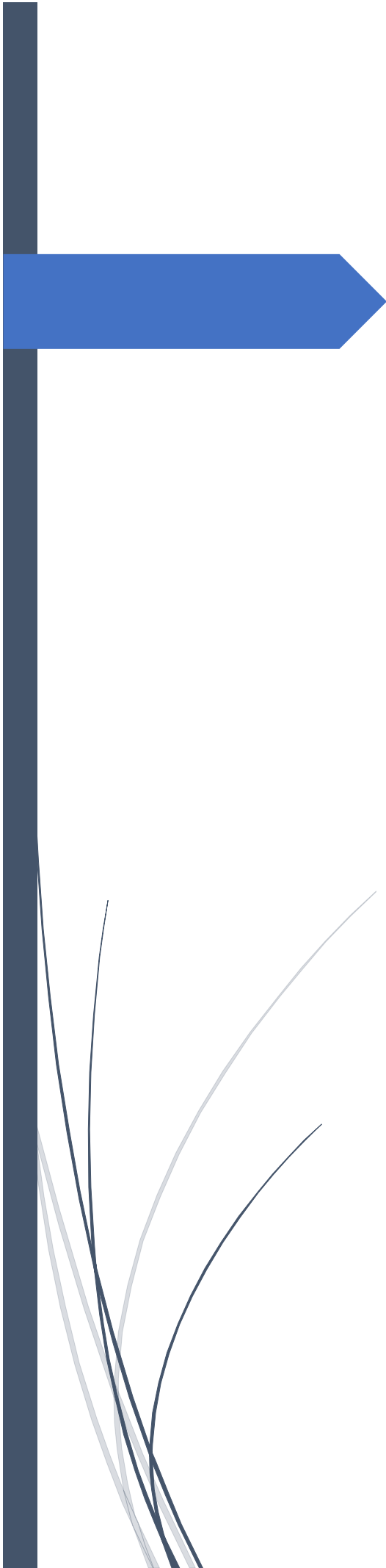




THESIS

BUDAPEST UNIVERSITY OF ECONOMICS AND BUSINESS
FACULTY OF INTERNATIONAL MANAGEMENT AND BUSINESS
INTERNATIONAL BUSINESS ECONOMICS
FULL-TIME TRAINING
INTERNATIONAL BUSINESS DEVELOPMENT

THE CONCEPTION, DEVELOPMENT, AND APPLICATION OF
ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) REPORTING
THROUGH THE LENS OF A MULTINATIONAL CORPORATION.

Special thanks to Andrea for the immense help.

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1. INTRODUCTION

1.1 Thesis Structure

In my thesis, I will explore the creation, evolution, and application of “Environmental, Social, and Governance” (ESG) reporting from the perspective of “International Business Machines” (IBM). I will elaborate on the development of ESG frameworks and their function, and the gradual implementation of these by IBM. I will explain the practical implementation of ESG frameworks and standards and the necessary steps to create an ESG report. Then, I will analyze IBM’s reports from the last decade according to different criteria, e.g., climate change and carbon emission, supply chain, biodiversity and conservation, and social and diversity aspects. I will conclude with assumptions on foreseeable changes in ESG disclosures due to the ever-transforming regulatory environment. In the first part of my thesis, in the literature review, I will rely on secondary data. Later in the report analysis, I will scrutinize public company reports as primary data, and I will conduct qualitative research based on data and report analysis from IBM. I will look forward to answering the following questions: How well do IBM's ESG reports align with evolving sustainability frameworks and standards? To what extent does compliance with different ESG reporting frameworks impact the disclosed metrics regarding the aforementioned criteria and the scope of the reports? How will the development of future ESG frameworks and standards, as well as the political and economic impacts, shape the reports in the coming years?

1.2 Topics Overview

1.2.1 Issues of Today

Sustainability and “Environmental, Social, and Governance” (ESG) reporting have become hot topics in contemporary corporate discourse with the development of reporting frameworks and regulations. IBM, as a forerunner of ESG disclosures, has been at the forefront of the progress since its outset. However, the matters disclosed in ESG reports affect all of us, not just multinational corporations. Climate change, the depletion of natural resources, deforestation, loss of biodiversity, and water contamination -just to name a few- are undeniably evident issues affecting all of humanity. If these problems are not addressed and dealt with in time with proper competence and effectiveness, the consequences could be disastrous. According to recent research done by the Stockholm Resilience Center (*Planetary Boundaries*, 2023) and a paper published in the journal *Nature* (Richardson et al., 2023) humanity has already transgressed six of the nine “planetary boundaries,” leaving the safe

operating space earth provided us with and expediting the collapse of the present-day biosphere. The nine boundaries include climate change, novel entities (such as microplastics), stratospheric ozone depletion, atmospheric aerosol loading, ocean acidification, modification of biogeochemical flows, freshwater change, land system change, and biosphere integrity. In certain areas, such as biosphere integrity, novel entities, and biochemical flows, the harm done is irreversible. The extinction rate of species is massively accelerated, and the avowed saying that “soon there will be more plastic in the oceans than fish” has never been more accurate. The intervention in and disruption of natural cycles crucial for ecosystems, including water, soil, and air, also cause irrecoverable damage. And so far, I have only discussed the harm inflicted on our environment and not yet mentioned the Social and Governance aspects. Ongoing wars, immigration, declining birth rates, poverty... one could go on for hours listing the issues we face. If we look for who is truly responsible for the damages caused, the mainstream tries to portray us, everyday people, as accountable. This attempt by the media is part of a well-thought-out strategy by corporations to shift the blame onto the people contributing to the firms' guiltless image. The notion of corporate sustainability is controversial and presents a range of complicit issues. Auden Schendler, who has twenty-five years of experience in the field of corporate sustainability, argues in his piece written for Stanford Social Innovation Review (*The Complicity of Corporate Sustainability (SSIR)*, 2021) that corporate responsibility is only a well-crafted distraction aimed at shifting blame from the true culprits to the users. The problem with this concept is complex and multilateral, and there is no identifiable originator or wrongdoer to trace it back to. The bottom line is that corporations must prioritize shareholders' interests, which means generating greater profits. If doing so causes harm, they consider it an externality. He -like many others- also believed that businesses were best positioned to address environmental challenges. He later realized that while sustainable practices like energy efficiency and renewable energy adoption have value, they do not lead to the systematic change necessary to combat climate change effectively. Most of the time, their initiatives serve as a façade, enabling them to appear environmentally responsible without addressing the true underlying issues perpetuating environmental degradation. For this reason, corporate sustainability needs to be reconsidered.

1.2.2 Necessity of Sustainability

A recent report by EY Parthenon (Eitelwein et al., 2021) delves into how companies can adopt and integrate genuine sustainability practices, moving beyond superficial or misleading claims. In the report, five essential strategies are identified to help companies take the first

steps. First, firms should integrate sustainability into their core strategy. Embedding sustainability into the company's primary business strategy ensures alignment with long-term goals and stakeholder expectations. Secondly, they should provide specific, accurate, and full information on sustainability initiatives to build credibility and meet regulations. Third, actively engaging stakeholders like investors, customers, and employees fosters collaboration and addresses environmental and social issues. Fourth, investing in innovation and new technologies can improve sustainable operations and reduce ecological footprints. And finally, strengthening governance and accountability. Stronger systems of governance will promote accountability and mitigate risks from greenwashing. In the report, it is underscored that with increasing scrutiny from consumers, investors, and regulators, superficial sustainability efforts are no longer sufficient. Organizations must commit to authentic and measurable actions to achieve long-term success and maintain stakeholder trust.

It is clear that mainstream language is shifting away from superficial sustainability initiatives and is beginning to promote genuine efforts instead. As stated in an article in the Harvard Business Review (Esty, 2021) integrating sustainability is no longer an optional initiative, it is a core strategic driver of business success. The companies that do not adapt will likely lose market share and brand recognition and miss out on new sources of revenue. It is a wake-up call for all companies to act and integrate sustainability into their leadership strategy and execution models to stay competitive in the long run.

Since some companies have been in the game longer than others, their structure and technological background allow for more sophisticated and concerted implementation of sustainable business objectives and reporting. Among the pioneers of sustainability reporting, we find companies such as Shell, Ben & Jerry's, Novo Nordisk, Dow Chemical, and IBM. Latter published its first corporate environmental report in 1990 (*Reporting | IBM*, 2025) and has continued doing so each year since.

1.3 Personal Motivation

But why did I choose sustainability and IBM's environmental reporting history as the basis of my research?

I feel like knowing all the facts about our changing ecosystem leaves us with no other option than to stand up and act before it's too late. Focusing on the advancement of ESG reporting enables me to illustrate concrete figures and metrics in connection with environmental changes. As change comes from the top down, corporate leaders and officers bear the responsibility to be the catalysts of change. In this paper, I show through IBM's example how

ESG reporting has developed and can be implemented for every business. This paper can be viewed as a blueprint for executives who are looking for solutions to implement ESG reporting in their business operations.

I was fortunate enough to have the opportunity to work at IBM for a short period as an operational buyer supporting a client based in Germany. During this time, I was able to experience its culture of openness and diversity while also gaining a glimpse into its operations. I can confidently state that IBM is an excellent place to work. It supports work-life balance and flexible working hours. I was able to manage studying and working at the same time, thanks to the flexibility of my team and my managers. It also provides employees with further development opportunities in the form of internal training and courses, which are adjustable to personal preferences and goals. Overall, during my time at the company, I had good experiences with my coworkers who are open and welcoming and always ready to offer a helping hand.

2. THE EVOLUTION OF ESG FRAMEWORKS AND REPORTING

Since the advancement of “Environmental, Social, and Governance” (ESG) reporting can be best examined through the coalescing development of ESG frameworks, in the following chapters, I will delve into the sequence of events that contributed to and shaped the formation of the ESG concept and its frameworks. ESG should not be confused with “Corporate Social Responsibility” (CSR), even though the two concepts share similar goals and their origins stem from the same period. While CSR mainly serves as a tool for corporations to maintain good Public Relations (Passas, 2024, p. 1712) ESG is intended to be a more integrative and fundamental concept.

2.1 The Origins

The genesis of “Environmental, Social, and Governance” can be traced way back to the 1960s. Prior to that, firms operated according to the profit baseline. This meant they followed the old-fashioned practice of pursuing and maximizing material profit, regardless of the harm caused externally. Researchers consider this early period as the root period of sustainability reporting (Gokten et al., 2020, p. 103). One of the major elements defining this era is the publication of the book “Silent Spring” by Rachel Carson in 1962. In her book (*Silent_Spring-Rachel_Carson-1962*, 1962) Carson elaborates on the proliferated use of the pesticide DDT and its harmful environmental effects. DDT was used in the agricultural industry as a chemical synthesis to kill insects. The problem arose from the fact that besides killing harmful insects, it also annihilated other otherwise useful microorganisms in the soil,

not to mention the fact that it has been proven to elevate rates of breast cancer and hypertension among women who were exposed to DDT during pregnancy (Arnold, 2021). After years of battling with the chemical industry, DDT was finally banned in the United States in 1970. This was an eye-opening realization for many at that time who, up until that point, would have never thought "That a corporation would create a product that did not operate as advertised." (Griswold, 2012). Carson's book created environmental consciousness for the first time. Another noteworthy publication from that period is the Limits to Growth report (*Limits to Growth Report*, 1972). The report explored, with the help of computer simulation in a so-called "standard run" program, various future scenarios for humanity, assuming that economic advancement keeps pace with the prevailing conditions at that time. As expected, the model predicted total collapse due to the depletion of earth's non-renewable resources. However, the model ignores a fundamental aspect: technological progress. It also miscalculates the pace of the usage of non-renewable resources, which can be prolonged with newly found ways of recycling. As the model's projection of collapse is rejected, its other predictions are scrutinized in a paper released thirty years after the original report (Turner, 2008). The findings show a rather disturbing picture. The most prominent comparisons reveal that non-renewable resource consumption and pollution metrics align with those revealed in the "standard run" scenario, stating that if current "business as usual" (BAU) practices remain, increasing scarcity will become a major problem within a few decades. Regarding pollution, the figures thirty years later also matched the predicted ones.

In the 1970s, the concept of socially responsible investing (SRI) emerged. This marked the starting point for investors to consider things other than financial aims when investing, such as social and ethical behavior. The concept gained traction with the campaigns promoting divestment from companies doing business in South Africa during apartheid (*The History of Environmental Social And Governance (ESG) | IBM*, 2024). Supporting this initiative, the Sullivan Principles were established to serve as a corporate code of conduct (CARBON, 2023). In 1971, the Pax World Fund was created by two United Methodist ministers opposed to the Vietnam War (*Timeline and History of ESG Investing, Rules and Practices*, 2024). This was the US's first publicly available mutual fund that considered environmental and social criteria in investment decisions. The need to address environmental and social issues on a global level emerged. Addressing this initiative at the United Nations Conference on the Human Environment in Stockholm in 1972, the United Nations Environment Program (UNEP) was established. The UNEP is part of the UN Secretariat and responds to the UN General Assembly (*Frequently Asked Questions | UNEP - UN Environment Programme*,

2025). It comprises 193 Member States and has the main role of addressing the so-called triple planetary crisis, which includes climate change, loss of nature and biodiversity, and pollution and waste.

2.2 The Early Years

In 1987 the “World Commission on Environment and Development” (WCED), commonly referred to as the Brundtland Commission of the United Nations -named after the Commission’s chairwoman, Gro Harlem Brundtland- was convened to develop long-term strategies that help the nations of the world with guidelines towards sustainable development (Bill, 2024). The Commission was mixed in terms of nationality and ethnicity. It consisted of twenty-two commissioners from twenty-one countries. The group’s diversity embodied its strengths and potential weaknesses as well. The opinions of representatives from prosperous northern nations often contradicted the ideas of commissioners from developing countries (Borowy, 2013). During the public hearings, contradictory topics emerged that were often difficult to reconcile. Challenges arose in defining Sustainable Development, with northern countries prioritizing climate protection while southern states expressed concerns about environmental regulations limiting their economic growth. During the discussions, global inequalities came to the surface, where the South bears most of the global environmental damage while lacking the necessary resources to mitigate it. The key debates revolved around poverty versus affluence, technological innovations, and growth limits. They agreed that poverty leads to environmental degradation, but also stated that affluent lifestyles can be equally harmful. The southern low-income countries insisted upon restructuring global trade and economic policies and wealth redistribution, while northern countries resisted discussions on these topics. Technological developments were viewed as a means capable of counteracting damage done to the environment, but some warned that without global wealth redistribution, technological solutions alone are insufficient. Indian economist Nitin Desai tried to mold diverging opinions together. He drafted a compromise where he defined sustainable development as development “that meets the needs of the present without compromising the ability of future generations to meet their own needs.” He also acknowledged that needs could vary across cultures and geographical locations and that economic growth must be balanced with environmental protection. The commission's final report, with the title “Our Common Future” (*Our Common Future_Brundtland Report 1987*, 1987), was published in 1987. In the paper, developmental and environmentalist positions were reconciled. The final report proposed that governments and supranational organizations

should integrate sustainability principles into national and international policies. It urged the increase of renewable energy production and the enhancement of global environmental monitoring. It also introduced the notions of “limits” and “thresholds” in connection with environmental issues such as global warming, desertification, or deforestation, not to be “crossed without endangering the basic integrity of the system” (Borowy, 2013, p. 205). The impact and influence of the report were immense and still remain with us today. It incentivized numerous people and organizations to reconsider their approach to sustainability. It shaped and influenced global policies, including the 1992 Earth Summit and the Agenda 21, which transformed the concepts into an action plan. However, despite the global discourse around sustainability encouraged by the report, its practical, real-world effects remain negligible. It failed to bridge the gap between appealing promises and tangible actions. The paper underscores that real change in sustainable development can only be achieved through bold political action and global cooperation beyond just vague theoretical commitments.

At the end of the decade, in 1989, the Exxon Valdez incident shook the world and led to a public outcry. The Exxon Valdez was an oil tanker that became infamous after it ran aground on the coast of Alaska in the Prince William Sound and spilled more than 41 million liters of crude oil, causing irreparable environmental damage. Prior to the accident, the wildlife in the area was plentiful and vivid, with many species of sea birds, otters, seals, and orcas inhabiting the water and shores. Scientists estimated that, resulting from the oil spill, two species went extinct, ten species have not fully recovered, approximately 500 thousand sea birds and 2,800 sea otters were killed, not to speak of the billions of salmon and herring eggs (Halley, 2013, p. 4). Subsequently, it became apparent that the incident was preventable. Exxon failed to maintain its RAYCAS radar, which had signaled that a reef was posing a threat to the vessel. As a mitigation measure, Exxon was obliged to pay around \$4.3 billion in cleanup costs, compensation, and fines. The company also introduced and implemented new practices, such as more intensive assessment of its vessels and intensified training for its employees (Halley, 2013, p. 6). As a response on behalf of the legislation, shortly after the incident, the Oil Pollution Act was passed in 1990 by the U.S. Congress. The Act has significantly increased the cap on financial liabilities payable by companies for economic damage resulting from an oil spill (*Legislative Search Results*, 2025). Many states in the U.S. responded in a similar way by strengthening or completely restructuring the oversight of oil production and transportation (*The Legacy of the Exxon Valdez Oil Spill | Response.Restoration.Noaa.Gov*, 2019).

2.3 The First Initiatives

As a response to the Exxon Valdez incident, a coalition of leading social investors, environmental groups, religious organizations, public pension trustees, and public interest groups formed the “Coalition for Environmentally Responsible Economies” (CERES), a non-profit organization (Iii, 1993). The coalition recognized that existing legal policies and regimes were inadequate to ensure corporate environmental accountability. The organization aimed to reestablish and reassess the role of businesses as environmentally, socially, and economically responsible entities. In 1989, the group published the “CERES Principles” (formerly referred to as the Valdez principles), which can be considered the first guidelines aiming to establish ethical, environmental behavior in business activities (Gokten et al., 2020, p. 109). The ten principles included protection of the biosphere, sustainable use of natural resources, reduction and disposal of wastes, energy conservation, risk reduction, the safety of products and services, environmental restoration, public disclosure, management commitment, and audits and reports (*CERES-PRINCIPLES*, 1992). The CERES approach indicated that signees of the principles were provided with a voluntary framework and the possibility to submit publicly accessible reports on their progress in implementing the principles. Corporations could choose whether to adopt this voluntary code of conduct, resulting in a framework that, rather than compelling them through legal sanctions, enables them to embrace it willingly. CERES attempted to bring diverse stakeholders together to build consensus around environmental standards. This reporting initiative also enabled future investors to evaluate and, besides profitability, consider the environmental impact of corporations in their portfolios (Iii, 1993, p. 309). Unlike previous individual corporate environmental reports that often lacked consistency, the CERES framework introduced a uniform reporting format with standardized disclosures, which also enabled meaningful comparisons between companies. Businesses reacted swiftly to the new initiative, and by 1992, several publicly traded organizations had begun to sign the principles after it was amended to address corporate concerns. By the early 2000s, more than 130 organizations belonged to the CERES coalition, comprising public interest organizations, environmental groups, labor unions, and investors (*Coalition for Environmentally Responsible Economies (CERES) | Britannica*, 2023). Following the establishment of the CERES at the onset of the 1990s, a significant milestone in the advancement of environmental investment and reporting was achieved, specifically through the introduction of the Domini 400 Social Index. The early history of sustainable investment was shaped mostly by entrepreneurs who went ahead and

“forged and developed tools and products to address the vision of aligning portfolios with investor values and their views about sustainability” (*The Story of the First ESG Index*, 2024). Amy Domini, Peter Kinder, and Steve Lydenberg, who jointly founded and managed the KLD Domini & Co. research and investing firm, created the Domini 400 Social Index (*Market Index*, 2023), which focused on companies that met certain ethical, social, and environmental standards. Their fundamental assumption was that companies that excel in certain ESG criteria could be proven to be profitable investments in the long run. Their perception went against the proliferated views at that time, which considered that incorporating social and environmental issues among business priorities into investment portfolios was a bad gamble from the investors' perspective. At that time, it seemed like a heroic task to research companies based on ESG criteria with the absence of accepted standards and systematic research on ESG issues. KLD had to develop its own analytical framework and conduct its own research. The following year the “Domini Social Impact Equity Fund” was launched to put the theory to the test (*Timeline and History of ESG Investing, Rules and Practices*, 2024). The fund could source \$1.3 billion by 2001 and showed 15.08% returns compared to 15.25% for the Standard and Poor’s 500 (S&P 500), revealing that investing in socially and environmentally responsible issues can deliver strong financial returns. Today, the Domini 400 is called the MSCI KLD 400 Social Index. The index encompasses 400 publicly traded companies that maintain high ESG standards (*Msci Kld 400 Social Index*, 2023).

As corporate environmental consciousness slowly started to gain traction, the next important step, the 1992 Rio Earth Summit, could be mentioned. Rio 1992 called for action at global, national, and local levels (*The Road to Rio+20 and Beyond*, 2011) and resulted in the Agenda 21, which implemented the recommendations of the report “Our Common Future”. The participants of the conference also agreed upon the formation of the Sustainable Development Commission with the purpose of monitoring governments and related economic and social organizations in line with the sustainable development objectives (Gokten et al., 2020, p. 109). Following the establishment of the commission in 1994, author and entrepreneur John Elkington introduced the concept of the “Triple Bottom Line” (TBL or 3BL), a sustainability framework that complements the approach to economic development with the dimensions of people, planet, and profit (prosperity). According to his theory, it is not sufficient to assess sustainable development based only on earnings as other aspects, such as externalities affecting the environment or communities, also need to be considered. Under “People” the concept considers not only shareholders but all stakeholders, including employees, individuals throughout the supply chain, customers, and future generations (Collaboratives, 2022). Planet

considers the linkage between an organization and its environment or ecological systems. People are increasingly becoming aware of detrimental environmental changes such as climate change. Online media facilitates the rapid spread of information, allowing stakeholders to exert greater influence in holding businesses accountable for their actions. The profit bottom line includes economic indicators over which businesses have influence, e.g., ethical sourcing, workplace health and safety, and paying livable wages. This new concept requires us to redefine "business as usual" activities. Understanding and utilizing the triple bottom line framework offers numerous opportunities for improvement, optimization, and innovation across industries and sectors.

In 1997, the "Kyoto Protocol" was adopted, but because of its complex ratification process, it entered into force in 2005. The protocol set out specific greenhouse gas emission targets and intended to introduce a rigid monitoring of these along with a compliance system to ensure transparency and hold parties accountable (*What Is the Kyoto Protocol?* | UNFCCC, 2025). It was ratified by 192 countries even though the two largest emitters, China and the U.S., did not participate in it.

2.4 The Introduction of the First Framework

In 1997, a project department, the "Global Reporting Initiative" (GRI), was launched to address disclosures by businesses related to environmental concerns. It was an important milestone in institutionalizing sustainability reporting. GRI's corporate statement indicated that the new framework should be improved to include, in addition to environmental, social, and economic issues (Gokten et al., 2020, p. 110), and its introduction also marked the date when environmental reporting became sustainability reporting. GRI initially emulated financial reporting standards to enhance its credibility, but it gradually integrated stakeholder engagement and materiality assessments over time (Bais et al., 2024). However, many firms today often adopt GRI for compliance rather than for genuine sustainability transformation. The reports usually reflect high quality since the GRI principles emphasize transparency, completeness, and comparability. Despite GRI's efforts to provide a structured framework for reporting, some researchers believe that such corporate sustainability disclosures do not truly enable stakeholders to hold firms accountable and that these reports merely serve as a tamed form of transparency from which businesses benefit more than their stakeholders (Dingwerth & Eichinger, 2010). They state that although the reports are expected to be easy to find and interpret, there is no existing enforcement mechanism to ensure clarity. Comparability can often become an issue, especially as different firms interpret and apply GRI indicators

differently or use inconsistent methodologies, e.g., some companies disclose total greenhouse gas (GHG) emissions while others separate direct and indirect emissions. Neither are there standardized reporting units to use, which further complicates comparisons. It should also be mentioned that some studies revealed (Bais et al., 2024) that greenwashing is common among reporters, with firms often emphasizing positive disclosures while omitting negative impacts. The impacts of GRI adoption are diverse, with firms experiencing both positive and negative outcomes that influence their financial performance, sustainability initiatives, and regulatory alignment. Financial impacts -being the most important from a corporate perspective- are generally positive after GRI adoption, with businesses experiencing an increase in firm value, investor confidence, and stock performance. However, some firms suffer short-term financial losses due to reporting expenses. GRI reporting can raise sustainability awareness significantly but usually does not transform corporate behavior fully. The question might arise as to why firms participate in GRI reporting. The question lies in both the external pressures and internal drivers of GRI adoption. External “motivations” can be investor, customer, or regulatory demands requesting disclosure of sustainability information while legal frameworks like the EU’s “Corporate Sustainability Reporting Directive” (CSRD) -later in more detail- also play a significant role. On the other hand, some firms may want to enhance their corporate reputation or track their sustainability performance and decide to participate in such disclosures willingly. However, the high costs and lack of expertise among many firms can deter businesses from participating or impede their accession to the initiative. This is especially true in the case of companies in developing countries where the lack of resources is the number one impediment. The aforementioned barriers can reduce the global effectiveness of GRI disclosures.

2.5 Development in the Early 21st Century

In 2000, the United Nations launched the voluntary initiative the “United Nations Global Compact” (UNGC) with the aim to create a more sustainable and inclusive global economy through fostering responsible business practices. Businesses joining the program must adhere to ten principles, which include human rights (respect and support fundamental rights), labor standards (eliminate child labor), environment (promote sustainability), and anti-corruption (oppose bribery and corruption) (*The Ten Principles | UN Global Compact*, 2025).

Companies joining the compact commit themselves to create an annual Communication on Progress (COP) report, and the ones that fail to fulfill their commitment will be delisted. The Compact received both criticism and support. By deliberately phrasing its goals vaguely to

encourage discussion, it lacked the essential enforcement mechanisms, which hindered the measurement of compliance. It also provided an opportunity for companies to improve their public image and PR without significantly altering their business practices by enabling them to select which principles to focus on, i.e., they were able to choose the least costly and easiest to fulfill principles while ignoring more challenging commitments. The global reach of the compact was also limited. Despite having over three thousand members, it represented less than 4% of multinational corporations worldwide, with many members remaining passive (Nason, 2008). All in all, the initiative contributed to a gradual cultural shift in corporate norms and made progress in raising awareness of corporate responsibility. In the same year, the “Millennium Development Goals” (MDGs) were presented by the UN. The goals aimed at addressing key global development challenges by 2015. Although it led to progress in some areas, such as education, child mortality, and poverty reduction, the progress achieved was uneven across countries and sectors. Critics highlighted that the goals were developed through a top-down approach by powerful countries and organizations, and developing countries could not contribute, only with minimal input in their formulation, which led to a framework that did not align with their specific needs (Fehling et al., 2013). Some goals were too overambitious yet too simplistic, e.g., universal primary education, while others overlooked key problematic areas such as health and environmental issues, like mental health and disabilities, or sanitation and pollution.

The next important noteworthy milestone is the founding of the “Carbon Disclosure Project” (CDP) in 2000, which is the first framework focusing primarily on climate change and greenhouse gas (GHG) emissions. The framework encouraged investors to request businesses to report on their climate impact while also helping reporting firms by identifying emission reduction strategies (Andrew & Cortese, 2011). This method helped normalize the practice of sustainability -later ESG- reporting. However, since firm participation was voluntary, it meant that they might disclose only partial data or none at all or use different methodologies, making it more difficult for investors to compare them.

The birth of the term ESG dates back to the “Who Cares Wins” report published by United Nations Secretary-General Kofi Annan in 2004. Prior to Annan publishing the report, signatories of the Global Compact repeatedly expressed to the U.N. Secretary General the need for further efforts (Pollman, 2022, p. 10). As a result of their aspiration, the newly coined word ESG was conceived. In total, twenty financial institutions from nine different countries with total assets under management of over six trillion USD participated in the development of the report with financial support from the Swiss Government. Among the endorsing

institutions, we can find banks such as Morgan Stanley, Goldman Sachs, Deutsche Bank, HSBC, BNP Paribas, Banco de Brasil, and the International Finance Corporation (IFC) (Bill, 2024; Pollman, 2022, p. 11). The aim of the report was “to support the financial industry’s efforts to integrate environmental, social and governance (ESG) issues into mainstream investment decision-making and ownership practices through a series of high-level meetings with investment professionals.” (*Outcomes of the Who Cares Wins Initiative 2004–2008*, 2009). The underlying assumption was that companies that achieve better management of these three issues in a globalized, interconnected, and competitive world can increase shareholder value. As a result of the report, the financial industry made significant advancements in comprehending the financial impact of ESG factors and recognizing them as crucial for long-term investment sustainability. Methodologies were developed by analysts and asset managers to integrate key ESG factors into financial analysis and decision-making. Even though there are barriers to adopting such a framework, such as systemic issues, it has made significant progress toward more sustainable business practices.

In 2005, with backing from the U.N., Freshfields Bruckhaus Deringer, a London-based law firm, published the Freshfields report, a document that formed a legal framework for integrating ESG issues into institutional investment (*Building on Fiduciary Duty in the 21st Century*, 2025). It investigated whether institutional investors are legally permitted, required, or restricted to integrate ESG issues into their investment decision-making, given that regulatory and market developments are increasingly strengthening the case for ESG-conscious practices in investing. Some countries, e.g., Canada, Germany, France, Japan, Spain, the UK, and the US, have begun the legislation of ESG disclosure obligations. The document concluded that ESG integration is legally permissible. Moreover, it is legally required where ESG factors affect financial performance. Provided the factors align with beneficiaries' interests and financial objectives, institutional investors have the legal authority to incorporate ESG into their strategies to meet both fiduciary and regulatory obligations (*Freshfields-A-Legal-Framework-for-the-Integration-of-ESG-Issues-into-Institutional-Investment*, 2005).

In the following year, with the support of the “United Nations Global Compact” (UNGC) and the “United Nations Environment Programme Finance Initiative” (UNEP FI), the “Principles for Responsible Investment” (PRI) were launched to provide a platform for collaborative investor engagement, to help overcome challenges in coordinating efforts on ESG issues. The PRI initiative calls for investors to promote the acceptance of ESG analysis and to engage firms on ESG issues collectively, making businesses more likely to respond. By engaging in

dialogue with corporations, investors can reshape corporate managers' perceptions over time. The PRI's credibility could serve as leverage and a legitimacy-building tool in their discussions with management. Investors can also present their ESG concerns as moral obligations or financial risks while applying time pressure or consistently raising these issues to compel businesses to respond. PRI can reduce investors' coordination costs and boost their credibility, facilitating more collective action on ESG issues while also allowing them to strategically manage their power in influencing corporate behavior without the need to resort to aggressive tactics such as divestment or public campaigns (Gond & Piani, 2013).

In 2007, the "Climate Disclosure Standards Board" (CDSB) was set up as the first climate-related disclosure standard setter at the world economic forum. Since it has been consolidated into the "International Financial Reporting Standards" (IFRS) foundation. In 2010, the group released its framework for reporting climate information with the same rigor as financial information. The framework enabled companies to incorporate environmental, social, and governance information into their mainstream reports, such as annual reports, 10-K filings, or integrated reports (*Homepage | Climate Disclosure Standards Board*, 2022).

In 2010, the "International Integrated Reporting Council" (IIRC), an organization that existed from 2010 until 2020 and aimed at promoting integrated reporting as a means to enhance corporate reporting and transparency, proposed the "Integrated Reporting Framework" (IRF), a framework designed to offer a comprehensive perspective on an organization's value creation in the short, medium, and long term (webadmin, 2025).

The subsequent key milestone was the establishment of the "Sustainability Accounting Standards Board" (SASB) in 2011. "SASB is an independent nonprofit organization that sets standards for companies to use when disclosing ESG information to investors."

(*Sustainability Accounting Standards Board (SASB)*, 2021). With this new framework, investors gain clearer insights into how a business influences or is influenced by a changing world. Prior to its introduction, two companies might have used different performance metrics, making it cumbersome for investors to analyze and compare such information. SASB's sustainability framework contains five key dimensions: Environment, Social Capital, Human Capital, Business Model & Innovation, and Leadership & Governance.

2.6 Progress in the Last Decade

In 2015, progress toward a more structured and evolved reporting landscape continued with three important milestones in the same year. The first is the formulation and presentation of the “U.N. Sustainable Development Goals” (SDGs).



Figure 1 Sustainable Development Goals

Source: <https://sdgs.un.org/goals>

The 17 development goals (Figure 1) and 169 targets replaced the “Millennium Development Goals” (MDGs). However, they built upon the MDGs but incorporated broader social, environmental, and economic dimensions and also introduced a set of 303 indicators to help firms measure their SDG progress (Hák et al., 2016, p. 566). The selection of relevant indicators was a challenging process mainly because they vary in quality, and their practical application can prove inconsistent. The most important attribute of indicators is their relevance, meaning they must effectively measure what they are supposed to assess. Some researchers advocated for a conceptual framework to assess the relevance of indicators and avoid ambiguity. A robust framework is supposed to ensure that indicators are in alignment with SDG targets and hold significance for policy-making. Meanwhile, it is imperative that expert and scientific input be integrated to validate the relationship between an indicator and the phenomenon it measures. They sought to prevent arbitrary selection of indicators by stressing scientific rigor and high data quality (Hák et al., 2016, p. 567).

As regulators had to respond to investors' increasing number of requests after climate-related disclosures from firms, they came up with new reporting requirements. The second important noteworthy milestone from 2015 is the establishment of the “Task Force on Climate-related

Financial Disclosures” (TCFD) by the “Financial Stability Board” (FSB). The aim of the Task Force is “to help identify the information needed by investors, lenders, and insurance underwriters to appropriately assess and price climate-related risks and opportunities.” (“About | Task Force on Climate-Related Financial Disclosures (TCFD),” 2023). The Task Force developed four fundamental recommendations to guide climate-related financial disclosures: governance, strategy, risk management, and metrics and targets. In governance, companies must disclose the organization’s board's oversight around climate-related risks and opportunities. Within strategy, firms describe the actual and potential impacts of climate-related risks and opportunities on the company’s business, strategy, and financial planning. In risk management, companies describe the processes used by them for managing climate-related risks. In relation to metrics and targets, businesses disclose the metrics and targets they use to assess and manage relevant climate-related risks and opportunities (Carney, 2017; *What Is the TCFD and Why Does It Matter?*, 2023). The third important development pillar in 2015 was the signing of the Paris Agreement, a legally binding international treaty on climate change, which was adopted by 195 parties and entered into force in 2016. Its aim is to “hold global temperature increase to well below 2°C above pre-industrial levels and pursue efforts to limit it to 1.5°C above pre-industrial levels.” (Nations, 2025; *The Paris Agreement* | UNFCCC, 2025).

In 2016, the “Workforce Disclosure Initiative” (WDI) was launched. It is one of the world’s leading corporate disclosure initiatives on labor and human rights. WDI “aims to improve corporate transparency and accountability on workforce issues, provide companies and investors with comprehensive and comparable data and help improve access to decent work worldwide.” (*WDI Data* | *Workforce Disclosure Initiative*, 2018).

Later, in 2017, the “Compact for Responsive and Responsible Leadership” (the Compact) was signed by more than 140 CEOs at the World Economic Forum meeting in Davos, Switzerland. The Compact states that “society is best served by corporations that have aligned their goals to the long-term goals of society.” (*World Economic Forum*, 2025). The U.N. “Sustainable Development Goals” have been recognized as the roadmap for this alignment.

We can also mention initiatives aimed at increasing diversity among corporate board members. In 2017, asset management firm State Street Global Advisors hashed out a requirement for company board nomination slates to feature a certain percentage of female directors or candidates. Otherwise, it would vote against the chairs of boards of the company not fulfilling the quota (Post et al., 2025).

In 2019, the “World Economic Forum” (WEF) published the “Davos Manifesto” 2020 to serve companies with guidance through the Fourth Industrial Revolution. The Manifesto is a set of ethical principles and states that a “company serves not only its shareholders, but all its stakeholders – employees, customers, suppliers, local communities and society at large.” (Carlisle, 2019). It incentivizes companies to treat their stakeholders with dignity and respect and pursue and achieve ESG objectives.

Also in 2019, the “European Green Deal” was launched, an initiative proposed by Ursula von der Leyen, head of the European Commission. The goal of the Deal is to reach climate neutrality on the continent by 2050. It set the EU on the path towards a green transition (*European Green Deal*, 2025). An important “addition” to the Green Deal and a crucial cornerstone of the EU’s sustainable finance framework is the EU taxonomy. “It helps direct investments to the economic activities most needed for the transition, in line with the European Green Deal objectives.” (*EU Taxonomy for Sustainable Activities - European Commission*, 2025).

In 2020, the “International Integrated Reporting Council” (IIRC) and the “Sustainability Accounting Standards Board” (SASB) merged to form the “Value Reporting Foundation” (VRF). In the same year, the COVID-19 pandemic swept across the globe, disrupting global supply chains and compelling millions of employees to work remotely. Many businesses faced challenges in adapting to the new operational realities. During the pandemic, many investors believed that companies would forego their ESG commitments to stay afloat. However, later discoveries revealed that businesses with strong ESG performance were better positioned to endure the pandemic as they had already considered the potential for disruption. (*The History of Environmental Social And Governance (ESG) | IBM*, 2024).

The “Sustainable Finance Disclosure Regulation” (SFDR) was introduced in 2021 to “impose mandatory ESG disclosure obligations for asset managers and other financial market participants with substantive provisions of the regulation.” (Nelson, 2021).

In the same year, the “International Financial Reporting Standards” (IFRS) Foundation announced the establishment of the “International Sustainability Standards Board” (ISSB). “The ISSB is developing—in the public interest—standards that will result in a high-quality, comprehensive global baseline of sustainability disclosures focused on the needs of investors and the financial markets.” (*IFRS - International Sustainability Standards Board*, 2025).

In 2023, the European Union legislation “Corporate Sustainability Reporting Directive” (CSRD) entered into force, replacing the “Non-Financial Reporting Directive” (NFRD). It mandates that all EU businesses, along with non-EU businesses operating in the region,

disclose their environmental and social impacts, as well as how their environmental, social, and governance (ESG) actions influence their business (*What Is the CSRD?*, 2024).

In the same year, the European Commission adopted the “European Sustainability Reporting Standards” (ESRS) “for use by all companies subject to the Corporate Sustainability Reporting Directive (CSRD). The standards cover the full range of environmental, social, and governance issues, including climate change, biodiversity, and human rights. They provide information for investors to understand the sustainability impact of the companies in which they invest.” (*The Commission Adopts the European Sustainability Reporting Standards - European Commission*, 2023).

As the third important milestone, from 2023, the “International Sustainability Standards Board” (ISSB) issued its first two “International Financial Reporting Standards” (IFRS) “Sustainability Disclosure Standards”, IFRS S1 General Requirements for “Disclosure of Sustainability-related Financial Information” and IFRS S2 “Climate-related Disclosures” (*IFRS - General Sustainability-Related Disclosures*, 2025). “The standards address longstanding reporting challenges, equipping companies and investors to better understand performance and comply with ever-evolving regulations.” (Silva et al., 2023).

2.7 Summary of Key Events

This overview aims to give a foundational understanding of the evolution of ESG frameworks and reporting. Understanding the “basics” enables us to comprehend how corporations, particularly IBM, implement these frameworks and standards.

Summary of Key Events

Publication of “Silent Spring” - 1962	Carbon Disclosure Standards Board - 2007
“Limits to growth” Report - 1970s	Integrated Reporting Framework (IRF) - 2010
“Socially Responsible Investment” (SRI) - 1970s	Sustainability Accounting Standards Board (SASB) - 2011
Pax World Fund - 1971	UN Sustainable Development Goals - 2015
UNEP - 1972	Task Force on Climate Related Financial Disclosures - 2015
“Our Common Future” Report - 1987	Paris Agreement on climate change - 2015
Exxon Valdez incident - 1989	Workforce Disclosure Initiative (WDI) - 2016
CERES Principles - 1989	Compact for Responsive and Responsible Leadership - 2017
Domini 400 Social Index - early 1990s	Davos Manifesto - 2019
Rio Earth Summit and Agenda 21- 1992	European Green Deal - 2019
Triple Bottom Line (TBL) - 1994	EU Taxonomy - 2019
Kyoto Protocol - 1997	Value Reporting Foundation (VRF) - 2020
Global Reporting Initiative - 1997	Covid-19 Pandemic - 2020
UN Global Compact - 2000	Sustainable Finance Disclosure Regulation - 2021
Millennium Development Goals - 2000	International Sustainability Standards Board - 2021
Carbon Disclosure Project - 2000	Corporate Sustainability Reporting Directive (CSRD)- 2023
“Who Cares Wins” Report - 2004	European Sustainability Reporting Standards (ESRS)- 2023
Freshfields Report - 2005	International Financial Reporting Standards S1, S2 (IFRS S1,S2) - 2023
Principles for Responsible Investment - 2006	Corporate Sustainability Due Diligence Directive (CSDDD) - 2024

Figure 2 Summary of Key Events

Source: Own editing

3. ESG REPORTING IN PRACTICE

After familiarizing ourselves with the development of ESG reporting, we should examine its practical application.

3.1 Why ESG Reporting Matters

Similar to consumers, investors are also placing increasing emphasis on sustainability and, in turn, on ESG goals and reporting, as well as on their performance. Failing to keep pace with current developments in reporting can have serious negative implications, such as shareholder action at annual meetings or divestment by portfolio asset managers. ESG reports can offer greater transparency to investors and contribute to long-term sustainability as well, since consumers show greater brand loyalty to organizations with worthy ESG initiatives (*What Is ESG (Environmental, Social and Governance)?*, 2024). These efforts can also strengthen brand reputation (*What Is ESG Reporting?*, 2024). Risk management and regulatory compliance are also areas where ESG reporting can be beneficial. Having a well-implemented ESG reporting framework can help businesses mitigate sustainability and ESG risks, and avoid fines and legal issues from governments and regulatory bodies that are implementing more stringent regulations. It can also be a catalyst for innovation. Firms that measure their environmental and social performance can uncover areas where they could improve or replace their processes and practices with new ones, gaining a significant competitive edge in these areas and also improving their triple bottom line.

3.2 Challenges of ESG Reporting

To ensure clear, effective, and credible reports, companies might face challenges. For many firms, ESG is still an unfamiliar territory. Exploring and understanding the complexity of environmental metrics such as water usage, biodiversity impact, and carbon emissions requires specialized knowledge and expertise (*What Is ESG Reporting?*, 2024). Many organizations do not have the needed skills and experience in-house to prepare such reports. They might need to collaborate with external experts, which can lead to additional costs. Collecting the necessary data is a huge undertaking for many companies. Data can come from many sources, including databases, devices, and team members. The multitude of data sources can lead to incomplete, inconsistent, or irrelevant data, which can undermine the credibility of the reports and elicit skepticism or criticism from stakeholders or investors. Corporate silos can also stand in the way of the free flow of necessary data (*ESG Reporting*, 2024) when different departments keep important information from each other. The implementation of

more rigorous data governance processes and conducting regular audits can help companies address challenges related to data collection processes. Many managers and departments can find it difficult to align ESG goals with growth objectives, and they might conceive them as growth impediments. Firms must be aware of greenwashing concerns as well. They must ensure that their ESG efforts align with their disclosures, as put simply, they must ‘walk the talk’ too. Different stakeholders and investors have varying expectations. Complying with and meeting them can pose a challenge as well. Constant monitoring of the regulatory landscape can be just as challenging as choosing the right reporting framework. Staying up-to-date with the latest changes to regulations requires engaging with industry peers and experts, as well as adopting ESG software.

3.3 ESG Report Content (What Should Be Included)



Figure 3 Pillars of ESG

Source: <https://www.techtarget.com/whatis/definition/environmental-social-and-governance-ESG>

Numerous companies utilize ESG reporting to disclose data that encompasses business operations, opportunities, and risks related to the environmental, social, and governance (ESG) aspects of their business (*What Are ESG Frameworks?*, 2025). The three core pillars of ESG can be deduced from the acronym, and they cover a wide range of issues listed in Figure 3 (Figure 3). A well-structured ESG report typically includes quantitative and qualitative data on environmental, social, and governance performance metrics -further elaborating on the three pillars- while also providing an insight into the company’s sustainability initiatives, goals, and strategies (*What Is ESG Reporting?*, 2024). It's also important that the organization compares its current ESG metrics to historical data and industry benchmarks, making it easier

for investors to assess the company's performance and, if needed, identify areas for improvement. The report usually starts with an executive summary, followed by the organization's environmental, social, and governance impacts, undertakings, goals, and initiatives, and concludes with a statement about its current state of ESG practices and its future plans.

3.4 ESG Frameworks and Their Functioning

We should clarify the basic difference between frameworks and standards. *Frameworks* are a set of principles. They focus on the bigger picture and guide businesses on how they should structure the gathered information and what information should be collected. *Standards* are more technical. They state specifically the requirements, like precise metrics for each topic or sub-topic (*ESG Reporting Standards and Frameworks*, 2025). “Put it simply, a framework is a blueprint for what you are building, and the standard is the building code” (*How to Prepare and Write a Stellar ESG Report in 2025*, 2024).

3.5 Selecting the Right Framework

Today, several reporting frameworks are available for companies to utilize, which can pose a challenge for some firms in selecting the most appropriate one. Before choosing a framework, the company in question should define its ESG objectives, conduct a materiality assessment, and gather the necessary data. They should also consider the expectations of different stakeholders, ascertain the geographical and sectoral applicability, and the coverage of the frameworks. These steps are crucial in preparing an ESG report.

3.5.1 Goal Setting

ESG goals should be in alignment with a company's mission, long-term objectives, and values. To establish these goals, an organization should first conduct a baseline assessment to evaluate its current needs (*What Is ESG (Environmental, Social and Governance)?*, 2024). It is recommended to use SMART (specific, measurable, achievable, relevant, and time-bound) goals to align them with business strategies. After identifying them, to ensure accountability, responsibilities should be clearly defined. To keep them time-bound, objectives should be broken down into different time periods, such as one to two years, three to five years, or longer, five-plus years, depending on their timely achievability. They should also be measured and, if needed, periodically adjusted.

3.5.2 Materiality Assessment

Materiality is a key element of ESG reporting and should serve as a fundamental starting point in preparing a report. Materiality is a concept that guides organizations to be able to focus on ESG issues that are relevant to them and have an impact on their business (*What Are ESG Frameworks?*, 2025). However, there are implicating factors that could complicate materiality assessments. The nature of sustainability problems is very complex and involves many interconnected actors and issues, which makes it hard to isolate individual firm impacts. Additionally, predicting long-term ESG impacts is challenging, and attempting to do so may lead to the overlooking of future material topics in favor of short-term considerations. ESG priorities also vary by stakeholder values and cultural contexts, making it challenging to reach a consensus on the appropriate ones. We can distinguish a few individual steps in conducting materiality assessments that can accelerate the process (Garst et al., 2022). First, when adopting a materiality perspective, firms must consider the concept of “double_materiality.” Double materiality calls upon organizations to adopt two distinct viewpoints: one that focuses on the firm's financial performance, and one that puts the firm's impact on society, including its environmental and social effects, in the foreground. It is then essential to identify specific ESG topics. They can be adjusted and reframed to fit organizational language. Materiality scores should also be calculated. When selecting material topics, firms can use a materiality matrix to visually rank topics, helping them identify where to focus their efforts early on so they can more easily determine which framework can help them realize their goals. Overall, materiality assessment is not merely a technical task, it reflects deeper organizational values, trade-offs, and stakeholder dynamics. Companies that approach it thoughtfully can uncover valuable strategic insights and promote more genuine sustainability leadership.

3.5.3 Data Collection

ESG data encompasses a wide range of information, from which organizations must select the pieces that best fit their report. Firms may prioritize information based on their industry, ESG goals, and regulatory requirements. The right ESG data collection process is crucial in operationalizing sustainability initiatives (*ESG Data Collection*, 2023). The data collection process ensures the quality of the gathered information and establishes the procedure for how data is collected. Implementing the following steps can help organizations operate a flawless data collection process. First, they should understand what kind of data is needed with the help of materiality assessment to identify the most significant ESG issues their business faces. Then they should identify the leaders who can access or are responsible for the data. These

leaders should get in touch with the subject matter experts or the data collectors. Thirdly, as part of a kickoff meeting, the concept and the project should be introduced, clearing all questions that might arise. Support from top-level leaders and C-suite executives can be a huge source of motivation for many employees. After the project launch, it's necessary to follow up on the process. Data collectors should closely collaborate with employees in different departments to ensure clarity and clarify any ambiguities. They can utilize a range of tools to analyze ESG-related data, such as employee surveys, environmental audits, and regular business reports. Setting up automation can make the process easier. Automated software helps to streamline the aggregation and reporting process. They can reduce the risk of human mistakes and increase data collection accuracy while also being able to organize large volumes of information from different sources. Finally, program assessment shouldn't be left out (*ESG Data Collection*, 2023).

3.5.4 Other Aspects

Gathering data, setting goals, and conducting a materiality analysis are necessary steps in choosing the right framework. However, there are additional angles to consider as well. It is crucial to look at the expectations of the stakeholders. They might expect an organization to use a specific reporting framework, depending on how and for what purposes the information will be used. Geographical specifications are also important to keep in mind. Some frameworks are only relevant in specific geographic areas. The sectoral preference should also be examined. Some firms might use a specific framework that best suits their industry. They can rely on information provided on the websites of reporting frameworks, which often include a list of reporters and sectoral filters (*What Are ESG Frameworks?*, 2025). They can look up industry peers' reports to get an idea of the frameworks that might be useful for them. Finally, the coverage of the frameworks should also be clarified. Each major ESG reporting framework focuses on different key ESG performance metrics, including environment, social, governance, carbon, energy, waste, and water.

3.6 Major Frameworks and Standards

The most important ESG reporting framework for businesses in Europe is the “Corporate Sustainability Reporting Directive” (CSRD). It is a regulatory framework proposed by EU legislation. “The European Union’s CSRD is a law that prescribes rules for organizations to report sustainability disclosures across several topics pertaining to environmental and social issues, as specified by the European Sustainability Reporting Standards (ESRS).” (*A Guide to*

ESG Reporting Frameworks, 2023). There are also voluntary frameworks such as the “Global Reporting Initiative” (GRI), the “Task Force on Climate-related Financial Disclosures” (TCFD), or the “Sustainability Accounting Standards Board” (SASB). The “International Organization for Standardization” (ISO) standards are also internationally recognized and accepted. These frameworks and standards will play a role in our analysis of IBM’s ESG reports.

3.7 ESG scores

In corporate sustainability, firms are evaluated based on their ESG performance. Scores are provided by external rating agencies such as ENERGY STAR or Dow Jones Sustainability Indices (DJSI). ESG scores help organizations not only to benchmark their performance against industry peers but also to attract environmentally and socially conscious investors and potential employees.

4. ESG AND IBM

4.1 Introduction of the “Big Blue”

Before I delve into analyzing IBM’s ESG reports, I will provide a brief introduction to the company.

IBM’s history dates back to 1911, with the formation of the Computing-Tabulating-Recording Company (CTR), which was established through the merger of three distinct companies: the International Time Recording Company, the Computing Scale Company, and the Tabulating Machine Company (Madrigal, 2011). In 1914, Thomas J. Watson joined CTR as general manager, with roughly 1,300 employees under his charge. Watson had a vision for the company. After being appointed as president of CTR, he emphasized the production of the tabulating machine, sensing an imminent demand for this type of information technology (*The Origins of IBM* | IBM, 2025), and as a result, the company’s revenue doubled within four years. In 1924, Watson renamed CTR International Business Machines (IBM). In 1928, the company introduced the 80-column IBM punch card, which remained a standard for 50 years. IBM’s first electronic computer was introduced in 1952, featuring tape-driven technology. In 1952, Thomas J. Watson Jr. took over the role of president from his father. He set the company on a path to dominating the world of computing for a few decades during the mainframe era. IBM introduced many standard-setting innovations in the 20th century, e.g., the dynamic random access memory (DRAM) and the floppy disk. In 1980, Microsoft and IBM signed a deal to introduce IBM’s computers with Microsoft’s operating systems. In 1981, the Personal

Computer 5150 was introduced, marking a significant shift from computers being used solely by the military or government to their use by everyday people. After dominating the computer manufacturing industry for decades, in 1991, IBM adopted a new strategy, marking a shift away from business machines to become a service provider company. In 2005, it sold its personal computing division to Lenovo, completing its transition into a software and service-oriented company.

Besides IBM's technological innovations, its strong culture of openness and inclusion should also be mentioned. "For more than a century, the founding principles of its first CEO, Thomas J. Watson Sr., have inspired IBM in its efforts to promote equality, fairness, and inclusion in the workplace and society." (*Diversity, Equity and Inclusion*, 2025). IBM was one of the pioneer companies to introduce the "equal pay for equal work" principle, three decades before the 1963 federal Equal Pay Act made it obligatory. The company also paid significant attention to hiring workers regardless of race, color, gender, or creed. It was one of the first businesses to implement protections for the LGBTQ+ community and to include sexual orientation in its global nondiscrimination policy. IBM also emphasizes data protection and respect for privacy throughout its various software and products. These efforts have further burnished its reputation.

4.2 IBM's Reporting History

The concept of environmental disclosure is not new to IBM, as the company has been creating disclosures on its performance since 1990 (*IBMEnvReport_2009*, 2009). IBM's first corporate policy on environmental protection was established in 1971. The policy has many objectives: energy conservation, pollution prevention, and workplace safety. IBM's policies are implemented through its environmental management system (EMS), and the corporate governance committee of the company's board oversees their implementation.

4.3 ESG Report Analysis Aspects

For the analysis of IBM's ESG reports, I will scrutinize publicly available reports and data. I will investigate whether and how well the reports comply with developing frameworks and standards, and whether these influence the disclosed metrics and the scope of the reports. Their content will also be examined according to certain aspects and criteria. Then, I will explore potential future trends in framework development and their foreseeable effects on IBM's ESG reporting. In my research, I will focus on reports from the last decade that are currently available. Examining past reports and using 2015 as the base year, we can observe

that their content and structure have evolved in tandem with the frameworks they comply with. I will delve deeper into the disclosed metrics in the ESG reports. However, since they have only been published as a separate report since 2021, I will also elaborate on the other types of reports that have been published.

4.4 Corporate Responsibility Reports

From 2015 until 2020, IBM published a separate Corporate Responsibility report alongside its environmental report. The early 2015 corporate responsibility report focuses on transparency in business practices, employee well-being, and community engagement while also emphasizing building trust with stakeholders. It outlines the company's initiatives for global communities and its groundbreaking discoveries in combating diseases. It also mentions IBM's undertakings for the environment, energy conservation, and climate protection. The later reports from 2016 and 2017 emphasize a deeper commitment to environmental stewardship and innovation in sustainability. The reports highlight a more strategic alignment of CSR with overall business operations, while also emphasizing diversity and inclusion within the workforce, along with investments in community education and digital skills. Also, the layout of the report is different. It is more transparent with better methods for tracking performance against sustainability benchmarks. The 2018 report further emphasized the importance of technological innovation for social good, as IBM began tying more of its research and development to societal challenges, such as advanced plastic recycling, water conservation, and waste management. The report emphasized the integration of CSR in supply chain oversight, with a focus on more advanced metrics for environmental performance. AI and digital transformation are also mentioned along with inclusion and LGBT community rights. In 2019, there was a notable shift toward global impact, with initiatives focusing on addressing broader challenges, such as climate change and global workforce diversity. The report includes an internal response to the COVID-19 pandemic as well. It also discloses ESG metrics in accordance with the GRI and SASB frameworks. The latest separate social responsibility report, from 2020, was heavily influenced by the COVID-19 pandemic, as global events prompted companies to reassess their societal responsibilities. It showed IBM's rapid response to the global crisis, emphasizing innovations in remote work technology and community support initiatives.

There is a discernible evolution in the depth of the reports. Initially, they focused on establishing CSR foundations and making an impact on communities, but CSR gradually evolved to become strategically integrated into core business practices. The scope of the

reports also expanded, initially focusing on the progression of internal processes to encompass broader global issues, such as climate change, inclusion, and governance. Each report builds upon its predecessor, which illustrates a clear linear progression of IBM's commitment to CSR. With early foundational reports to a more sophisticated, integrated, and data-driven approach, that addresses both internal values and global challenges. Over time, IBM's corporate responsibility reporting became more analytical and quantitative, which reflects a commitment to measuring impact using data and analytics.

4.5 Compliance with Frameworks

Using 2015 as the base year, we can conclude that at that time, ESG reports in their current form had not yet been published by IBM. Prior to being merged with the corporate responsibility reports in 2021, they were previously known as the IBM and the Environment report. In the following, I will scrutinize their compliance with reporting frameworks and standards.

4.5.1 Pre-ESG Era

The reports from 2015 until 2021 constitute the era prior to ESG reporting, considering their terminology. The 2015 environmental report focuses predominantly on environmental performance. In the report, internal metrics are emphasized in connection with energy efficiency, water management, and waste reduction. It mentions that IBM was the first major multinational company to obtain a global ISO 14001 Environmental Management System (EMS) standard registration. The report details that IBM has embraced and expanded the principles provided by this standard to structure its environmental management programs, such as its research locations that use chemicals or its global procurement and global logistics organizations.

IBM's corporate policy on energy conservation dates back to 1974. Since then, IBM has integrated energy management into its overall environmental strategy. When the ISO 50001 standard on energy management systems was first issued in 2011, IBM set a strategic goal for its EMS to adhere to the standard. Within one year, the company achieved ISO 50001 registration. In addition to the ISO standards, the report provides information based on the "Global Reporting Initiative" (GRI) and discloses participation in voluntary programs such as the "Carbon Disclosure Project" (CDP), EcoVadis, and OneReport. This approach fosters engagement with investors, NGOs, government bodies, and other key stakeholders. In addition to adhering to international standards, IBM actively participates in voluntary

initiatives that promote energy efficiency and environmental stewardship. Programs such as ENERGY STAR (in both U.S. and European contexts), the EU Code of Conduct for Energy Efficiency in Data Centers, and partnerships with organizations like the Center for Climate and Energy Solutions and the World Resources Institute illustrate how IBM leverages collaborative efforts to pursue its environmental goals further. The report from 2016 builds on its predecessor and also mentions its compliance with the ISO standards, with product-related standards such as ENERGY STAR, with supply chain and industry initiatives like, Electronic Industry Citizenship Coalition (EICC), and with voluntary programs. From 2017, there has been a noticeable shift in IBM's reporting. The reports began to bridge the gap between purely environmental measures and the expectations of external stakeholders who rely on these for comparison. The 2017 report relies on the same frameworks that were used by its predecessors and mentions IBM's participation in the "Wildlife Habitat Council" (WHC). The report from 2018, while not explicitly stated, based on its comprehensiveness and detail, aligns with the GRI framework's requirements for sustainability disclosures. The report's scope has also been expanded. For the first time, it included emissions and energy from third-party-managed data centers. The process for measuring and verifying GHG emissions is independently audited, reinforcing the report's transparency in emissions reporting. Transparency is also highlighted in the "zero fines or penalties" section with the disclosed number of inspections, which also strengthens the perception of compliance discipline. The 2019 report was IBM's thirty-year environmental report, so it reflects on the previous thirty years. It highlights that IBM played an important role in developing the Public Environmental Reporting Initiative Guidelines (PERI). Although these guidelines have evolved over time, they were instrumental early on in establishing common practices for environmental reporting, and IBM's continued adherence reflects its commitment to transparency and accountability in environmental performance. In 2020, IBM released its last IBM and the Environment Report before transitioning it into an ESG report. This report introduces novelties, such as the selection of content for inclusion, which considers frameworks such as the "Global Reporting Initiative" (GRI), the "Sustainability Accounting Standards Board" (SASB), the "Task Force on Climate-related Financial Disclosures" (TCFD), and the "United Nations Sustainable Development Goals" (*Ibmenvreport_2020*, 2020). IBM incorporates the GRI frameworks in determining the content and scope of the report. This helps to guide the selection of environmental data. While specific GRI metrics are not detailed, IBM's environmental data is reviewed both through internal audits and third-party checks. The report also references SASB guidelines in shaping the environmental disclosures, ensuring that the

content aligns with sustainability accounting standards. As with GRI, although specific SASB metrics are not highlighted, IBM's data undergoes comprehensive internal and external auditing as part of its ISO-certified EMS approach. IBM reflects on TCFD recommendations by integrating climate-related risk management into its reporting processes. The report discusses how IBM identifies and manages environmental and climate risks and opportunities. Senior management and the Executive Board's Corporate Governance Committee review and update risk management practices, including those aligned with TCFD, ensuring that environmental risks are incorporated into high-level decision-making. The implementation of the UN "Sustainable Development Goals" is also mentioned in the context of bringing about "innovation that matters". Meaning IBM is helping its clients worldwide with the use of the most advanced information technologies, such as machine learning or blockchain. IBM's Board of Directors and its Corporate Governance Committee oversees this initiative.

4.5.2 Post-ESG Era

The reports from 2021 until today are called ESG reports. The shift in terminology indicates a change in their scope and object alignment and also signals that social and governance matters are now formally integrated alongside environmental issues. The 2021 report lists a number of frameworks, such as the GRI, SASB, TCFD, and UN SDGs, with which it aligns the disclosed metrics. The report also states that the diverging interpretation of materiality will not be reconciled in the report due to the variety of frameworks and standards used. While in the previous reports, the emphasis was mostly on environmental issues, since the 2021 ESG report, social dimensions such as diversity and inclusion have also been involved alongside community development initiatives, supply chain responsibilities, and data security aspects. The following report from 2022 follows the footsteps of the previous one in terms of framework adherence. The report notes that the GRI Standards inform its content and disclosures. It confirms that the disclosures take into account the SASB frameworks, and an index is available on the IBM Impact site to outline the SASB-related data points. The report incorporates TCFD recommendations in its analysis of risks and opportunities related to climate change, structuring its discussion to align with TCFD's guidance on governance, strategy, risk management, and metrics. The report connects its strategic initiatives and performance with the broader objectives of the UN SDGs, thereby contextualizing its contributions to sustainable development. It elaborates on the company's ESG achievements and commitments. The accountability bodies are also mentioned, just as in the 2020 report. The ESG commitments are categorized into three categories: Ethical impact, Equitable

impact, and Environmental impact. Compared to the previous report, the overall visual outlook of the report has improved, with graphics and charts helping to comprehend the metrics and data. The 2023 ESG report adheres to the same frameworks and standards as its predecessors from 2021 and 2022. IBM's ESG goals and their progress are clearly defined and stated in the introduction, and the outlook of the report is very similar to that of 2022. Since the 2024 ESG report has yet to be published, I analyzed the available State of Sustainability Readiness 2024 report (*The State of Sustainability Readiness Report 2024*, 2024). The report emphasizes that sustainability is becoming a strategic imperative. Despite a strong positive outlook on technology's role, significant challenges remain. Organizations are advised to adopt holistic strategies -including enhanced IT infrastructure, targeted workforce training, and data-driven decision making- to bridge existing gaps, streamline sustainability practices, and fortify their resilience against climate risks. The report itself is not structured in accordance with any recognized framework, but it is a forward-looking research that positions IBM for future regulatory and stakeholder demands.

4.6 Analysis Aspects

In the following, I will analyze IBM's reports according to various criteria such as climate change and carbon emission, supply chain, biodiversity and conservation, and social and diversity aspects.

4.6.1 Climate Change and Carbon Emissions

In this chapter, I will look at data and metrics on climate change, e.g., GHG emissions, renewable electricity usage, energy conservation, and CO2 emissions, and scrutinize their change alongside the reports' adherence to different frameworks.

Over the years, IBM's sustainability and ESG reports have shown an evolution in the granularity and transparency of data related to climate change and CO2 emissions. Earlier reports, e.g., 2015, 2016, often provided aggregate numbers and basic trends, whereas more recent documents (such as the 2021, 2022, and 2023 reports) tend to include more detailed breakdowns, targets, and performance indicators over time, reflecting an industry-wide trend toward more transparent and comparable reporting. Figure 4 (Figure 4) illustrates both IBM's progress on emission reduction against the base year 2010 and its growing alignment with major sustainability frameworks like GRI, SASB, TCFD, and SDGs over time.

Total GHG emissions are reported in terms of carbon dioxide equivalents. In addition to absolute CO₂ emissions, the more recent documents discuss scope-1, scope-2, and even some aspects of scope-3 GHG emissions.

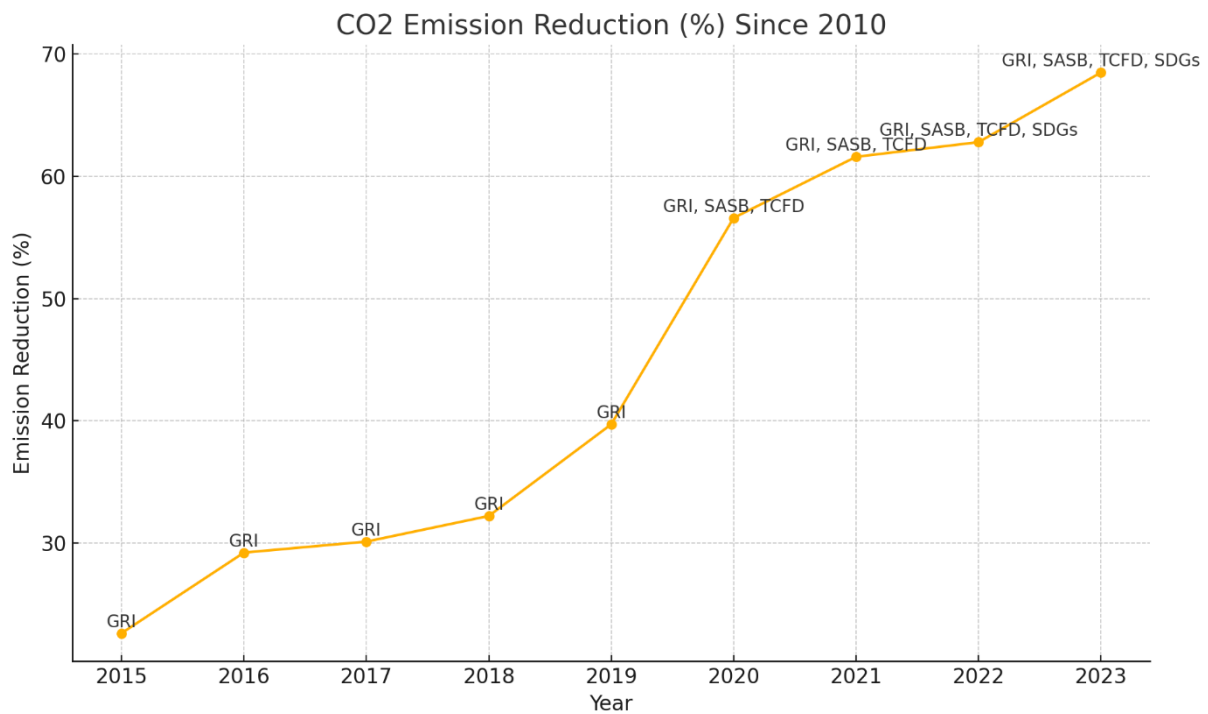


Figure 4 Emission Reduction

Source: Own editing

However, IBM's reports do not directly document scope 3 emissions, but the growing emphasis on assessing them means the company is gradually taking a broader look at value chain impacts like supplier activities and product use. A company has little influence over scope 3 emissions since they are generated alongside a company's value chain. For this reason, in 2010, IBM announced that all of its first-tier suppliers should develop management systems to identify their environmental impacts and develop plans to reduce them. There is a detectable steady increase in renewable electricity use. The adoption of TCFD likely influenced the increased focus on climate-related risks and opportunities, including those linked to energy. Over the period from 2015 to 2024, the renewable electricity share reflected in IBM's operations has likely increased. Early reports often show that the percentage of renewable-sourced electricity was relatively modest. However, as global sustainability standards and pressure mounted, subsequent reports appear to illustrate a growing commitment to green power. The goal is to reach 75% green electricity usage by 2025 and 90% by 2030. Figure 5 (Figure 5) shows IBM's renewable energy usage in a linear timeline illustrating an upward sloping trend. The company's renewable energy is generated from

wind, solar installations, biomass, and large and small hydroelectric plants. The 2017 report elaborates on how renewable energy is procured. There is also a discernible trend in connection with energy efficiency and energy conservation.

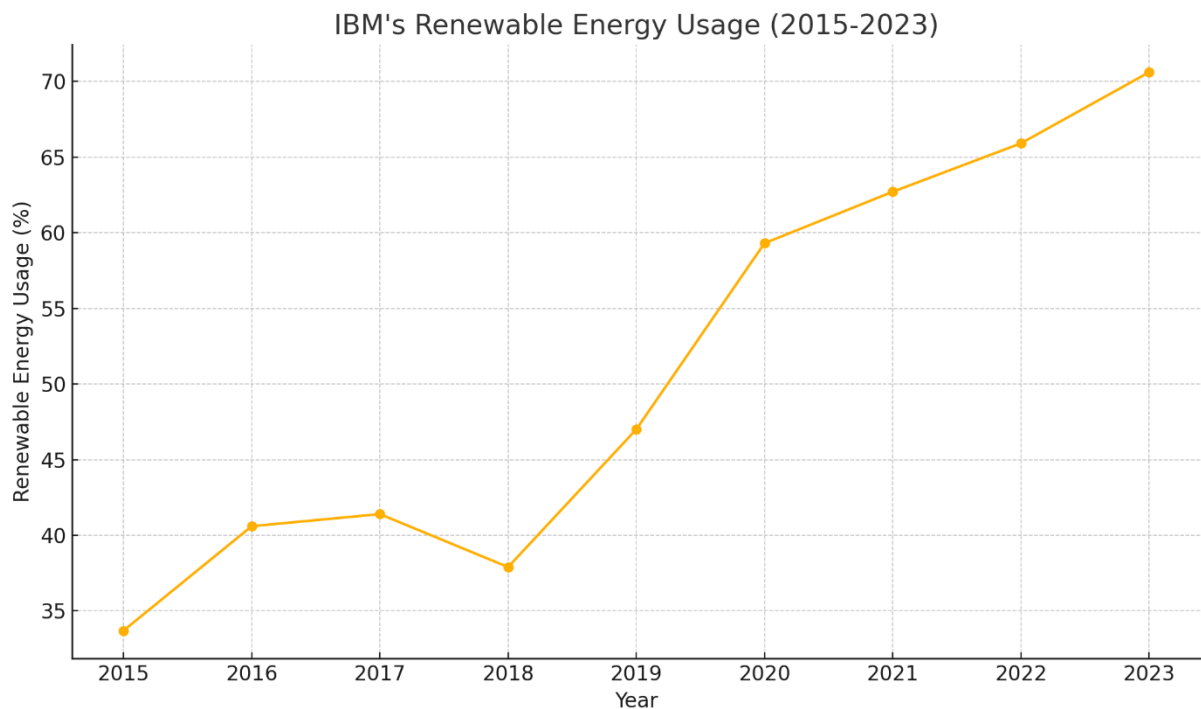


Figure 5 Energy Usage

Source: Own editing

Early reports (2015–2017) indicate efforts to benchmark energy use, while more recent reports (2020–2024) highlight advanced efficiency programs that often report significant reductions in energy intensity, meaning less energy use per unit of business output. The reports also document IBM’s Power Usage Effectiveness (PUE) at many of its data centers worldwide. “PUE is the ratio of the total energy consumed by the data center, divided by the energy consumed by the IT equipment.” (*IBMEnvReport_2015*, 2015). Since 2016, the reports have included a chart showcasing IBM’s energy conservation savings by project type, such as IT and cooling efficiency projects in data centers or heating, ventilation, and air conditioning projects. The 2020 report mentions a significant decrease in energy consumption, which is presumably attributable to the lower office space utilization during the COVID-19 pandemic. The company also puts an emphasis on making its data centers, headquarters, and buildings energy efficient, meaning they are built in a way to optimize their use of energy and materials and minimize GHG emissions while also paying attention to their water usage (*2017 IBM and the Environment Report*, 2017).

In summary, the trend within IBM’s documentation clearly progresses from basic, largely qualitative notes on climate impacts to a sophisticated, multi-dimensional set of performance

metrics. These changes indicate an increase in the quantity of data disclosed and a deepening in the rigor and structure of how climate change metrics and CO2 emissions are tracked and managed over time.

4.6.2 Supply Chain

IBM is committed to a responsible supply chain and sets strict compulsory conditions for its suppliers. “Since 2010, the company has required all of its first-tier suppliers to maintain a management system to address their social and environmental responsibilities and measure and publicly disclose their performance.” (*IBM Supply Chain Responsibility Requirements*, 2025). This process is managed by IBM’s “Electronic Industry Citizenship Coalition” (EICC). It has a set of 8 goals that suppliers must comply with. Materials, parts, and products suppliers must additionally align their activities with IBM’s product content declaration (PCD). The first goal contains the order for suppliers to adhere to the “Responsible Business Alliance (RBA) Code of Conduct,” which includes elements such as “labor, health & safety, environment, and ethics.” (*Ibmenvreport_2020*, 2020). The reports mention the requirement for suppliers to establish quantifiable goals for energy conservation, GHG emissions reduction, and waste management, and publicly disclose results. First-tier suppliers must provide product end-of-life management (PELM), meaning they must track and administer the handling of hazardous materials until the final disposal or recycling location. Later reports (2021-2023) expand the explanation of supplier duties, which can be attributed to the structural change in the reporting style. Supplier audits became required, and their contents will be publicly disclosed, including nonconformances with the RBA. Figure 6 (Figure 6) illustrates the audits of IBM suppliers by country in the year 2022. The diversification of suppliers also came to the foreground. IBM’s supplier diversity program supports suppliers that are owned and managed by black or Hispanic minorities.

We can conclude that the expectations of IBM from its suppliers in recent years have become more stringent compared to the 2010s. The documentation of them has also expanded with more precise metrics and charts.

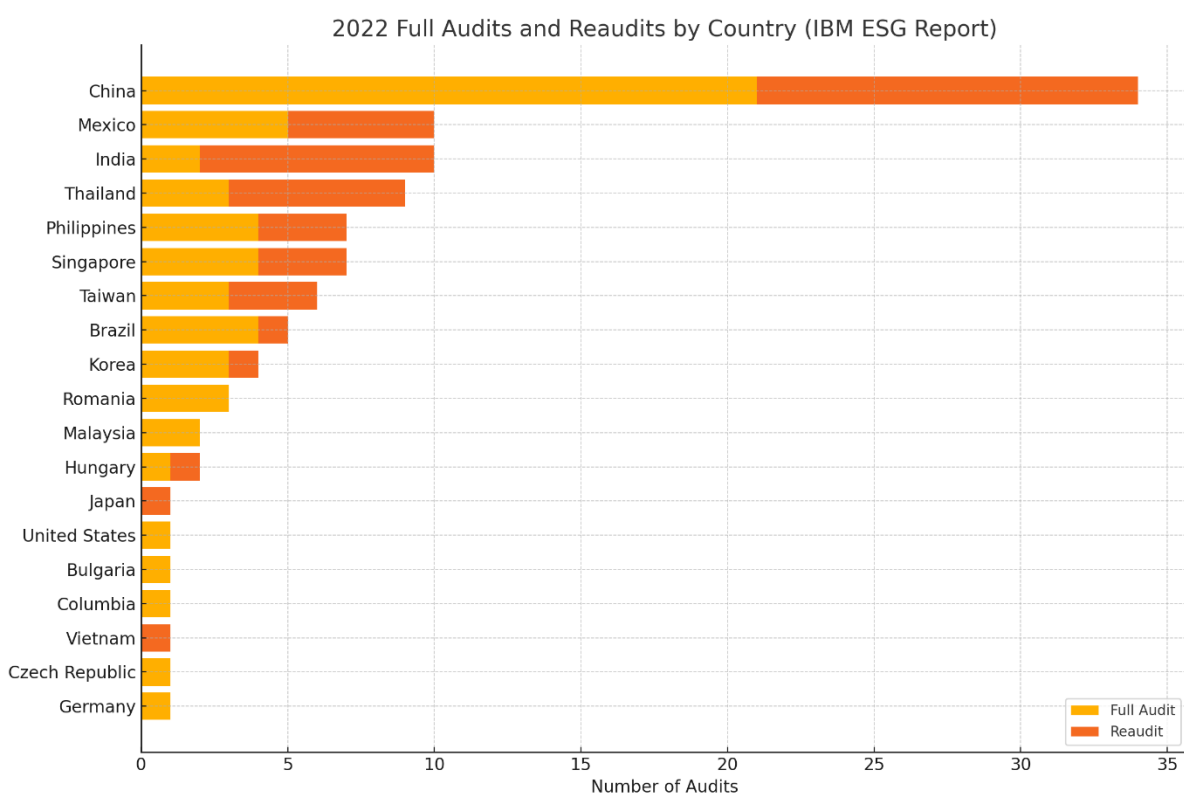


Figure 6 Audits

Source: 2022 IBM ESG Report

4.6.3 Biodiversity and Conservation

IBM has a long-standing commitment to environmental leadership, including conserving natural resources and protecting biodiversity, formalized through corporate policies since 1971. IBM aims for year-to-year reductions in water withdrawals at its locations in water-stressed regions. In 2021, withdrawals at these locations decreased by 1.2%. In 2022, withdrawals decreased by 0.19%, but increased by 3.4% in 2023 due to employees returning to offices after the COVID-19 pandemic. The company's conservation efforts include installing automatic/efficient irrigation, upgrading cooling towers, pipe maintenance, reusing/recycling water, and raising employee awareness. In 2023, conservation efforts avoided approximately 25,800 cubic meters of withdrawals. Efforts are also made at locations outside water-stressed regions, saving over 40,000 cubic meters in 2021 and 11,400 cubic meters in 2022 through various projects like optimizing water systems and utilizing rainwater. IBM has been a Wildlife Habitat Council (WHC) member since 1991. A goal was set in 2021 to plant 50 pollinator gardens at IBM locations globally by year-end 2023. This goal was exceeded, with 70 gardens established by the target date. IBM participated in the Jefferson

Project at Lake George to monitor and understand freshwater ecosystems utilizing its state-of-the-art technologies, like AI tools and Internet of Things (IoT). Technology was also applied in South Africa to help protect endangered rhinos by using IoT sensors on prey animals to detect poacher presence. Conserving energy is also among IBM's objectives. IBM prioritizes reducing energy consumption through conservation and efficiency projects across its operations, particularly in data centers. This includes optimizing IT infrastructure, improving cooling efficiency, and leveraging analytics for smarter building management. IBM aims to procure 75% of its worldwide electricity consumption from renewable sources by 2025 and 90% by 2030. Figure 7 (Figure 7) shows the conserved energy of IBM from 2015 to 2023.

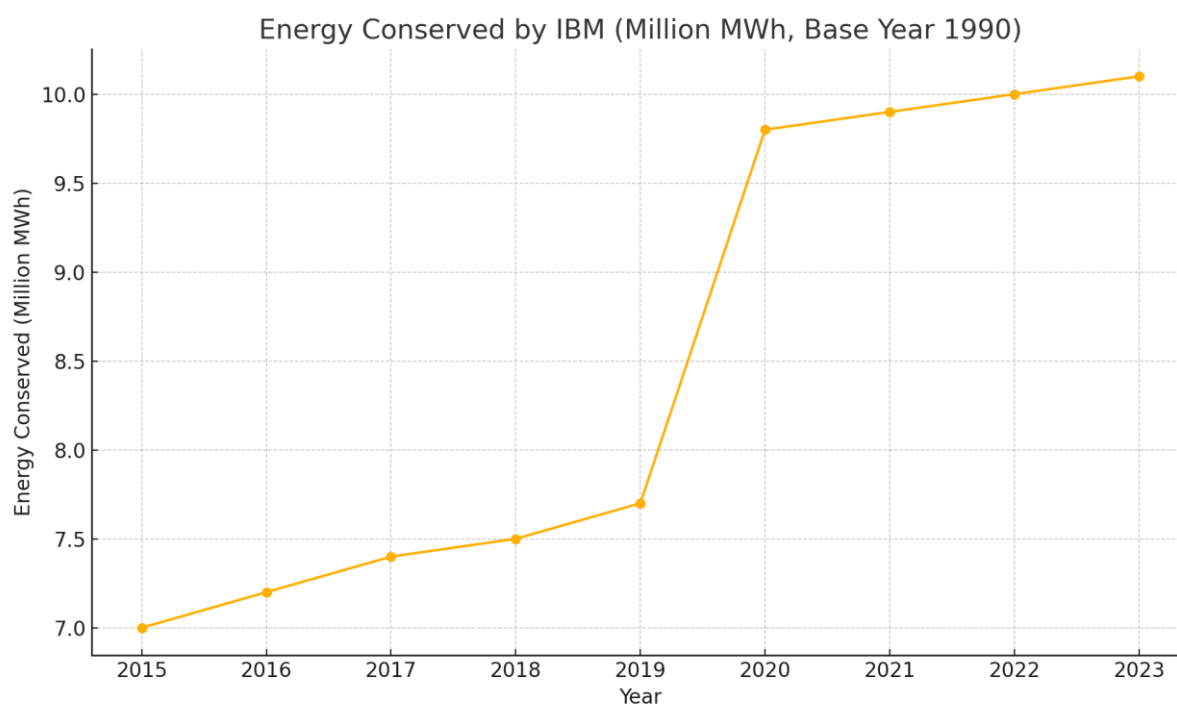


Figure 7 Energy Conservation

Source: Own editing

4.6.4 Social and Diversity

Social aspects as an individual topic first appeared in the reports in 2021. Before that, the emphasis was mainly on environmental issues and undertakings. This indicates an emerging focus from IBM on its employees' well-being. We can also mention that the emergence of social aspects coincides with the election of the new U.S. presidential administration under Joe Biden. From this point on, social issues take up a large part of the report. However, in my opinion, it does not happen to the detriment of other “legacy” issues such as the environment and climate change. The elaboration on these other topics has become more succinct, and they

are showcased in the form of more concise metrics and illustrations. In the 2021 report, IBM already underscores its core corporate initiative to provide equal opportunities for all its employees. This is embodied through the “emb(race)” initiative, which is aimed at reducing inequalities and promoting transparency. The 2022 report goes a step further and includes employee mental health initiatives. I believe this came to the fore due to the COVID-19 pandemic, which revealed many vulnerabilities of the workforce. IBM also cares for its employees' further development through in-house, comprehensive training, which is truly useful and practical in my experience. To highlight its commitment to diversity, equity, and inclusion (DEI) trends, IBM discloses hiring and board representation trends, showcasing the gender and race of board members and charts showing minority (black, Hispanic) representation among newly hired workers. I can conclude that the last two reports are more “woke” than their predecessors, but how long this trend will last under current political developments is another question.

4.7 Future Prospects of ESG Reporting

The prospects of ESG reporting are diverging. On a European level, the “Corporate Sustainability Due Diligence Directive” (CSDDD) went into effect. “This Directive aims to foster sustainable and responsible corporate behavior in companies’ operations and across their global value chains. The new rules will ensure that companies in scope identify and address adverse human rights and environmental impacts of their actions inside and outside Europe.” (*Corporate Sustainability Due Diligence - European Commission*, 2025). The directive must be transposed into national law by 2027 and will also require companies to report on their due diligence activities. In addition to the European Commission doubling down on strengthening ESG regulations, technological integration into reporting can also bring about changes. Using software and AI can reduce the cumbersome aspects of reporting and ensure a more dynamic and efficient mechanism. The scope of required ESG disclosures is also expanding due to a growing global mandate for a wider range of companies, including SMEs (*ESG Reporting*, 2024). The political climate is also changing in the backdrop. While under President Joe Biden, the U.S. administration openly advocated the green transition, which correlates with ESG goals in many aspects, the shift in politics brought about by re-elected Donald Trump is already perceptible (Winston, 2025). His hostility against ESG principles will most probably lead to companies abandoning ESG investing and dropping their diversity, equity, and inclusion (DEI) programs. Regarding the environment, support for fossil fuels and oil and gas companies is also on the agenda. Trump's pledge to “drill, baby,

drill" signifies a shift in the global discourse on fossil fuels (*How Trump's "drill, Baby, Drill" Pledge Is Affecting Other Countries*, 2025), and the U.S. has already notified the UN of its likely withdrawal from the Paris Agreement. Oil manufacturer British Petroleum already announced it will cut its renewable investments and instead will focus on increasing oil and gas production (Ambrose & correspondent, 2025). The support for electric vehicles in the U.S. in the form of tax breaks is also drawing to a close. With these global shifts in mind, we can say that the near future of ESG initiatives and reporting is gloomy and uncertain.

4.8 Conclusion

Overall, my thesis covered the creation, development, and application of ESG frameworks and standards, complementing the research with an analysis of IBM's public ESG reports according to certain criteria. It provides a comprehensive understanding of environmental issues and how they are dealt with from the perspective of multinational companies, especially IBM.

Answering the first research question, we can conclude that IBM's reports show a gradual adherence to ESG frameworks and standards, with certain issues, e.g., social aspects, gaining more and more emphasis. While reports from the mid-2010s complied with just a few voluntary frameworks, later disclosures show an expansion in this aspect.

The impact of the adherence on the disclosed metrics is also detectable. While earlier reports were more elaborate on environmental issues and included long paragraphs about certain undertakings, later reports are more concise in terms of disclosed data and are visually more appealing, meaning they include colored charts and illustrations, which help in their comprehension. However, I believe that their brevity is not to the detriment of the amount of disclosed data.

Lastly, regarding future developments, I think the world of ESG will split into parts, meaning there will be regions that will strive to strengthen their commitment and also regions where its importance will be undermined. The European approach will bring more regulations, while in the U.S., a step back is noticeable, especially in the social aspects of ESG, with many companies withdrawing from their DEI initiatives.

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