the author has access.

During the work phase of the thesis the videofiles will be transformed also into textfiles as the application of choice will be Microsoft Word. The textfiles are filed in the Seafile as well as in the local computer and iCloud of the author (Arttu Iivanainen). In the videofiles the name and the face of the interviewees will be visible if they agree to have the interview with the camera on and name visible. The files however will be named so that the identities of the interviewees are not mentioned. In the textfiles the interviewees will be referred as anonymous to protect the identity of the interviewees due to the files saved in the local computer and personal iCloud.

The interviewees are referred as Interviewee 1, Interviewee 2, etc. in the conducted research so the anonymity of interviewees will be protected. The positions of the interviewees will be mentioned in the research if the interviewee gives permission. Also, the parties the interviewees work for are anonymous but will be described by the industry they represent and the position in the respective industry.

After the research is finished the files will be saved for 5 years as it is a standard in academic world and will be filed in the places mentioned above. Nevertheless, the author will graduate from the Turku School of Economics after the thesis is finished. In that particular case the author may lose the access to the services provided by University of Turku, including Seafile. If the access is lost the files in Seafile will be transferred to author's personal iCloud from which they will be deleted after the 5 years.

## Appendix 2: The structure and the themes of the interviews

### About reporting:

- How is reporting considered in your company?
  - Does it add value and improve processes?
- Is reporting just a mandatory operation or does it act as a reflection process of what could be improved?
- Does your company do voluntary reporting?
  - Could it add value to your company through better reputation etc?
- What is the current state of sustainability reporting in your company?
  - How are sustainability issues (environmental, social) covered in project planning?
- Does the obligatory sustainability requirements and reporting (CSRD) work as an incentive to improve the internal processes towards sustainability (every dimension covered)?

### About sustainability:

What is the current state of sustainability in your company? More as an obligatory “have to do” or more as a business opportunity?

- Is sustainability a driver in a business decision process?
- How does the trend of sustainability affect the company?
  - Core business, communications, reporting?
- How are sustainability issues considered in the client strategies?
- In the framework of sustainability dimensions (environmental, social, economic, and cultural) what are the core values to deliver to a client in a project?
- Does the EU regulation support the internal process development towards more comprehensive focus on sustainability and the business potential in that?
  - Does the obligatory reporting boost the sustainability performance and generate process development?