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Economics

# **The use of Artificial Intelligence in CSR Reporting from the Perspective of SMEs**

International Business

Bachelor's thesis

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Corporate social responsibility reporting has become a strategic asset for today's businesses. Much of the existing literature on CSR reporting focuses on the perspective of large corporations and lacks focus on small and medium sized enterprises (SMEs). SMEs make up 99,8% of corporations in the EU and research on the perspective of SMEs in CSR reporting practises is therefore relevant to the adaptation of responsible business. The rapidly evolving field of artificial intelligence (AI) offers possibilities for its utilization in the different phases of CSR reporting. AI has the potential to serve as a CSR reporting tool for SMEs.

This thesis aims to explore how artificial intelligence can be used as a tool in CSR reporting from the perspective of SMEs. The topic is explored through three sub questions, which attempt to shed light on the importance of CSR reporting, the implications of CSR reporting on SMEs, and the challenges associated with SMEs' CSR reporting.

Using appropriate theoretical frameworks, and a thorough look into existing literature, this thesis finds that adequate CSR reporting is important in order to respond to stakeholder demands and adapt to evolving reporting regulation. CSR reporting by SMEs positively influences corporate reputation, enhances communication with stakeholders, increases customer loyalty, and contributes to corporate performance. SMEs face challenges in compiling, assuring and using CSR reports due to knowledge gaps, limited resources, technological obstacles, organizational barriers, lack of support and overwhelming policies and regulations. Artificial intelligence can be utilized by SMEs as a CSR reporting tool in data management, production of reports, enhancing of accuracy and credibility, use of the report for decision-making, as well as in increasing stakeholder engagement.

This thesis contributes to existing research on the application of artificial intelligence for business operations, such as CSR reporting, and attempts to resolve the challenges faced by SMEs when it comes to this type of reporting. The managerial implications of these findings include adaptation of artificial intelligence tools in CSR reporting to provide more effective, efficient and accurate CSR communication.

**Key words:** corporate social responsibility, corporate social responsibility reporting, small and medium sized enterprises, artificial intelligence.

Kandidaatin tutkielma

**Oppiaine:** Kansainvälinen liiketoiminta

**Tekijä:** Olivia Taattola

**Otsikko:** Tekoälyn käyttö yritysraportoinnissa pienten ja keskisuurten yritysten näkökulmasta

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Yritysvastuuraportoinnista on tullut nykypäivän yrityksille strateginen voimavara. Suuri osa yritysvastuuraportointia käsittelevästä kirjallisuudesta keskittyy suurten yritysten näkökulmaan, pienten ja keskisuurten yritysten (pk-yritysten) näkökulman sijaan. Pk-yritykset muodostavat 99,8 % EU:n yrityksistä, minkä takia tutkimus pk-yritysten yritysvastuuraportointiin liittyvistä teemoista on merkittävää vastuullisen liiketoiminnan edistämisen kannalta. Tekoälyn nopea kehitys mahdollistaa sen hyödyntämisen yritysvastuuraportoinnin eri vaiheissa. Tekoälyllä on potentiaalia toimia pk-yritysten yritysvastuuraportoinnin työkaluna.

Tämän tutkielman tavoitteena on tarkastella, miten tekoälyä voidaan hyödyntää strategisena työkaluna pk-yritysten yritysvastuuraportoinnissa. Tutkielma vastaa tavoitteeseen kolmen alakysymyksen kautta, joilla pyritään avaamaan yritysraportoinnin tärkeyttä, siihen liittyviä haasteita sekä raportoinnin vaikutuksia pk-yrityksiin.

Käyttämällä asianmukaisia teoreettisia viitekehyksiä, ja perehtymällä perusteellisesti olemassa olevaan kirjallisuuteen, tutkielmassa todetaan, että asianmukainen yritysvastuuraportointi on tärkeää: se auttaa vastaamaan sidosryhmien vaatimuksiin ja mukautumaan kehittyvään raportointisääntelyyn. Pk-yritysten toteuttama yritysvastuuraportointi vaikuttaa myönteisesti yrityksen maineeseen, parantaa viestintää sidosryhmien kanssa, vahvistaa asiakassuhteita ja edistää yrityksen suorituskykyä. Pk-yritykset kohtaavat haasteita yritysvastuuraportoinnin laatimisessa, varmistamisessa ja käyttämisessä. Pk-yritysten raportointiin liittyvät haasteet ovat seurausta tietämyksen puutteesta, resurssien rajallisuudesta, teknisistä esteistä, organisaatiollisista rajoitteista, tuen puutteesta sekä monimutkaisista regulaatioista. Pk-yritykset voivat hyödyntää tekoälyä yritysvastuuraportoinnin työkaluna tiedonhallinnassa, raporttien tuottamisessa, tarkkuuden ja uskottavuuden parantamisessa, raporttien hyödyntämisessä päätöksenteossa sekä sidosryhmien sitouttamisessa.

Tämä tutkielma täydentää olemassa olevaa tutkimusta tekoälyn soveltamisesta liiketoiminnassa, kuten yritysvastuuraportoinnissa, ja pyrkii ratkaisemaan haasteita, joita pk-yritykset kohtaavat tämän tyyppisessä raportoinnissa. Tutkielman löydöksiensä hallinnolliset ja käytännön vaikutukset liittyvät tekoälytyökalujen hyödyntämiseen yritysvastuuraportoinnissa, jotta yritysten yritysvastuusta tiedottaminen olisi tehokkaampaa, tuloksellisempaa ja tarkempaa.

**Avainsanat:** yritysvastuu, yritysvastuuraportointi, pienet ja keskisuuret yritykset, tekoäly

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# 1 Introduction

## 1.1 Background on the Topic

On the 5th of January 2023 the European Union's (EU's) new directive on the rules of corporate social responsibility (CSR) reporting became effective. The EU's Corporate Sustainability Reporting Directive (CSRD) (Official Journal of the European Union 2022, 42–50) serves to add to the European Union's strategy for corporate social responsibility reporting as part of the European Green Deal (European Commission 2023, 1–2), which aims to help stakeholders to observe the sustainability of businesses. The CSRD requires a broad range of large and medium sized listed companies to report on the risks and opportunities of their activities on the society and the environment. The first reports according to the new regulations will be compiled during the 2024 financial year and will be published in 2025. (European Commission: Corporate sustainability reporting.)

At the time this thesis is written, the CSRD requires all large corporations with over 500 employees to provide CSR reporting according to the European Sustainability Standards (ESRS) (Official Journal of the European Union 2022, 50–54). Additionally, listed small and medium sized enterprises (SMEs), except for micro-enterprises, as well as non-EU companies that generate over 150 million in the EU, and have at least one subsidiary that reaches the same requirement, are required to report under the CSRD. (Official Journal of the European Union 2022, 5; McGuinness 2024, 1; Odoša & Marošević 2023, 593.) In the years to come, the EU aims to extend the reporting requirements to all corporations, no matter the size or the sector, operating in the EU (Krawczyk 2021, 2).

SMEs make up 99,8% of all businesses in the non-financial sector in the EU and are central contributors to the world economy (European Commission 2024, 1–6). However, they are often overlooked as attention is directed towards the more visible large corporations. Increasing attention on corporate social responsibility, pressure placed on by stakeholders, and developments in CSR reporting regulations, such as the EU's CSRD, have placed pressure on SMEs to provide sufficient CSR reporting (Lisi et al. 2023 604–609).

Stakeholders are groups and individuals who can affect or are affected by the actions of a corporation (Freeman 2010, 52). Common stakeholders for SMEs include governments and non-governmental organizations, customers, suppliers, employees, management, shareholders, and the media (Journeault et al. 2021, 3; Slabá 2016, 128). Research shows that SMEs participate in voluntary CSR reporting as a way to respond to the stakeholder pressure, protect corporate reputation, gain legitimacy, create competitive advantage, and to increase stakeholder engagement (Lisi et al. 2023



604–609). Simultaneously, SMEs' involvement in CSR reporting is challenged by the lack of financial resources, gaps in knowledge and capabilities, technology obstacles, as well as by limiting organizational factors, and overwhelming regulation (Setyaningsih et al. 2024, 8-13; Lisi et al. 2023, 604–609).

The rapid development of artificial intelligence (AI) has made possible its utilization in various business contexts. The phenomenon is visible as artificial intelligence has become a popular topic in the recent years, both in management and in academic research (Paschen et al. 2020, 148). Businesses and managers are becoming more aware of the possibilities of AI, but many are still uncertain of how exactly AI can be leveraged in various business operations (Campbell et al. 2019, 2). Artificial intelligence can be used for data driven decision-making, automation of repetitive business processes, knowledge creation, by turning raw data into valuable information, and in increasing stakeholder involvement through conversational agents, such as chatbots (Sestino & De Mauro 2022, 22).

In the field of CSR reporting, the implications of AI as a CSR reporting tool range from data collection and management to report production, assurance, and use of the report as a strategic asset (Villiers et al 2023, 101-105; Paschen et al. 2019, 4–8; Paschen et al. 2020, 148–7). This thesis explores the ways in which artificial intelligence can be used as a tool in CSR reporting, specifically from the perspective of SMEs.

## **1.2 Aim of the Thesis**

The aim of this thesis is to explore the use of artificial intelligence as a strategic tool for CSR reporting by small and medium sized enterprises. The main research question of this thesis is as follows: *How can artificial intelligence (AI) serve as a tool for SMEs creating CSR reporting?* The sub questions used in this thesis to answer the main research question go as follows:

- Why corporate social responsibility (CSR) reporting is important?
- What are the implications of CSR Reporting for SMEs?
- What are the challenges associated with creating CSR reporting from the perspective of SMEs?

As the increasing significance of CSR reporting for companies has been seen globally, in terms of stakeholder behaviour and legal requirements, such as the European Union's CSRD, companies need to adapt to the new standards of reporting (Official Journal of the European Union 2022, 50–54; Lisi

et al. 2023 604–609). The large amount of data, scattered incohesive information, lack of knowledge and skill, as well as the scarce resources of a company, propose challenges for compiling CSR reporting, that is both up to the legal standards, and presents the information stakeholders are interested in (Setyaningsih et al. 2024, 8–13).

Especially for the small and medium sized enterprises, the lack of efficient resources challenges the creation of successful CSR reporting (Lisi et al. 2023, 604–609). Therefore, exploring different tools for reporting practises can serve to aid SMEs to successful CSR reporting. The development of artificial intelligence has opened new opportunities for its utilization in corporate contexts (Sestino & De Mauro 2022, 22). Therefore, research on the implications of artificial intelligence, for SMEs compiling CSR reporting, aids these companies to better utilize the possibilities of artificial intelligence, face the challenges associated with CSR reporting, and contribute to responsible business practises.

This thesis is structured in the following manner: Chapter 2 firstly focuses on the theory of CSR and CSR reporting, as well as discusses the recent trends in CSR reporting regulation. It also investigates the possibilities of AI as a CSR reporting tool. Chapter 3 then moves on to discuss CSR reporting from the perspective of SMEs: the importance of CSR reporting for SMEs, as well as the challenges associated with it. Chapter 4 brings these concepts together and explores the use of artificial intelligence by SMEs in CSR reporting. Finally, in the conclusion section, the findings of the thesis are discussed, and the limitations and future research possibilities regarding the topics are explored.

## **1.3 Key Concepts**

### **1.3.1 Corporate Social Responsibility**

In the year 2024, the term corporate social responsibility (CSR) is recognized globally by professionals, firms, governments, and non-governmental organizations. In 2011, the European Commission updated its definition of CSR and now defines corporate social responsibility as “the responsibility of enterprises for their impact on society” (European Commission 2011, 6). The United Nations Industrial Development Organization, on the other hand, refers to CSR as an idea by which “companies integrate social and environmental concerns in their business operation and interactions with their stakeholders” (UNIDO: What is CSR?). Professor William C. Frederick states in his book that: “corporate social responsibility (CSR) occurs when a business firm consciously and deliberately acts to enhance the social well-being of those whose lives are affected by the firm’s economic operations” (Frederick 2018, 4). These definitions imply that, globally, corporate social responsibility

considers the impact of corporate actions on society, and attempts to create positive value for stakeholders, while simultaneously benefiting the success of the corporation.

In addition to the term CSR, literature on the field uses other related terms such as, corporate responsibility (CR), which refers to the idea that corporations have a responsibility to contribute towards the common good (Blowfield & Murray 2014, 6–9). The term corporate sustainability (CS), on the other hand, refers to a firm's capability to create growth while meeting the expectations of stakeholders (Neubaum & Zahra 2006, 108–131). ESG, an acronym from the words environmental, social, and governance, refers to a corporation's responsibility to create social welfare, while providing sustainable value to stakeholders (Wan & Wasiuzamann 2021, 1). As can be concluded from the definitions of these related terms, they consider the impact of corporate actions on stakeholders. For purpose and clarity, this thesis refers to academic literature that uses these related terms but refers to them as corporate social responsibility.

### 1.3.2 CSR Reporting

CSR reports are a communication tool for corporations, used to inform stakeholders about, not only economic data, but of other non-financial information such as, the relationship of the corporation's activities in relation to the environment and the society. Reports can be used to fulfil the commitments made to stakeholders, manage CSR activities, identify risks and opportunities, as well as contribute to the long-term success of the company. (Moravcikova et al. 2015, 332.)

Different forms of CSR reporting explored in literature include for example, sustainability reports (Kolk 2005, 38–39), environmental reports (Clarkson et al. 2011, 27–28), ESG reports (Raghavan 2022, 1–2), non-financial reports (Villiers et al. 2023, 101–105), and integrated reports (Dinh et al. 2022, 98). For clarity and purpose, this thesis refers to these reports as CSR reporting.

### 1.3.3 Artificial Intelligence

The origins of the term artificial intelligence (AI), as it is recognized today, can be rooted back to the mid 20th century. In 1955 J. McCarthy, M. L. Minsky, N. Rochester, and C. E. Shannon used the term artificial intelligence for the first time in their proposal for the Dartmouth Summer Research Project on Artificial Intelligence. Their goal was to explore: “how to make machines use language, form abstractions and concepts, solve kinds of problems now reserved for humans, and improve themselves”. (McCarthy et al. 1955, 2.)

Since artificial intelligence is a relatively new and a growing field, there is yet to be one clear established definition of AI. Stuart R. Russell and Peter Norvig (2016, 8) define AI as: “the study of agents that receive percepts from the environment and perform actions”. IBM defines AI as a: “technology that enables computers and machines to simulate human learning, comprehension, problem solving, decision making, creativity and autonomy” (IBM 2024). The European Parliament and the Council of the European Union, on the other hand, defined AI system in 2024 as: “a machine-based system that is designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments” (Official Journal of the European Union 2024, 46).

## 2 Corporate Social Responsibility Reporting

### 2.1 Theoretical Background of CSR

Howard R. Bowen has been considered by many scholars to be the founder of CSR (Acquier 2011, 608). In his book, *The Social Responsibilities of the Businessman* (SRB), Bowen introduces the idea that *businessmen* need to make decisions and operate in ways that support the values and objectives of the society. He argues that since *businessmen* hold significant decision-making power in society, by deciding which goods and services will be produced, and by influencing economic development through job creation and the distribution of income, they have the responsibility to make decisions that are desirable for the society. Even though businesses hold significant decision-making power, since they do not operate in isolation, but rather are under constant pressure from stakeholders, they are left with limited opportunity for independent decision making. (Bowen 2013, 1-6.) What this means is, that even in cases when legal obligation to act socially responsibly does not exist, companies are motivated to act in a responsible matter by the pressure put on by society. In the case of CSR reporting, corporations have been put under pressure by stakeholders demanding disclosures on CSR related activities (Lisi et al. 2023, 604-609).

On top of participating in socially and environmentally responsible business, because of a perceived responsibility to do so, businesses can benefit from CSR activities financially (Le 2023, 4581-4582; Cho et al. 2019, 19–20; Oncioiu et al. 2020, 8–9). Porter and Kramer (2011, 5) proposed the idea of creating shared value (CSV). CSV argues that a corporation's purpose is to create shared value for the society and stakeholders. Porter and Kramer argue that corporations' outdated approach to creating value by prioritizing short-term financial gain is the reason for societal, environmental, and economic issues seen in the world today. They propose that instead, businesses should create shared value by creating economic and societal value through their operations. Rather than being a trade-off between responsibility and financial gain, CSR activities should be rooted in the core of businesses to create long term shared value. (Porter & Kramer 2011, 4-5.) This theory supports the idea that corporations should participate in CSR activities, not only due to pressure created by stakeholders, but also because it creates long term value for the corporation, and improves corporate performance (Le 2023, 4581-4582).

## 2.2 Theoretical Background of CSR Reporting

The signalling theory (Spence 1973), first introduced by Michael Spence in the context of job market signalling, can be adapted to explain the importance and implications of CSR reporting. The focus of the signalling theory is on information asymmetry, which occurs between two market actors, of which one decides what information it wants to signal, and the other actor decides how it wants to perceive the signal (Spence 1973, 357; Osburg et al. 2022, 2). The theory is particularly useful in business contexts, because it explains how a corporation's actions, such as the publication of CSR reporting, communicate of the corporation's potential and value to external stakeholders (Drover et al. 2018, 209).

In transaction situations, such as in those between a corporation and its customers, the market actors hold different amounts of information creating information asymmetry, which has implications for the transaction and the relationship between actors (Kirmani & Akshay 2000, 66). Information asymmetry occurs in CSR contexts when the corporation possesses more information about the activities it performs, and the impact of these activities on the business environment, compared to its stakeholders, such as investors, employees, and customers. Inadequate CSR reporting creates information asymmetry when stakeholders are unable to make cross-comparisons between corporations, or when the indicators' relevance to CSR is unclear (Wang et al. 2020, 2-3). Well executed reporting reduces information asymmetry between the corporation and its stakeholders, and signals of the corporation's commitments to conducting responsible business. These signals have the possibility to improve corporate reputation by influencing stakeholder perception of the corporation (Hetze 2016, 291–292.)

Stakeholder perception comes down to how stakeholders perceive information they receive from corporations. Corporations can improve corporate reputation through appropriate signalling, but the effectiveness of these signals is dependent on the way they are perceived by stakeholders. (Hetze 2016, 281.) Research has shown that in some cases stakeholders perceive corporate communication of CSR activities as untruthful. This is true especially in cases where CSR activities are communicated without a connection to economic motives behind them (Vries et al. 2016, 151). The stakeholder perception view highlights the importance of providing high quality CSR communication through effective CSR reporting.

Hetze (2016, 288) presents a conceptual framework, which explains the impact of CSR reporting, and how it is perceived, on corporate reputation as a CSR actor. The framework (Figure 1) combines the signalling theory and the stakeholder perception theory, to create an understanding, that considers the ways in which the perception of CSR reporting influences corporate reputation. The framework is part of literature that explains the importance of CSR reporting.

The framework is divided into four elements: *CSR signal*, *two filters*, *the filtered effect of the signal on reputation*, and *an effect on the context of CSR reporting*. Additionally, to the four elements, there are three propositions to the framework: *P1*, *P2*, and *P3*. (Hetze 2016, 288.) The framework is shown in Figure 1.

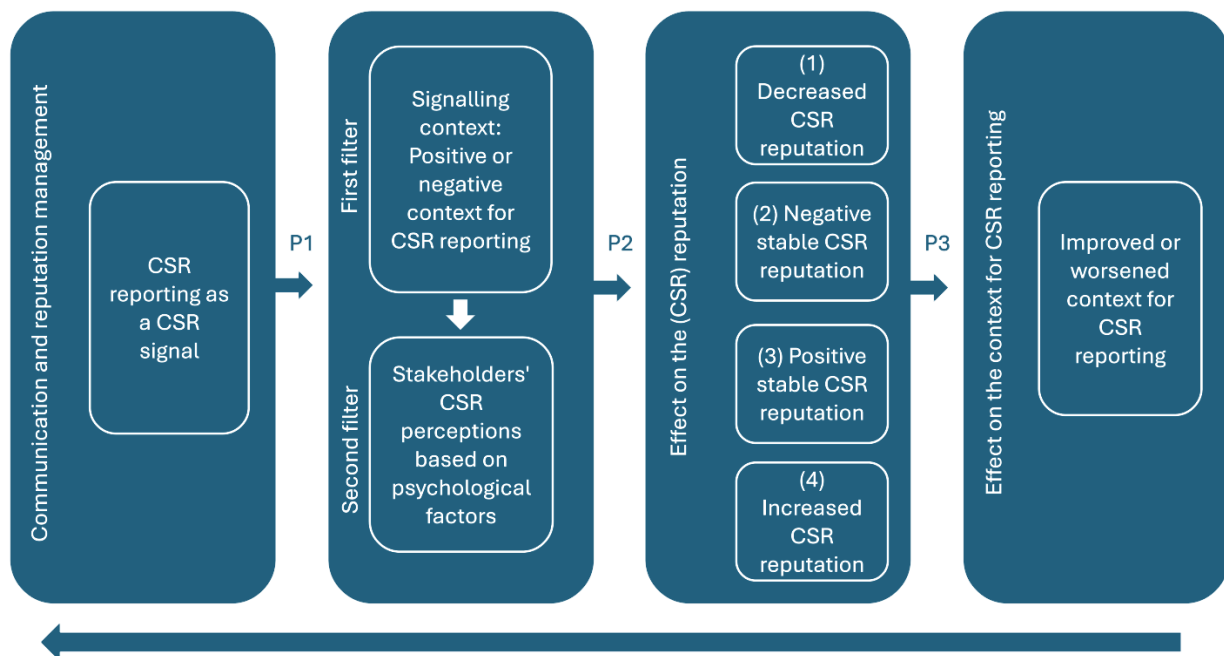


Figure 1. A Conceptual framework combining the signalling theory and the stakeholder perception theory (Hetze 2016, 288)

First, the corporation reduces information asymmetry with its stakeholders by sending a signal in the form of CSR reporting (Uyar et al. 2020, 8–10). Proposition 1 of the framework states that the CSR reporting signal must pass through two filters. The first filter focuses on the context in which the signal is sent. For example, a positive context for CSR reporting can be achieved if the corporation's CSR reputation, in relation to its competitors, is good, if external third parties are in favour of the signalling corporation, and if stakeholders have a positive perception of the signalling company and, therefore, receive the signal in a positive context. (Hetze 2016, 289.)

The second filter the signal must go through is based on the psychological factors influencing stakeholders' CSR perception (Hetze 2016, 289). Stakeholders evaluate the credibility of the signal based on their perceived understanding of CSR activities (Dilling 2011, 29). Stakeholder perception of the credibility of the report is influenced by perceived truth, sincerity, appropriateness, and understandability of the report (Lock & Seele 2017, 606). The signal successfully passes through the second filter if the stakeholders feel that their values are met by genuine commitment to CSR issues from the signalling corporation, and therefore find the signal sent in the form of the report to be credible (Hetze 2016, 289). This filter explains the importance of providing CSR information that answers stakeholders' demands.

Proposition 2 states that there are four possible influences of the evaluation of the signal on corporate reputation. (1.) If the context for CSR reporting is positive, as in stakeholders view the corporation as a responsible entity, but the signal is evaluated as uncredible, as in the report does not satisfy the needs of the stakeholders, the result is a loss to the signalling corporation's CSR reputation. (2.) If the context for CSR reporting is negative, and the signal is evaluated as uncredible, there is no change in the CSR reputation of the corporation. (3.) If the context of CSR reporting is positive, and the signal is evaluated as credible, there is usually a win to the CSR reputation of the corporation, as former good reputation is supported through the new CSR report. (4.) Lastly, if the context of CSR reporting is negative, but the signal is evaluated as credible, the result is a win for the CSR reputation of the corporation, as the signal is effectively improving the CSR reputation of the corporation. (Hetze 2016, 290–291.)

Proposition 3 states that CSR reputation, affected by the signal, has an influence on the reporting context. The way in which the CSR report has been perceived by the stakeholders, now influences the context in which future signals will be evaluated. (Hetze 2016, 291.) Research shows that corporations' reputation may not benefit from genuine CSR activities, if the corporation has a bad CSR reputation based on previous actions (Bae & Cameron 2006, 149). A good CSR report, which sends a good signal of the corporation's CSR commitments, affects the stakeholders and third parties' perception of the corporation in a positive light, making them more likely to perceive the future signals positively. (Hetze 2016, 291.)

### **2.3 Recent Trends of CSR Reporting Agendas and Regulations**

CSR reporting has long been viewed as a voluntary way of communicating of the actions and values of corporations to external stakeholders. However, governments globally have begun to take



regulatory action to make CSR reporting mandatory. (Moravcikova 2015, 336.) Even though many corporations have taken CSR action due to external pressure from stakeholders (Lisi et al. 2023, 604–609), the role of the government in promoting commitment to CSR is significant, because without mandatory legislation from governmental institutions CSR activities stay voluntary and non-regulated. According to a study, there is a need for developed and developing nations to share CSR practices, build institutions, create laws, and mandate transparency from enterprises regarding societal issues (Wirba 2024, 7447).

The 2000s have seen a change in the way in which CSR reporting has been viewed. The Global Reporting Initiative (GRI), founded in 1997, was one of the first frameworks for creating voluntary non-financial reporting and has since become one of the most widely used frameworks for CSR reporting. (Halkos & Nomikos 2021, 109.) The GRI universal standards (GRI 2016) for CSR reporting were first introduced in 2016 and updated in 2021 (GRI 2021). According to Silvan Jurt, a partner at KPMG Switzerland, the updated GRI standards aid companies to comply with the emerging regulations, such as the EU's Sustainability Reporting Directive (KPMG: Revised system of the GRI Standards).

The European Union has been a forerunner when it comes to promoting CSR related agendas. In 2006, the European Union, and its members, stated to be committed to promoting CSR of EU based corporations operating within and outside of the EU. At the beginning of the century, the union wanted to promote CSR by emphasizing CSR awareness, multi-stakeholder initiatives, cooperation between members, transparency, research, education, and SMEs. (European Commission 2006, 2–9).

In 2014, the EU introduced its first regulations regarding mandatory CSR reporting. The Non-Financial Reporting Directive (NFRD) (Official Journal of the European Union 2014, 4–8) was a step towards greater transparency and accountability of CSR issues in business. The NFRD required large listed companies, with over 500 employees, to compile reports regarding their treatment of employees, protection of human rights, policies of anti-corruption, and existence of diversity within the company. Additionally, the directive required companies to provide information about business models, risks and risk management, as well as of relevant key performance indicators (KPIs). In 2021 around 6000 EU companies were obligated to mandatory CSR reporting covered by the NFRD. (Hahnkamper-Vandenbulcke 2021, 1–3; Official Journal of the European Union 2014, 4–8.)

The EU's Corporate Sustainability Reporting Directive (CSRD), which came to effect in 2023, and sees its first reports in 2025, is an extension of the NFRD. The directive is a response to the European Green deal, which has led to higher demand for regulated CSR reporting (European Commission:

Corporate sustainability reporting). The directive attempts to further strengthen and standardize CSR reporting and adapt reporting regulation to a wider array of corporations (Odoša & Marošević 2023, 608). The introduction of the CSRD was followed by the European Sustainability Standards. Corporations under the CSRD are required to report on CSR activities according to these standards. (Official Journal of the European Union 2022, 50–54.)

There is a clear trend towards increasing regulatory mandates regarding CSR reporting globally, starting from the beginning of the century (Singhania et al. 2024, 67). As a result, corporations need to adapt new skills and operations to keep up with these new standards (Lisi et al. 2023 604–609).

## 2.4 Artificial Intelligence as a CSR Reporting Tool

Villiers et al. (2023, 101–105) developed a conceptual framework for future research on the use of artificial intelligence in CSR reporting. Their framework identifies four phases of non-financial reporting: *management information, report production, assurance, and use*. (Villiers et al. 2023, 101–105.) This thesis uses the four phases of the framework to assess the use of artificial intelligence as a tool for CSR reporting.

Paschen et al. (2019, 1412) identified in their model the building blocks of any artificial intelligence system: *inputs, process, outputs, and the knowledge base*. The building blocks are shown in Figure 2. According to the model, artificial intelligence takes in raw data, processes it in two phases, and turns it into meaningful and useful informational output. The *inputs* of AI systems are divided into two types of data: *structured* and *unstructured data*. This data is then *processed* by the AI system in two phases: *pre-processes* and *main processes*. Finally, AI generates an *output* of processed information such as *language generation, image generation, and robotics*. (Paschen et al, 2019, 1413.) This thesis examines artificial intelligence as a CSR tool through these three building blocks and connects them with the four phases of the non-financial reporting framework.

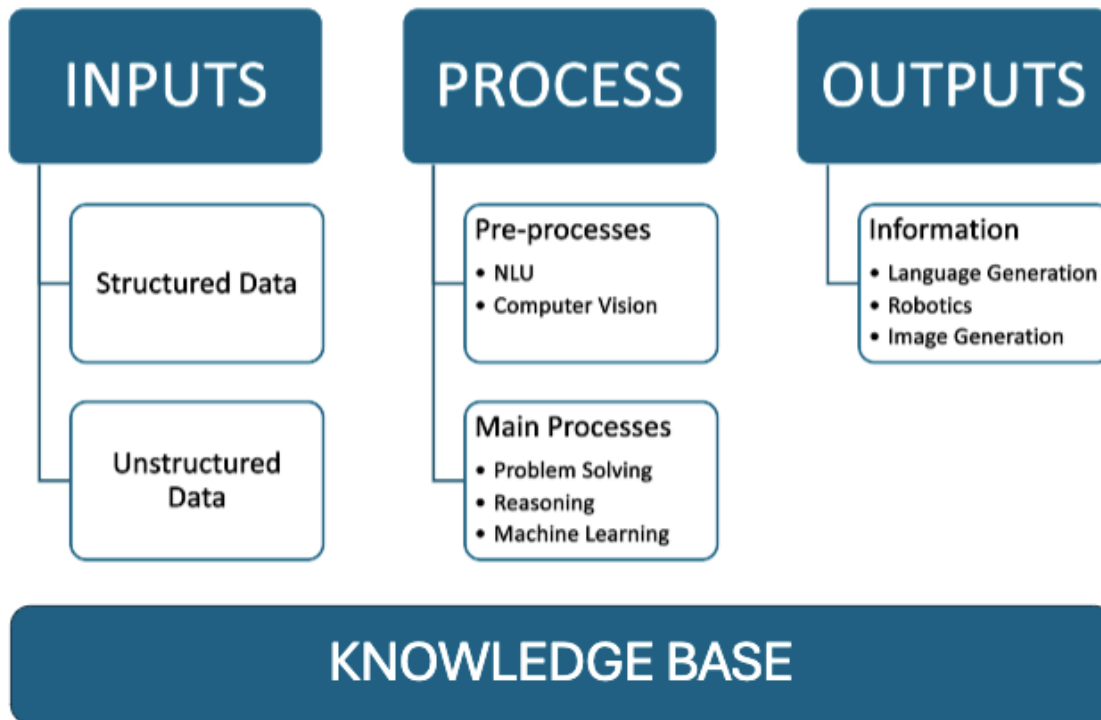


Figure 2. Building Blocks of AI (Paschen et al. 2019, 1412)

The first phase of CSR reporting identified in the Villiers et al. (2023, 101–105) framework is management information. Management information refers to data that provides valuable insights for decision-making in an organization and can be managed using information systems (Alawamleh et al. 2021, 1). Corporations deal with large amounts of data, and artificial intelligence has the capability to manage these large amounts of data efficiently. AI is especially skilful in managing structured data, and developments are making it increasingly capable of managing unstructured data, such as pictures, speech and conversations. (Paschen et al. 2020, 149.) As shown in Figure 2, AI can be used to manage two types of input data: structured and unstructured data. Structured data includes standardized numeric data sets such as transaction records, or customer demographics. In terms of CSR reporting, this can include data for example on, carbon emissions, energy consumption, and impact on the economy. Unstructured data, on the other hand, includes non-numeric data sets such as, text, speech, and images. (Kietzmann et al. 2018, 1.) In CSR reports this can include conversations with employees, qualitative surveys and images of corporate activities.

After inputting the raw data into the AI system, comes the processing stage. In the pre-processing stage unstructured data is turned into structured data that can be manipulated by the AI system. This includes cleaning, normalizing, extracting, transforming, and selecting the data. The result is useful data in a format that can be used to create useful and meaningful output. (Paschen et al. 2019, 1412.)

The two pre-processes identified in the AI system model (Figure 2) are natural language understanding and computer vision (Paschen et al. 2019, 1412). AI is more capable than humans when it comes to structuring and analysing large data sets and can be used to limit human bias (FRC, 2019, 2). The AI pre-processes automate timely and repetitive tasks usually completed by humans, and as a result, release corporate resources for more value-adding activities, such as strategy developing (Braharadiya 2023, 124; Paschen et al. 2019, 1412–1413). Additionally, the applications of AI in information management include for example, predictive analytics, anomaly analysis, and automated decision making. These implications of AI in management information help organizations to make more informed decisions and predict future events. (Ravichandran 2022, 168.)

Once pre-processes have turned data into a form that can be processed by the AI system, main processes apply logic to solve problems and learn from the data. Examples of main processes include problem solving, reasoning, and machine learning. Machine learning refers to the process in which the AI system learns from the data, and the two prior main processes, to become smarter and better equipped to create future output. The information is stored in the knowledge base and used in future processes. (Paschen et al. 2019, 1413.) One emerging trend in artificial intelligence tools is predictive analytics. Machine learning algorithms can identify trends and patterns in large amounts of historical data to make future predictions and recognize risks. (Braharadiya 2023, 123.) By recognizing trends and uncovering hidden patterns (Braharadiya 2023, 124) artificial intelligence can be used in CSR reporting to evaluate the impact of the corporations' activities. This information is valuable and can be used in decision-making (Braharadiya 2023, 124). Therefore, artificial intelligence and machine learning can be adapted for management information and decision-making by using it to make future predictions, optimize operations, and manage risk (Machireddy et al. 2023, 397; Ravichandran 2022, 168).

Finally, artificial intelligence systems create output (Paschen et al. 2019, 1412); that is information that can be used for CSR reporting. When it comes to report production, creating CSR reporting should be done in a way that is cost effective, time efficient, and minimizes risk and error. Due to its complex nature, reporting can be highly time consuming for corporations. AI can therefore be useful in the production phase of CSR reporting to efficiently record and process data and translate it into external communication. (FRC, 2019, 10.) This could mean for example, turning data into coherent text used in the reports (Paschen et al. 2019, 1416).

Natural language generation (NLG) is one of the outputs of AI systems identified in the model presented in Figure 2. Compared to financial reports, which include vast amounts of quantitative data,

the nature of CSR reports is more qualitative and narrative. This means that they express CSR topics largely in the form of text. (Villiers et al. 2023, 97.) The importance of valuable qualitative data is increasing, as quantitative financial data on its own is not sufficient in meeting the standards of the stakeholders. This is because quantitative data lacks nuances that can be expressed only through qualitative and narrative methods. Especially in the case of CSR reports, quantitative financial information is not enough to help stakeholders make conclusions about the CSR performance and value of the corporation. (Lewis & Young, 2019, 587.) AI tools can be used in CSR reporting to generate text based on given prompts, facts, and data (Villiers et al. 2023, 97–103). NLG is capable of creating content and reports from input data (Paschen et al. 2019, 1415) and therefore has implications for producing complete CSR reports.

Another output identified in the AI system building block model is image generation. It works by inputting an image description into the AI system, which is then used to create a complete image as output. (Paschan et al. 2019, 7.) Since CSR reports rely heavily on a multitude of informational data, both quantitative and qualitative, researchers have investigated the impact of these different aspects of the reports on the effectiveness of the corporation's CSR signal. Most corporations use visual elements in CSR reports as a key element of communication. Visual elements enhance readers recall of information, increase attractiveness of the report, and aid the readers' understanding of the reported information. Invernizzi et al. (2021) collected empirical evidence on the use of images and other visual elements in CSR reports and investigated the influence of these factors on the users' perceived hypocrisy and processing fluency. Their research concluded that use of images and visual elements can enhance trust and legitimacy. (Invernizzi et al. 2021, 983–986.) Therefore, AI can be used to create images that strengthen the signalling of the CSR report.

The building blocks of AI systems can also provide support for the assurance of CSR reporting. External assurance increases credibility of reporting and enhances CSR communication (Dias et al. 2019, 150). Report assurance helps corporations to make evaluated decisions with the support of data, and to examine the strengths and weaknesses of their CSR related topics. Many corporations seek external CSR report assurance to increase their credibility in the eyes of stakeholders. Assurance of CSR reporting differs from financial reporting due to the diversity of information in CSR reports. Because CSR reporting is largely controlled internally by corporations in terms of how and what to express, they have been suspect to scepticism on the reliability of CSR information.

Benefits of using AI in CSR reporting assurance include efficiency, accuracy and scalability. (Li et al. 2024, 83–85.) AI has the potential to limit greenwashing behaviour due to extensive data analysis

and increased transparency in reports, making greenwashing more difficult. This provides more accurate reports and decreases the possibility of misinformation or data manipulation. (Kaleem et al. 2024, 2–18). AI then provides managers with large amounts of accurate data, which can be used for more accurate decision-making and for managing sustainability related information (Villiers et al. 2023, 103). AI has already been used in financial auditing for data cleaning, data-analysis, recognizing discrepancies, and decision-making (Cho et al. 2020, 5) Artificial intelligence's capability to collect, manage, and monitor data, and then process, recognize trends, patterns, and discrepancies in that data, makes it a useful tool in CSR assurance (Li et al. 2024, 90).

The implications of artificial intelligence in CSR reporting reach beyond the management information, production and assurance phases of these reports and can additionally be adapted to enhance the use of the report (Villiers et al. 2023, 101–105). The third output presented in the model of AI systems is robotics, which refers to machines that physically alter and interact with their environment. Examples of robotics are intelligent conversation agent chatbots, such as ChatGPT, that engage in conversations with users. These tools are especially useful in handling tasks that would otherwise require humans to complete activities that are expensive, dangerous or simply impossible.

Chatbots can be used to answer questions and hold conversations. (Paschen et al. 2019, 1417.) This has implications for the use (Villiers et al. 2023, 101–105) of CSR reports from both external and internal stakeholder perspectives, as robotics can be used to increase CSR report engagement with stakeholders. Chatbots can be trained to answer questions based on information provided in the report and can therefore increase the efficiency of CSR report use by limiting the time spent looking for the required information. Chatbots are a useful tool for various stakeholder groups using CSR reports. These are for example investors making investment decisions, customers comparing corporations' responsibility activities, and managers making strategic decisions. (Boloş et al. 2024, 1252–1253.)

Table 1 compiles these finding of the use of artificial intelligence as a CSR tool in the different phases of CSR reporting. As can be seen from the table, artificial intelligence can serve as a tool in various activities related to the creation and use of CSR reports in corporations by external and internal stakeholders.

Management Information	Report Production
<p>AI can manage large amounts of structured and unstructured data efficiently (Paschen et al. 2020).</p> <p>AI can turn unstructured data into structured data to create useful and meaningful output. This includes cleaning, normalizing, extracting, transforming, and selecting the data. (Paschen et al. 2019, 1412.)</p> <p>AI can be used to limit human bias (FRC, 2019, 2).</p> <p>AI can automate timely and repetitive tasks and release corporate resources for more value-adding activities (Braharadiya 2023, 124).</p> <p>AI can be used for predictive analytics, anomaly analysis, and automated decision making (Ravichandran 2022, 168).</p> <p>AI can be used to make future predictions and manage risk (Machireddy et al. 2023, 397).</p>	<p>AI can translate data into external communication (FRC 2019, 10).</p> <p>AI tools can be used in CSR reporting to generate text based on given prompts, facts, and data (Villiers et al. 2023, 97–103).</p> <p>AI natural language generation (NLG) can be used to create complete reports from input data (Paschen et al. 2019, 1415).</p> <p>AI can be used to generate images based on a given description, strengthening the legitimacy of the report (Paschen et al. 2019, 7; Invernizzi et al. 2021, 983–986).</p>
Assurance	Use
<p>AI in CSR reporting assurance improves efficiency, accuracy and scalability (Li 2024, 83).</p> <p>AI limits greenwashing behaviour through extensive data analysis and increased transparency (Kaleem et al. 2024, 2).</p> <p>AI provides managers with large amounts of accurate data for more accurate decision-making and managing sustainability related information (Villiers et al. 2023, 103).</p> <p>AI's capability to recognize trends, patterns, and discrepancies in data, makes it a useful tool in CSR assurance (Li et al. 2024, 90).</p>	<p>AI-Chatbots can answer questions based on information provided in the report and can therefore increase the efficiency of CSR report use (Boloş et al. 2024, 1252–1253; Paschen et al. 2019).</p> <p>AI can enhance CSR report use for decision-making (Boloş et al. 2024, 1252–1253).</p>

Table 1. AI as a CSR reporting tool, using Villiers et al. (2023, 101–105) framework for non-financial reporting

### 3 Corporate Social Responsibility Reporting for SMEs

#### 3.1 Characteristics of Small and Medium Sized Enterprises

SMEs are mainly characterized by their small size, limited resources, simple organizational structure, close relationships with local communities, and by their drive to innovate and to grow into bigger markets. While large multinational corporations (MNCs) are often the centre of attention, SMEs form the largest group of corporations globally. According to the 2023/2024 European Commission Annual Report on European SMEs, small and medium sized enterprises make up 99,8% of all businesses in the non-financial sector in the EU and are central contributors to the European economy. In 2023 25,8 million SMEs employed 88,7 million workers within the EU and contributed largely to the employment level in the union. (European Commission 2024, 1–6.)

A defining characteristic of SMEs is their size. As the European Commission states, SMEs include firms that have less than 250 employees and have either a turnover of less or equal to 50 million euros, or a balance sheet total equal or less than 43 million euros (Official Journal of the European Union 2003 39–41). Out of the 25,8 million SMEs within the EU, 94% are micro enterprises with less than 10 employees (European Commission 2024, 1–6). Their small size has many benefits and disadvantages for SMEs.

Regardless of the size of the corporation, there is a limited number of resources available for corporate activities. Due to their small size, SMEs are characterized by more limited resources, compared to large firms (Gamage et al. 2020, 2). Their limited resource capabilities propose challenges for SMEs attempting to grow and to innovate. The digital transformation (DT) is an example of a case in which SMEs are faced with higher barriers to development. Due to their small size, limited resources, and lack of sufficient knowledge and capabilities, adapting new technologies takes SMEs more time. (Zhang 2022, 1–2.)

SMEs have simple organizational structures, where all levels of the organization work in close proximity to each other, and therefore experience less bureaucracy. A common SME organizational structure includes three levels: the owner, managers, and employees. (Wee & Chua 2013, 958–963.) In SMEs CEOs are often the founders or owners of the enterprise (Adomako & Ahsan 2022, 124) and therefore have a close relationship with decision-making within the enterprise. According to research, owner CEOs are more likely to make decisions with the corporation's long-term objectives in mind. Owner CEOs also experience less conflict and have greater legitimacy to contribute to strategic decision making, such as innovation. (Chittoor et al. 2019, 60–62.)



SMEs often have close relationships with their local communities. There is evidence supporting that small and medium sized enterprises are involved in more philanthropic activities compared to large corporations. Research on Australian SMEs revealed three motives for SME involvement with non-profits. These were, an expectation to give back, perceived benefit of philanthropy to the business, and personal interests towards philanthropic causes. The research also found an emphasis on local philanthropy among SMEs. Smaller businesses felt greater responsibility to give back and support their local communities. They expressed their responsibility as local actors to behave as good corporate citizens and to help in ways that they could. There was also an expectation that SMEs would be asked to participate in local communities. (Madden & Scaife 2006, 49–52.) This contrasted with the view of larger corporations, who according to research do not participate in philanthropic activities due to reasons including a lack of human and financial resources (Hsieh 2004, 76–77) and because they have not been requested to do so by non-profits (Walker 2002, 219–223).

Passion for innovation and development positively impacts SME performance and similarly increases employee commitment within the SMEs (Adomako & Ahsan 2022, 130). SMEs are motivated to innovate when there are favourable demand conditions present. In comparison to larger firms, which have a more diverse incoming flow of profit and therefore do not have to rely as heavily on the demand conditions of the specific innovation, SMEs innovation decisions are made closely in relation to the demand within the market. Another deciding factor of SME innovation strategies is price competition. Compared to larger firms, which compete more with non-price related attributes, price competition puts pressure on SMEs to innovate and stay competitive. (Arvanitis 1997, 485–487.)

Even though SMEs are the backbone of world economies (Wee & Chua 2013, 958), they are vulnerable to changes and developments in global markets. The global challenges facing SMEs identified by Gamage et al (2020, 1) are: market competition, economic crises, information communication technology (ICT), emerging multinational corporations, changes in consumer preferences, trade wars, dumping, religious conflicts, and international terrorism. According to empirical evidence, characteristics of successful SMEs include: strategic planning, skilful management, high level of innovation, strong partnerships, good resources, and adequate financing (Rodrigues, 2021, 9–10).

### **3.2 Implications of CSR Reporting for SMEs**

Corporate social responsibility has become a competitive asset for corporations globally. CSR activities positively impact corporate image, corporate reputation, and customer loyalty, which in interaction enhance overall corporate performance (Le 2023, 4581–4582; Sigurdsson, 2024, 597–

613). SMEs are vulnerable entities challenged by competition against larger corporations and changing consumer preferences and demands (Gamage et al. 2020, 1). Right now, increasing concern for CSR among consumers, and other stakeholders, is being followed by demands for adequate CSR reporting globally. Corporations are expected by stakeholders to provide evidence to support their CSR claims in the form of reporting, and managers in many SMEs acknowledge the benefits of CSR reporting for business development. (Lisi et al. 2023 604–609.)

The key benefit of CSR reporting is effective communication of CSR activities to stakeholders, in order to gain competitive advantage. While SMEs may be greatly involved in CSR activities (Madden & Scaife 2006, 49–52), they need to also make sure that this information is communicated to the firm's stakeholders, such as consumers and investors. The signalling theory (Spence 1973) can be adapted here, as it is in the best interest of the SMEs to eliminate information asymmetry by communicating of CSR issues in the form of CSR reporting. SMEs that successfully signal and communicate of their CSR impact can gain a competitive advantage, and are more likely to stay competitive, as opposed to SMEs that do not communicate of their CSR (Sigurdsson 2024, 611–61).

Providing CSR reporting has positive implications for an SMEs corporate image and public reputation in the eyes of stakeholders (Le 2023, 4581–4582; Sigurdsson 2024, 597–613). As proposed by the framework presented by Hetze (2016, 288) the CSR signal is only effective, if it is perceived as credible by the stakeholders. Effective CSR reporting presents the company as responsible to consumers, and through that, increases customer loyalty (Le 2023, 4581–4582). Since SMEs are expected to contribute positively to their local communities (Madden & Scaife 2006, 49–52), reporting of these activities may enhance the positive perception of the SMEs within local contexts. Reporting on CSR issues builds trust between the SME and customers (Ikram et al. 2019, 43) and can also serve as a tool for attracting new customers (Sigurdsson 2024, 611), which in turn contributes to the growth of the SME.

In addition to reputational issues, CSR reporting firms may also gain access to better partnerships and financing. When it comes to seeking financial investors, investing in companies that do not perform CSR reporting is considered more high risk. In the eyes of possible business partners, a lack of reporting may become an issue when considering cooperation with companies that are by legal standards required to report of CSR activities. (Bielawska 2022, 2.) An SME's lack of reporting can be problematic when it is part of a larger reporting corporation's supply chain, and pressure is applied to provide information on CSR related issues (Morsing & Spence 2019, 1939–1942).

Additionally, CSR reporting firms that communicate of sustainability actions may be qualified for so-called “green loans”. In accordance with the European Banking Authority guidelines, corporations providing CSR reporting on sustainable matters can be identified as so-called “green sectors” and through that be granted more affordable financing (European Banking Authority 2020, 26–27; Bielawska 2022, 11), which is highly beneficial for SMEs that need funding for development.

Through these different implications of CSR reporting for SMEs, CSR reporting positively contributes to SME corporate performance (Le 2023, 4581–4582). Participating in CSR, and communicating of it efficiently, has been positively linked to financial performance (Cho et al. 2019, 19–20; Oncioiu et al. 2020, 8–9). The financial benefit gained from CSR disclosures has been shown to be greater for smaller firms with fewer employees, as opposed to large corporations (Ting 2021, 7), highlighting the significance of effective CSR reporting for SMEs.

### **3.3 Challenges of Creating CSR Reporting from the Perspective of SMEs**

Even though managers in SMEs acknowledge the demand and benefits of CSR reporting, they often lack sufficient knowledge, capabilities and finances to create comprehensive CSR reporting (Sigurdsson 2024, 613). A systematic literature review on 37 papers on CSR reporting, compiled by SMEs between the years of 2012 and 2023, identifies six distinguished barriers faced by SMEs attempting to compile CSR reporting. These are financial restrictions, general attitude towards CSR reporting, knowledge gaps, technology obstacles, organizational barriers, and overwhelming policies and regulations (Setyaningsih et al. 2024, 8–13). This section outlines the challenges faced by SMEs at each phase of CSR reporting identified in the framework by Villiers et al. (2023, 97).

When it comes to management information (Villiers et al. 2023, 101–105), knowledge gaps enabling negative attitudes towards CSR activities hinder CSR reporting initiatives in SMEs. Even though most managers acknowledge the importance of CSR (Sigurdsson 2024, 613), managers’ general attitudes towards the benefits of compiling reporting might hinder the corporation's commitment to this activity.

A study conducted in Romania explored the influence of owner-managers attitudes towards CSR on the social involvement of the SME. The results revealed that the owner-managers attitudes towards CSR activities influence their decisions regarding participation in CSR activities. (Saveanu et al. 2021, 15.) Another study conducted in South Africa revealed that managerial attitudes towards CSR reporting, as well as organizational doubts about the effectiveness of such reports, challenge the production of effective CSR reports (McNally et al. 2017, 488). Attitude factors have direct influence

on whether an SME will optimize its resources for CSR reporting, and therefore, undermining attitudes towards CSR in corporations hinder the production and use of CSR reports.

Negative attitudes towards CSR reporting can be explained through knowledge gaps in SMEs. It is possible that the managers of SMEs are not knowledgeable of the benefits gained through the creation of effective CSR reporting (Setyaningsih et al. 2024, 8–13) and therefore won't prioritise it. One of the main challenges experienced by SMEs regarding participation in CSR activities, such as CSR reporting, is the lack of knowledge and information about CSR related issues (Dixit & Priya 2021, 2446–2449). Owner-managers knowledge on CSR is often limited, informal and random (Saveanu et al. 2021, 15). For example, difficulty in identifying impactful stakeholders who to provide information for is a challenge for many SMEs (Dixit & Priya 2023, 2444). Therefore, SME managers' CSR knowledge is not sufficient for providing CSR disclosures in the form of CSR reports (Appiah-Kubi 2024, 6).

SMEs limited resources challenge the process of CSR reporting (Krawczyk 2021, 8). Additionally, to knowledge capital limitations, financial constraints propose a challenge for SMEs compiling CSR reporting. Compared to large corporations, SMEs have more limited financial capital, and therefore less financial resources to invest in CSR reporting. (Sigurdsson 2024, 613; Krawczyk 2021, 8.) Simultaneously SMEs have limited resources in terms of time to invest in innovative reporting (Setyaningsih et al. 2024, 8–13). Financial, resource and time constraints are directly linked to the production phase of CRS reporting presented in the framework (Villiers et al. 2023, 97).

On top of limitations in financial and knowledge-based capital, technological barriers challenge SME participation in CSR reporting. SMEs lack of technological capital, know-how, and training, make adapting innovative technologies challenging. Technological development eliminates barriers to growth, because it increases efficiency and allows for increased use of corporate resources for productivity. (Prasanna et al. 2019, 3-4.) However, adapting new technologies takes SMEs more time, as opposed to large corporations (Zhang 2022, 1–2).

As of right now, policies and regulations regarding CSR reporting are largely focused on large corporations and lack emphasis on the perspective of SMEs (Hahnkamper-Vandenbulcke 2021, 1–3). Due to this, challenges faced by SMEs are greatly overlooked, because they are not yet obligated by regulation to report on CSR (Setyaningsih et al. 2024, 5). As a result of this, SMEs face less pressure from governmental institutions to invest in CSR reporting (Dixit & Priya 2023, 2447). SMEs are not simply smaller versions of large corporations, but are vastly different in a multitude of ways, and therefore commit CSR activities that are not directly comparable to those of large corporations

(Oduro et al. 2021, 209). As frameworks designed for large corporations are not as effectively used in the context of SMEs, there is a need for a simplified approach to CSR reporting for the SME perspective (Kassem & Trenz, 2020, 1–2). The limited availability of SME reporting infrastructure and support (Dixit & Priya 2023, 2447) leads to less standardized reporting, which challenges the comparing of respective reports (Wang et al. 2020, 2-3) and creates barriers for CSR assurance on report credibility.

There is growing demand for external assurance of CSR reports. Ortiz-Martínez & Marín-Hernández (2021) found that only a quarter (24.2%) of studied European SMEs sought external assurance on their CSR reports. The study explained this phenomenon to be the result of voluntary CSR reporting. As reporting is not mandatory, SMEs do not take the extra step to have their reports externally assured. (Ortiz-Martínez & Marín-Hernández 2021, 117–121.) CSR reports include descriptions, opinions, and facts, that are harder to measure and therefore more difficult to assure (Krawczyk 2021, 2).

Effective use of the compiled CSR report becomes challenging for SMEs when managers don't know what to do with the gathered information (Dixit & Priya 2021, 2446–2449). Firm size has been positively linked to structured CSR management, and to the existence of a formal CSR department in a corporation. Large organization often have a person, or a department specifically dedicated to CSR issues. (Perera-Aldama et al. 2009, 514.) Compared to SMEs, large corporations have more knowledge of tools for CSR management and apply these tools more efficiently to support CSR activities and decision-making (Hörisch 2015, 773–774). Since a significant number of SMEs fall into the category of micro enterprises (European Commission 2024, 1–6) with a highly limited number of employees, limiting organizational factors challenge the use of CSR reports in decision-making and evaluation of CSR activities (Setyaningsih et al. 2024, 8–13).

As can be concluded from a view of existing literature on the topic of SME challenges in CSR reporting, SMEs face challenges at each phase of CSR reporting (Villiers et al. 2023, 101–105). These findings are summarized in Table 2.

Management Information	Report Production
<p>Managers' general attitudes towards the benefits of compiling reporting might hinder the corporation's commitment to CSR reporting (Saveanu et al. 2021, 15; McNally et al. 2017, 488).</p> <p>Managers' lack of information and knowledge on CSR related issues challenge CSR reporting in SMEs (Dixit &amp; Priya, 2021; Setyaningsih et al. 2024, 8–13; Saveanu et al. 2021, 15; Appiah-Kubi 2024, 6).</p> <p>SMEs have trouble identifying impactful stakeholders who to provide information for (Dixit &amp; Priya 2023, 2444).</p>	<p>Disregard towards CSR activities by managers leads to challenges in the creation of effective CSR reports (Saveanu et al. 2021, 15; McNally et al. 2017, 488).</p> <p>SMEs limited resources, such as time and finances, challenge the process of CSR reporting (Krawczyk 2021, 8; Sigurdsson 2024, 613).</p> <p>SMEs lack of technological capital, know-how, and training make adapting innovative technologies challenging (Pasaranna et al. 2019, 4).</p> <p>CSR frameworks are not as effectively used in the context of SMEs (Kassem &amp; Trenz, 2020, 1–2).</p>
Assurance	Use
<p>Limited availability of SME reporting infrastructure and support (Dixit &amp; Priya 2023, 2447)</p> <p>Only a quarter of European SMEs seek external assurance (Ortiz-Martínez &amp; Marín-Hernández 2021, 117–121).</p> <p>CSR reports include descriptions, opinions, and facts, that are harder to measure and therefore more difficult to assure (Krawczyk 2021, 2).</p>	<p>Managers don't know what to do with the gathered CSR information (Dixit &amp; Priya 2021, 2446–2449).</p> <p>Lack of knowledge and application of CSR tools (Hörisch 2015, 773–774).</p> <p>Limiting organizational factors hinder CSR report use in decision-making and evaluation of CSR activities (Setyaningsih et al. 2024, 8–13).</p> <p>SMEs are less likely to have designated CSR departments, that focus on CSR activities (Perera-Aldama et al. 2009, 514).</p>

Table 2. Challenges faced by SMEs in CSR reporting, using Villiers et al. (2023, 101–105) framework for non-financial reporting

### 3.4 Tools of CSR Reporting for SMEs

Universal standards and models created for CSR reporting serve as tools for SMEs when it comes to creating CSR reporting. Reporting standards such as the Global Reporting Initiative (GRI), the EU's European Sustainability Reporting Standards (ESRS), and the UN's sustainable development goals (SDGs) provide the backbone for SMEs to create standardized reporting. Their goal is to provide guidance for how, and what information corporations should include in their CSR reports. (Olanipekun et al. 2024, 426.) These standards, with the exception of the ESRS (European Commission: Corporate sustainability reporting), are not obligated, but rather offered as possible

tools for corporations to create CSR reports in an efficient manner, and to increase the public trust of the report (Krawzyk 2021, 7).

As most mandatory reporting regulation has focused on large corporations (Hahnkamper-Vandenbulcke 2021, 1–3), there are limits to how the guiding CSR reporting frameworks can be adapted to SME use. Krawzyk (2021, 8) investigated the use of ten CSR reporting standardization options in an SME context and found that only five of the ten standards could be adapted to SME use. There has been a growing demand for simplified CSR reporting standards adapted for SMEs (Kassem & Trenz, 2020, 1–2), as SMEs struggle to evaluate CSR information through frameworks that are challenging to apply (Setyaningsih et al. 2024, 9–12). Reporting guidelines tailored to SME use are an enabling tool for SMEs to create CSR reporting. Frameworks identified in literature for SME use include materiality analysis, strengths–weaknesses–opportunities–threats analysis (SWOT), sustainability dashboards, best-worst method, process-based operational framework, and an automated sustainability reporting system for SMEs. (Lisi et al. 2023, 606–607.)

CSR reporting tools for SMEs attempt to simplify and automate the reporting process. Kassem & Trenz (2020) formulated a CSR reporting model specifically for use in the SME context. Their model combines aspects of the most widely used frameworks, such as the GRI, but eliminates all elements irrelevant to SMEs. In their model, data is collected using a data extraction model, which automates the process of acquiring the needed information from public sources, and a weighted calculation of KPIs is used to measure the level of the corporation’s sustainability. (Kassem & Trenz 2020, 18.)

Information technologies can be adapted in SMEs for reporting. Pineyrua et al. (2021) used Microsoft Excel, and the sustainability balance score board, to design a CSR tool for SMEs that connects financial and non-financial information in analysis, and therefore integrates the CSR themes to SME strategy. Their design incorporates this information technology software to management information (Villiers et al. 2023, 101–105) used for CSR reporting, to evaluate decision-making with integrated perspectives. (Pineyrua et al. 2021, 5–13.)

In addition to traditional forms of CSR reports, published as annual reports, (Oyindamola & Tsietsi 2021, 322–324) SMEs have incorporated other outlets of communication used as signalling tools to spread CSR information. Oyindamola & Tsietsi (2021) investigated the most popular channels used by reputable corporations for CSR communication. These were: websites, press releases, reports, and print media. (Oyindamola & Tsietsi 2021, 322–324).

With the emergence of corporations' online presence, and leveraging of digital platforms (Maqsood et al. 2023, 120), SMEs have incorporated websites as formal channels for CSR communication. SMEs' use of websites as CSR communication tools have however been shown to lack structure, information, and attention to visual outlook, which can all be connected to SMEs lack of resources. (Baniya & Thaba 2021, 322–324.) Previously, SMEs' lack of resources challenged the adaptation of new technologies. Now, with the transformation of digital platforms, and with reduced costs of technology, SMEs can better leverage digital platforms and information technology for CSR communication. (Stankovska et al. 2016, 218.)



## **4 The use of Artificial Intelligence for CSR Reporting by SMEs**

### **4.1 Possibilities of Artificial Intelligence**

As identified in section 2.4, artificial intelligence can be used as a tool in CSR reporting. AI can be used in a multitude of ways in the four phases of CSR reporting: management information, report production, assurance, and use (Villiers et al. 2023, 101–105). Similarly, using the Villiers et al. (2023, 101–105) framework for research on the use of AI for non-financial reporting, section 3.3 identified the challenges faced by SMEs when it comes to delivering and utilizing effective CSR reporting, connecting the challenges to the four phases of the framework. These findings can be brought together to answer the main research question of the thesis, and to explore how artificial intelligence can serve as a tool for SMEs creating CSR reporting and further aid them in overcoming the challenges of CSR reporting.

According to the findings, based on existing literature, one of the significant possibilities of AI adaptation in CSR reporting, from the perspective of SMEs, is its capability to manage large amounts of data efficiently (Paschen et al. 2020, 149). Since SMEs struggle with CSR related knowledge gaps (Saveanu et al. 2021, 15), financial limitations (Krawczyk 2021, 8), and lack of time (Setyaningsih et al. 2024, 8–13), artificial intelligence can be used to collect, structure, and analyse corporate data (FRC, 2019, 2), automate repetitive tasks (Braharadiya 2023, 124; Paschen et al. 2019, 1412–1413), and make evaluated decisions (Ravichandran 2022, 168). Artificial intelligence can add on to the information technology tools already used in SME CSR reporting, such as those developed by Kassem & Trenz (2020, 8) and Pineyrua et al. (2021, 5–13), and further develop the management of CSR information in an SME. Artificial intelligence can therefore serve SMEs as an efficiency enhancing tool in CSR reporting, by allowing for scarce resources to be used for more value adding tasks (Braharadiya 2023, 124; Paschen et al. 2019, 1412–1413).

AI can be used by SMEs in the CSR report production phase (Villiers et al. 2023, 101–105). Especially due to SMEs' limited resources (Krawczyk 2021, 8; Setyaningsih et al. 2024, 8–13), CSR report production should be cost and time efficient, and minimizing the possibility of error (FRC, 2019, 10). As artificial intelligence can be used to process data and generate text and images for CSR reports (FRC, 2019, 10; Villiers et al. 2023, 97–103; Paschen et al. 2019, 1415), the possibilities of AI, as a tool for CSR reporting in SMEs, extend all the way to the production of complete CSR reports.

When it comes to the assurance of the CSR report (Villiers et al. 2023, 101–105), many SMEs do not seek external report assurance (Ortiz-Martínez & Marín-Hernández 2021, 117–121). AI can serve SMEs as an internal audit system for checking CSR information published in the report. AI uses real data collected from various sources to produce output, increase transparency, and to decrease the possibility of misinformation (Li et al. 2024, 90; Kaleem et al. 2024, 2–18). It therefore has the possibility to enhance the accuracy and credibility of CSR reporting in SMEs (Li et al. 2024, 83–85; Kaleem et al. 2024, 2–18).

Finally, AI tools can be used to enhance SMEs' capability to use the report for strategic decision-making, as well as to increase stakeholders' engagement with the report. One of the challenges faced by SME managers, outlined previously, is their lack of knowledge on the benefits of CSR reporting (Setyaningsih et al. 2024, 8–13), as well as their insufficient knowledge on CSR related issues (Appiah-Kubi 2024, 6). The adaptation of AI in predictive analytics, anomaly analysis, and automated decision making, can help management to make more informed decisions, predict future events, and assess their CSR behaviour. (Ravichandran 2022, 168.)

Additionally, AI-powered chatbots, which can be used to answer questions and hold conversations (Paschen et al. 2019, 1417), can be used to inform SME managers of CSR information. SME managers can use AI-powered chatbots to efficiently look for information presented in the reports compiled by AI, enhancing analysis of CSR information, and enabling data-based decision-making. Additionally, to solving the knowledge gap problem, chatbots can provide support for the limited time resources of an SME, by accelerating CSR related processes. (Boloş et al. 2024, 1252.) SME managers' increased knowledge of CSR may change their negative attitudes towards CSR to more positive and therefore increase CSR engagement within the corporation (Saveanu et al. 2021, 15; McNally et al. 2017, 488).

When it comes to serving external stakeholders, such as investors, customers, and governments (Freeman 2010, 52; Journeault et al. 2021, 3; Slabá 2016, 128), artificial intelligence and chatbots can be used by SMEs to increase CSR report engagement. Similarly to engagement with SME managers, chatbots can provide external CSR report consumers with improved delivery of required information (Paschen et al. 2019, 1417; Boloş et al. 2024, 1252–1253). Since SMEs have close relationships with their local communities (Madden & Scaife 2006, 49–52), and as stated by (Bowen 2013, 1-6.), have the responsibility to act in a socially responsible manner due to pressure put on by stakeholders (Lisi et al. 2023, 604-609), AI assisted engagement with stakeholders improves SME

CSR reputation (Le 2023, 4581–4582; Sigurdsson 2024, 597–613), and strengthens the positive perception of the CSR signal (Hetze 2016, 291–292).

Based on the information gathered from academic literature, and with reference to theoretical background. It can be concluded that AI can be utilized as a powerful CSR reporting tool by SMEs to manage data, generate reports, enhance accuracy and credibility, aid decision making, and increase stakeholder engagement.

## **4.2 Limitations of Artificial Intelligence**

While artificial intelligence can be utilized as a valuable strategic asset by SMEs in business context (Sestino & De Mauro 2022, 22), it can also be subject to challenges and limitations regarding its use and adaptation (Kiradoo 2023, 206–216). Limits of adapting AI use in CSR reporting by SMEs include practical challenges, as well as ethical dilemmas related to its use.

Firstly, implementation of AI systems for CSR reporting can be costly (Kiradoo 2023, 213; Oldemeyer et al. 2024, 12). This creates a barrier for SMEs wanting to implement AI systems for CSR reporting, as SMEs often have limited financial resources (Sigurdsson 2024, 613). However, the decreasing costs of computer hardware and AI designs, are making artificial intelligence more affordable, and therefore, more accessible to SMEs with financial limitations (Collins et al. 2021, 1).

On top of limitations in financial and knowledge-based capital, technological barriers challenge SME participation in CSR reporting. As stated earlier, SMEs experience technological challenges when it comes to implementing innovative technologies (Prasanna et al. 2019, 3-4). SMEs lack of technological capital, know-how, and training, make adapting innovative technologies challenging. Implementing new technologies is a longer process for SMEs, as opposed to large corporations (Zhang 2022, 1–2). This creates a barrier for AI implementation in SMEs. Technological development eliminates barriers to growth, because it increases efficiency and allows for increased use of corporate resources for productivity. (Prasanna et al. 2019, 3-4.) Other AI implementation challenges faced by SMEs include lack of AI related knowledge and skill, limited data availability, and management hesitation (Oldemeyer et al. 2024, 12–18).

Artificial intelligence uses large amounts of data to create valuable output (Paschen et al. 2020). Even though artificial intelligence can be used to limit human bias (FRC, 2019, 2), by producing output based on extensive data processing (Paschen et al. 2019, 1412), this raw data may be subject to societal bias, leading up to biased information facilitated by the AI system (Kiradoo 2023, 212). There is concern that the use of artificial intelligence in CSR reporting leads to the facilitation of

greenwashing by SMEs. However, regulatory frameworks encouraging AI use to improve CSR performance, as well as effective regulation on the use of artificial intelligence, can be developed to ensure responsible adaptation of artificial intelligence in business (Zhang 2024, 8–9). As of currently, legal regulation and guidelines regarding the utilization of artificial intelligence in business contexts is scarce. Regulation of AI disclosures is needed to mitigate the risks arising from the use of artificial intelligence by corporations in processes such as CSR reporting. (Bonsón & Bednárová, 2022.)

The use of artificial intelligence for data management proposes issues relating to data privacy and ownership. Issues of data ownership come about when identifying the owner of the data used and created by AI becomes challenging (Ali et al. 2021, 158). Simultaneously, the large amount of data collected by the AI system are vulnerable to cyber-attacks, leakage, or misuse, which cause concerns for data privacy issues (Kiradoo 2023, 213). These issues could be further resolved through AI regulation (Zhang 2024, 8–9).

## 5 Conclusion

The aim of this thesis was to explore the use of artificial intelligence as a tool for CSR reporting from the perspective of SMEs. The main research question of the thesis was as follows: *How can artificial intelligence (AI) serve as a tool for SMEs creating CSR reporting?* Increasing attention on CSR, the pressure from stakeholders to provide efficient reporting, and developing regulation obligating standardized reporting, are pushing SMEs to adapt to new reporting standards. Simultaneously, the benefits of CSR reporting, in terms of corporate performance and reputation, cannot go overlooked. The theoretical literature of CSR, such as Bowen's Responsibilities of the Businessman, Porter and Kramer's idea of creating shared value, as well as the theories supporting CSR reporting, such as the signalling theory, stakeholder perception theory, and Hetze's conceptual framework combining the two theories, explain the importance of providing sufficient CSR reporting.

This thesis explored the importance of providing effective CSR reporting, the implications of such reporting on SMEs, the challenges faced by SMEs in CSR reporting, and finally discussed the adaptation of artificial intelligence as a tool for CSR reporting in SMEs. By a thorough look into academic literature and research, this thesis finds CSR reporting to be an important asset for corporations, to respond to stakeholder demands and adapt to evolving reporting regulation. CSR reporting by SMEs positively influences corporate reputation, enhances communication with stakeholders, increases customer loyalty, and contributes to corporate performance. SMEs face challenges in compiling, assuring and using CSR reports due to knowledge gaps, limited resources, technological obstacles, organizational barriers, lack of support and overwhelming policies and regulations.

This thesis answers the main research question and concludes that artificial intelligence can be used by SMEs as a CSR reporting tool in data management, production of reports, enhancing of accuracy and credibility, use of the report for decision-making, as well as in increasing stakeholder engagement.

This thesis contributes to existing literature on CSR reporting, and on the use of artificial intelligence as a strategic business tool in report production. Previous research has explored the use of AI in management, information production, data driven decision-making, process automation, and stakeholder involvement (Sestino & Mauro 2022, 22). The implications of artificial intelligence have been explored in the context of accounting and financial reporting, and has been found to automate tasks, enhance accuracy, and aid decision making (Sreseli 2023, 73–74). Villiers et al. (2023, 101–

105) explored the use of artificial intelligence, specifically text generation and processing, in CSR reporting, and created a conceptual framework identifying the four phases of CSR reporting: management information, report production, assurance, and use, in which AI systems can be implemented. This thesis contributes to this research by using the Villiers et al. (2023, 101–105) framework to explore the use of AI for CSR reporting from an SME perspective.

No existing research that combines AI, CSR reporting, and the SME perspectives was found at the time this thesis has been written. The rapid development of artificial intelligence, and its implications for use in corporate contexts, provide ground for research on its adaptation as a CSR tool, that can aid SMEs to face the challenges associated with compiling and using CSR reports. Research on this topic is important, because it helps SMEs to maximise value creation through effective CSR reporting.

The managerial and practical implications of this thesis support AI adaptation in CSR reporting practises in SMEs. Managers in SMEs should implement artificial intelligence tools to provide more effective, efficient and accurate CSR reporting. This thesis outlines concrete use of artificial intelligence at different phases of the CSR reporting process, providing SMEs and managers with practical guidance on the use of artificial intelligence in the context of CSR reporting.

There are a few limitations to this thesis. Artificial intelligence, including its risks and opportunities, are still vastly argued and research on this rapidly developing field is still relatively scarce. While literature on the use of artificial intelligence in business contexts exists, only few studies have examined the use of artificial intelligence specifically in the context of CSR reporting. As SMEs have more recently been required to report, and the first reports under CSRD following the ESRS are to be published in 2025, the challenges associated with SMEs and the new regulations are still largely unknown. Future research should focus on the intersection of artificial intelligence and CSR reporting, as well as on the challenges associated with the new developments in regulation. Research on the ways in which SMEs can provide more efficient CSR reporting is needed, to fulfil the demands of the stakeholders, and to fully leverage the benefits created by CSR reporting.

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