Impact and sustainable value creation in the Technology Industry

Making the Sustainable Development Goals a key driver within the corporate strategy – The case of Microsoft

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Abstract

Dissertation Title: Impact and sustainable value creation in the Technology Industry - Making the Sustainable Development Goals a key driver within the corporate strategy – The Case of Microsoft
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Within recent years it became clear that the wave of sustainability is not only an emerging trend but rather a crucial dimension likely to shape the long-term future. As a consequence, an increasing number of organizations seeks to integrate this dimension into their corporate strategy without a structured approach to create and capture lasting impact.

Microsoft, one of the biggest technology companies worldwide which effectively managed to implement a sustainability strategy while ensuring stakeholder capitalism. Within the last years, the organization used its resources and network to drive collaboration as well as innovation in order to foster quality education, mitigate climate risks, and enable equal work opportunities in a safe environment.

This case study presents the way private organizations bear the potential to significantly convert the Sustainable Development Goal (SDG) methodology into practice; how activities can be composed to achieve impact; and how sustainable value creation can be made tangible by measuring stakeholder capitalism. The dissertation clarifies successful corporate impact creation by aligning stakeholders' interests with sustainable objectives within strategic positioning, realizing programs, partnerships and support based on the SDG's as well as quantifying and appropriately assessing outcomes.

Resumo

Título da Dissertação: Impacto e criação de valor sustentável na Indústria de Tecnologia - Tornando os Sustainable Development Goals um fator chave dentro da estratégia corporativa – O Caso da Microsoft
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Palavras-chave: Sustainable Development Goal • Estratégia sustentabilidade • Impacto • Capitalismo de Stakeholders • Medição de Impacto • Tecnologia • Microsoft

Nos últimos anos, ficou claro que a onda de sustentabilidade não é apenas uma tendência emergente, mas sim uma dimensão crucial que provavelmente moldará o futuro de longo prazo. Como consequência, um número crescente de organizações busca integrar essa dimensão em sua estratégia corporativa sem uma abordagem estruturada para criar e capturar impactos duradouros.

Microsoft, uma das maiores empresas de tecnologia do mundo, que conseguiu implementar efetivamente uma estratégia de sustentabilidade, garantindo o capitalismo das partes interessadas. Nos últimos anos, a organização usou seus recursos e rede para impulsionar a colaboração e a inovação, a fim de promover a educação de qualidade, mitigar os riscos climáticos e permitir oportunidades iguais de trabalho.

Este estudo de caso apresenta a forma como as organizações privadas têm o potencial de converter significativamente a metodologia dos Sustainable Development Goals (SDG's) em prática; como as atividades podem ser compostas para obter impacto; e como a criação de valor sustentável pode ser tangível medindo o capitalismo dos stakeholders. A dissertação esclarece a criação de impacto corporativo bem-sucedida, alinhando os interesses das partes interessadas com objetivos sustentáveis dentro do posicionamento estratégico, realizando programas, parcerias e apoios com base nos SDG's, além de quantificar e avaliar adequadamente os resultados.

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List of Abbreviations

UN	United Nations
SDG	Sustainable Development Goal
MDG	Millennium Development Goal
TCFD	Task Force on Climate-related Financial Disclosures
ESG	Environmental, social and governance
GHG	Greenhouse-Gas-Emissions
tCO2	Tons of carbon dioxide
mtCO2	Metric tons of carbon dioxide
CEO	Chief Executive Officer
ICT	Information and Communications Technology
IT	Information Technology
IoT	Internet of things
AI	Artificial intelligence
NGO	Non-Governmental Organization
NPO	Non-Profit Organization
CSR	Corporate social responsibility
CIF	Climate Innovation Fund
LQBTQI+	Lesbian, gay, transgender, questioning, intersex and more
UNICEF	United Nations International Children's Emergency Fund
UNESCO	United Nations Educational, Scientific and Cultural Organization
BP	Basis point
ML	Megaliter
FY	Fiscal Year

1 Introduction

In the last decades sustainability has become an omnipresent topic in every industry and society. Not only is the premise of sustainability seeming to present the dawn of a new strategic era but also it is being accelerated by growing interest and awareness of the general public. While trying to argue for the wave of sustainability and identify suiting comparisons to recent economic developments it was often assumed to be a temporary trend. However, it is obvious for now that the premise of acting in a sustainable way is going to shape the future in long-term. It is not only the social pressure and demand that forces corporations to integrate sustainable initiatives into their strategy, but also political regulations, changing stakeholder interests and raising doubts about the perceived image of a business are part of the driving factors (Galpin & Lee Whittington, 2012).

Under this premise, the Sustainable Development Goals have been developed in order to accomplish global interests for the population as well as the planet by the year 2030. Within these goals and targets digital technology and software plays a major role and none of the goals is detached from this aspect. “From ending extreme poverty, to promoting inclusive economic growth and decent work, to reducing maternal mortality, to achieving universal literacy and numeracy and doubling the productivity of small farmers – progress is intertwined with the use of digital technology and new forms of digital cooperation. “ (UN. High-Level Panel on Digital Cooperation, 2019, p. 9). With topics like the economic crisis and the desolating consequences of climate change being enormously accelerated by the still ongoing pandemic, the fast progress in IT is significantly determining society’s whole living environment. However, with the huge potential to support pressing sustainability-related global needs, the speed of this shift is also contributing to the development of new problems that need to be tackled and solved (Art & Emejulu, 2021).

At the same time, the growing consciousness comes along with growing doubts on how sustainability strategies can be integrated in the organization’s competitive strategy, especially since theories up to this point are rather focusing on decoupling than the implementation. The integration attempt of a sustainability strategy often involves tensions about the legality of these actions due to the businesses persisting approach to stay competitive and generate profits. Moreover, the integration process can cause different tensions within the organizations strategy – between the goals of sustainability and the actual possibilities to achieve them as well as

between the corporate strategy and the sustainability strategy (Hengst et al., 2020). Although it is common sense that corporate sustainability strategy articulation is of high importance for organizations, there is still a lack of understanding and guidelines to implement the sustainability strategy into an existing business creating a gap that needs to be bridged (Engert & Baumgartner, 2016). Porter and Kramer identified this gap referring to the need for a comprehensive sustainability framework that describes the undertaken steps until the final implementation, and argued that this gap might be one of the reasons sustainability efforts have not been as efficient as they could be to the missing link of the sustainability strategy to the overall business strategy (Galpin & Lee Whittington, 2012; Porter & Kramer, 2006).

The problem this thesis strives to understand is therefore how a company's sustainability strategy can be efficiently integrated into its corporate strategy under the premise of achieving impact and how this strategic alignment creates lasting value for stakeholders. In order to address this problem statement, the dissertation focuses on how impact can be created within the software industry by making the Sustainable Development Goals a key driver within the corporate strategy, and shows this within the framework of a teaching case by the example of Microsoft. In order to evaluate this case, the following teaching questions are discussed:

1. How is Microsoft integrating the SDG's in their sustainability strategy and what is the achieved impact?
2. How can sustainable value creation be made tangible to conclude the benefits for stakeholders?

2 Literature Review

2.1 Corporate strategy

Corporate strategy plays a major role within modern management practices and is separating the minds under strategists due to managers trying to achieve since decades diversification but on the opposite no agreed definition of corporate strategy or its formulation exists. However, it is common consensus that two kinds of strategy exist – the business unit strategy addressing how to achieve competitive advantage in each of the businesses an organization competes in and the corporate strategy addressing company's area of business as well as the management of its separate business units (Porter, 1989). While undertaking extensive research on corporate strategy, various definitions have been formulated. According to Andrews:

> *"Corporate strategy is the pattern of decisions in a company that determines and reveals its objectives, purposes, or goals, produces the principal policies and plans for achieving those goals, and defines the range of business the company is to pursue, the kind of economic and human organization it is or intends to be, and the nature of the economic and noneconomic contribution it intends to make to its shareholders, employees, customers, and communities."*
>
> – Andrews (1987, p. 13)

Another definition is described by Collis and Montgomery (2012), corporate strategy is "the way a company creates value through the configuration and coordination of its multibusiness activities" (Montgomery & Collis, 1998, p. 72). In detail, one of the key drivers for corporate strategy is asset allocation, which enables organizations not only to gather but also sustain and retire resources through time (Capron & Mitchell, 2012; Helfat & Eisenhardt, 2004). Lynch (2006) points out three core areas of corporate strategy consisting of the strategic analysis, strategy development and the strategy implementation. The strategic analysis is closely related to the company's stakeholders, since the corporate strategy creates benefits for the persons engaged with the firm and describes the need for detailed analysis of the company's mission, goals, relationship with its environment as well as resources. The strategy development describes the process of selecting one of the developed options and explains the optimal strategy to be built upon the particular skills of the firm in combination with the unique relationships it has with its stakeholders. The core area of strategy implementation describes the final step and the need for a strategy to be executable. Political issues, acquisitions, critical relationships as well as motivation should be explored carefully and can present major challenges in terms of

execution. In addition to that Lynch (2006) illustrates five key elements of strategic decisions that are driving an organizations potential to create value and become competitive – the long-term sustainability of a strategy, the development of processes to deliver the strategy, the possibility to achieve competitive advantage, the exploitation of linkages between the organization and its environment and the vision meaning the ability to push the company forward beyond its existing surrounding (Lynch, 2006).

However, it is to mention, that different kind of goals restrict other kind of goals in the sense that financials objectives for example can come along with limitations to achieve social or environmental objectives. To achieve consistency, the interrelation between the goals is a major driver and the pattern of objectives and policies is providing the foundation for the distinctiveness of an organization that, in the best case, differentiates itself by that from other organizations (Andrews, 1987).

2.2 Sustainability and Strategy

The area of corporate sustainability is progressively gaining relevance for managers and legislators in a global context (Grossman, 2013; Intergovernmental Panel on Climate Change & Edenhofer, 2014). With environmental and social matters as well as claims from stakeholders and regulators evolving more and more organizations are pressured to reconcile itself by significantly reducing their footprint on the environment and at the same time increasing their efforts in order to foster sustainable development through clear presentation of managerial strategies (Lacy et al., 2011). Deduced from the concept of sustainable development and being described as a development meeting present needs without jeopardizing future generations potential to address their needs, corporate sustainability can be similarly expressed as a development meeting present needs of direct and indirect stakeholders without jeopardizing future stakeholder's potential to address their needs according to Dyllick and Hockerts (Dyllick & Hockerts, 2002; WCED, 1987). Another explanation of the idea of corporate sustainability is given by Salzmann et al. describing it as a "strategic and profit-driven corporate response to environmental and social issues caused through the organization's primary and secondary activities" but also pointing out that corporate sustainability efforts doesn't necessarily fit each organization in a general point of time (Salzmann et al., 2005, p. 27). The common goal of sustainability strategies is to even out an organizations as well as society's social, environmental and economic requirements and they therefore address a company's social and environmental

obligations in fields as for example product policy (Darnall et al., 2010; Epstein & Roy, 2001; Surroca et al., 2010). For that reason, developing a fitting sustainability strategy remains a major issue and should be planned thoughtfully in order to meet an organizations specific state of affairs (Baumgartner, 2014; Engert & Baumgartner, 2016).

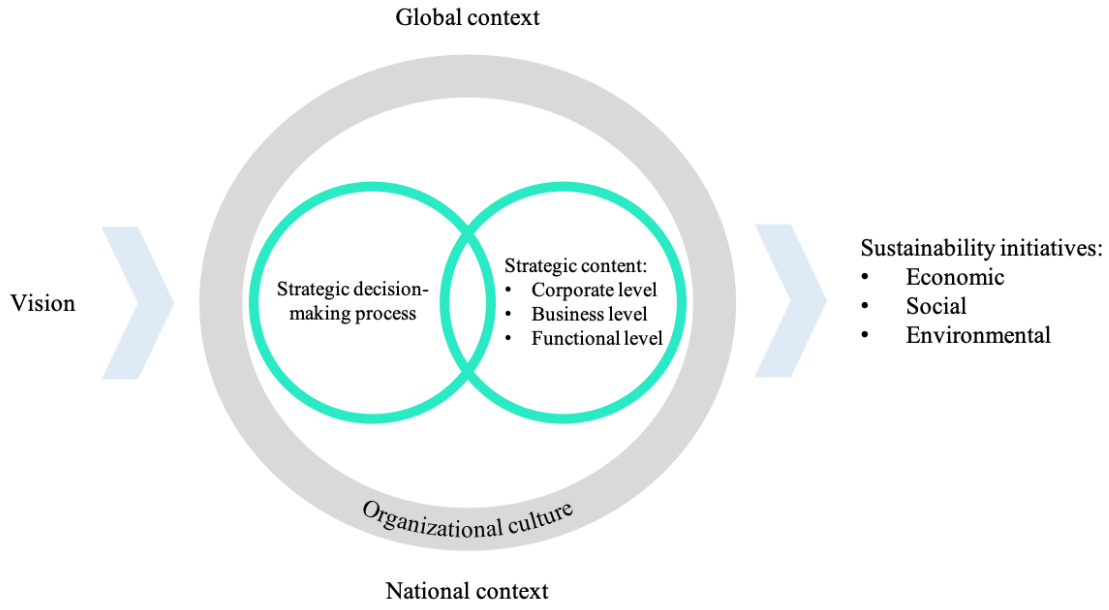
Existing literature on corporate sustainability and the reasons it makes sense for organizations to incorporate a sustainable strategy in its corporate strategy is already quite distinctive, however only few literature exists on how the strategy can actually be attained in practice (Klettner et al., 2014). For that reason, the crucial issue to address is no longer if a sustainability strategy should be integrated, the relevance of developing a comparable strategy has been substantially acknowledged by executives – it is about the way in which it can be incorporated, since the step of converting the theory into explicit exercises persists to be particularly demanding (Baumgartner, 2014; Epstein & Roy, 2001). The perceived need to act on sustainable initiatives by organizations also culminates too frequently in a mixture of disorganized sustainability projects which end up not to be linked to the corporate strategy and consequently don't achieve impact on a large scale nor increase lasting competitive advantage. Porter and Kramer (2006) suggest each company to determine in particular the social challenges it is prepared best to take actions on and achieve the highest competitive advantages from (Porter & Kramer, 2006).

Several academic studies made efforts throughout the years in order to tackle the issue of strategy implementation and different definitions have been developed (Hilker, 1993). While Kotler (2001) describes strategy implementation as "the process that turns plans into action assignments and ensures that such assignments are executed in a manner that accomplishes the plan's stated objectives ", Nathan (2010) explains „strategy implementation is about getting the strategy as formulated accomplished through employee initiatives. Formulation (no matter how carefully crafted) without a dedicated plan for implementation will amount to little" (Kotler, 2001; Nathan, 2010, p. 38). Strategy implementation is a matter every type of business is encountering and consequently one of the most crucial strategic management issues also not being simplified by the growing importance of corporate sustainability (Li et al., 2010) (Engert & Baumgartner, 2016).

Since corporate sustainability might be the absent essential part of corporate strategy, it is of even greater importance to properly assess sustainability topics while making critical choices.

To support this thesis, Bonn and Fisher (2011) developed a framework describing sustainability as an integral ingredient of strategy and argued in order for companies to achieve a higher degree of sustainability, decision-makers need to tackle the separate dimensions of sustainability within the managerial process of undertaking decisions as well as a key-segment of strategic elements at the corporate, business and functional levels (Bonn & Fisher, 2011).

Figure 1. Sustainability as a vital part of strategy



Source: adapted from Bonn & Fisher (2011)

Despite the fact that there is consensus about the high relevance of developing sustainability strategies, Epstein and Roy (2001) conclude the theory alone is not enough when it comes to the integration of a sustainability strategy in practice and the majority of undertaken studies proceeds with theoretical examinations as opposed to practical application of these frameworks (Engert & Baumgartner, 2016; Epstein & Roy, 2001).

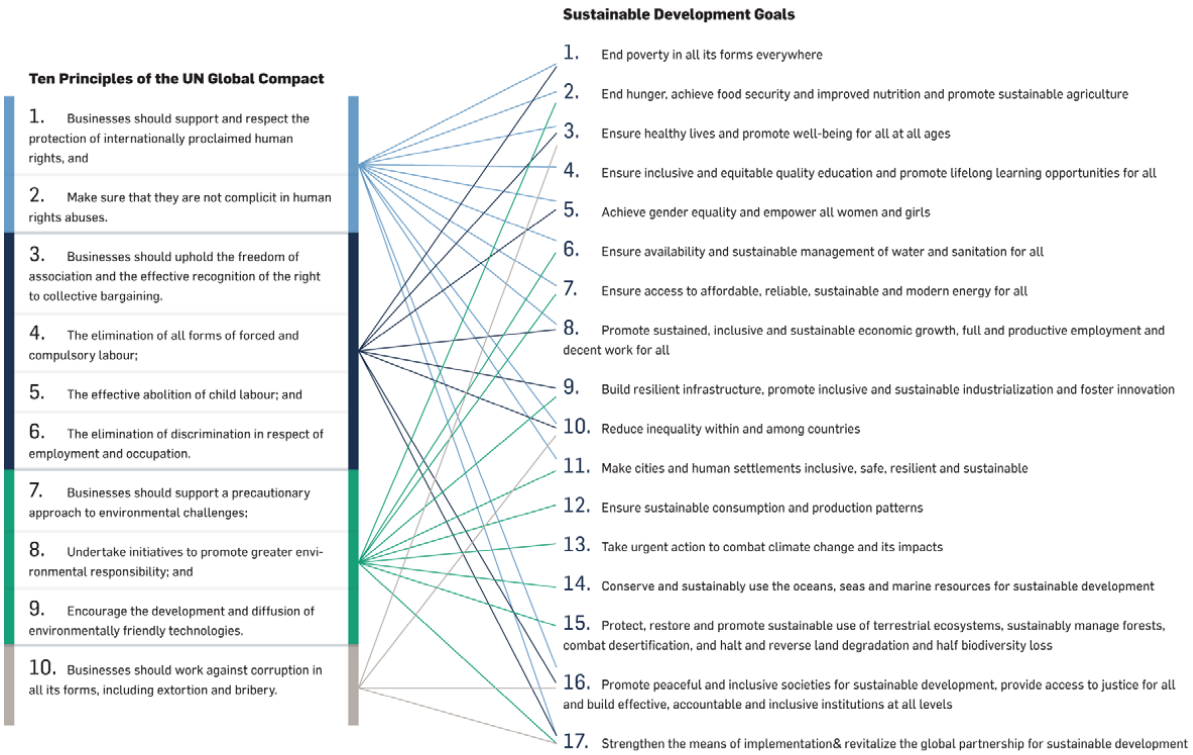
Sustainability related topics often impact the cost and revenue structure of an organization and have consequently to some extent also direct repercussions on an organizations financial profitability and King et al. (2001) argued, that "a firm's environmental performance relative to its industry is associated with higher financial performance" (King & Lenox, 2001, p. 106; Schaltegger & Synnestvedt, 2002). Supporting this hypothesis, some researchers agree on enhanced economic performance as a result of undertaking sustainability actions (Hart, 1997;

Konar & Cohen, 1997; Porter, 1995; Russo & Fouts, 1997; Waddock & Graves, 1997). Summarizing it, there is research explaining the positive link between sustainability strategies and financial outcomes and on the other side a negative financial results of organizations exposed to sustainability problems (Banerjee, 2002; Russo & Fouts, 1997).

2.3 SDG's and their relevance for the private sector

The continued growth of the world's population and increasing consumption per person are the biggest drivers of social tensions as well as environmental degradation, which has put increasing pressure on society in the recent past as well as today. The interplay of these forces led 193 countries to sign the United Nations Sustainable Development Goals for 2030, the so-called SDG's, in an epochal universal political agreement in September 2015 (Martin, 2015). "The SDG's break down silos between different actors and geographies – creating space and opportunities for new ways of working towards solutions, including by working collaboratively with a broader range of partners and constituencies" (United Nations, w. y., p. 2). According to Scheyvens et al. (2016) prioritizing the function of the private segment appears to be one of the most crucial changes within the conceptualization of the SDG's, which presents an innovative approach for the future to develop policy and practice while focusing on a huge bandwidth of universal objectives for the population to reach by 2030 in comparison to the Millennium Development Goals.

Figure 2. Linkages between the UN Global Compact Ten Principles and the contribution that these can make towards the achievement of the SDG's



Source: UN Global Compact (2016)

In line with that, the UN Global Compact developed ten principles providing the base for organizations willing to address the SDG's. Representing the core values of responsible business, these principles demand an organizations management to act in a manner which values the essential liabilities within the topics of sustainability, human rights, labor as well as anti-fraud and in turn ensures corporations actively engage in the detection, anticipation, alleviation and the taking of responsibility for the harmful influence it eventually causes on its stakeholders. Under this premise, figure 2 shows not only the 17 universal SDG's developed and signed by the United Nations member states, but also illustrates the basic interconnections between the UN Global Compact's Ten Principles and the SDG's. Moreover, the authors of the principles argue that organizations are able to create the conditions for longsighted prosperity and account for the fundamental social and environmental liabilities by integrating the ten principles into their strategy. In addition, they point out that the segment of corporations has the potential to develop business models able to address universal issues like the climate change, supply of food and water up to gender equality and poverty and consequently embodies

a flourishing market for business innovation of significant size (United Nations Global Compact, 2016).

The developed concept of the SDG's consolidates the various parties originating from policy, companies as well as the general public and equivalently demands them to follow a track characterized by sustainability in the future (Scheyvens et al., 2016). Scholars suggest that the potential for innovation, ability to respond, effectiveness, and access to know-how as well as assets of the private segment are characteristics that are especially important for achieving the SDG's (Lucci, 2012; Porter & Kramer, 2011). Moreover, Pingeot (2014) explains four key messages and policy recommendations of business actors in the post-2015 process. Firstly, their vision for sustainable development concentrates on growth and technology, in the sense that growing the economy is a crucial factor to achieve collective wealth and consequently stop global poverty. Sustainability and growth are being facilitated by new technologies which ideally should be delivered by the private segment. Additionally, Pingeot suggests that leading business actors consider corporate sustainability as the central instrument for sustainable development and that they describe the function of politics of creating nature that enables environments for the private segment to provide solutions for the sustainability objectives (Pingeot, 2014).

2.4 Impact

In general, the expression (social) impact refers to the created impact of an organization on the population regarding the economic, environmental and social component (Maas & Liket, 2011). According to the United Nations Development Group (2011), impact has direct consequences on society's life's, meaning for example the learning of new behavior or expertise about a topic, development of abilities, improvement in human welfare or living standards of infants, grownups, families or specific groups of people. Moreover, they state that "such changes are positive or negative long-term effects on identifiable population groups produced by a development intervention, directly or indirectly, intended or unintended. These effects can be economic, socio-cultural, institutional, environmental, technological or of other types" (United Nations Development Group, 2011, p. 7). In addition, the mutual understanding of the term social impact as well as the most efficient method to assess created impact varies widely, hindering not only the scholars ongoing discussion but also the application of social impact concepts (Maas & Boons, 2010). Moreover, the missing mutual understanding on the term

contributes to the creation of bemusement and constraints undertaking research on the topic. As a consequence several deviations within approaches to define social impact can be identified in different areas of research, like for example within business or society literature, whereby the main distinctions are characterized by the different use of terms like 'impact', 'output', 'effect' and 'outcome' (Maas & Liket, 2011).

Table 1. Impact definitions

Term	Definition
Impact (OECD & DAC, 2001, p. 24)	*"Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended."*
Impact (Rosenzweig et al., 2004, p. 7)	*"By impact we mean the portion of the total outcome that happened as a result of the activity of the venture, above and beyond what would have happened anyway."*
Social Impact (European Venture Philantrophy Association, 2018, p. 22)	*"… we define social impact as the attribution of an organization's activities to broader and longer-term outcomes, which are in turn defined as the changes, benefits, learnings, or other effects (positive or negative, both long and short term) that result from an organization's activities."*

Additionally, the United Nations Development Group (2011) points out that positive impact ideally links in some way to the MDG's or other agreed development goals or commitments (United Nations Development Group, 2011). In general, the definition provided by Rosenzweig et al. (2004) gained popularity since it is part of a developed theory 'the impact value chain' accurately showing off the boundaries between the terms inputs, activities, outputs, outcomes and impact (EVPA, 2013; Maas & Liket, 2011).

2.5 Measuring Impact

While the adoption of practices to measure ecological impact is being undertaken by a lot of companies as well as researchers, there is still a lack of methods in order to measure impact for the social dimension (R. L. Burritt & Saka, 2006; Maas & Liket, 2011; Schaltegger et al., 2002). The techniques to assess the ecological and social component intend to quantify the impact of business actions on the general public, since the created impact in many cases does not have

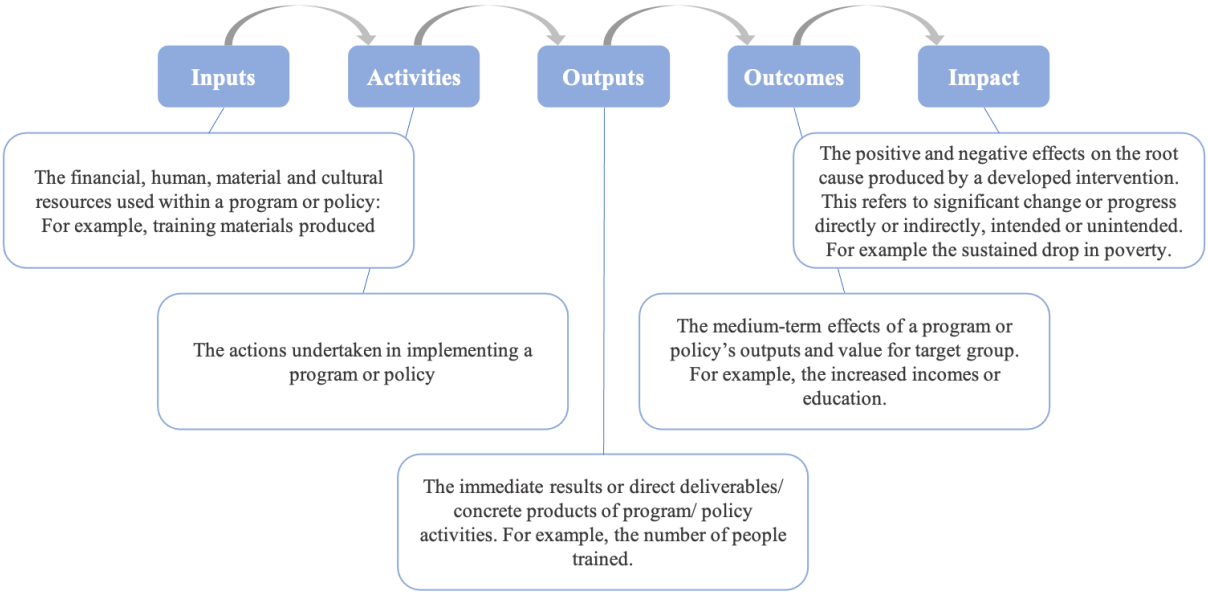
monetary worth nor is it presented within the market and is consequently frequently being left unnoticed by organizations (Elkington & Elkington John, 1999; Lamberton, 2005; Maas & Liket, 2011; Schaltegger & Burritt, 2000). Nonetheless, the results of measuring-techniques are of significant relevance for the purpose of making strategic adjustments as well as for a corporation's reporting (Zimmerman, 2011). Although substantial advancements developed in the field of measuring and assessing impact throughout the latest years, especially under the lead of big consulting companies, an essential part of the publications is lagging behind in-depth development of the theories and conceptual structuring (Appendix 1) (Ebrahim & Rangan, 2014). Maas and Liket (2011) argue that there are various explanations causing the lack of a framework for structuring social impact measurement approaches, with the first one to be stated being the complexness of assigning and summing up value of social impact due to its qualitative character. Moreover, the impact acts along an environmental, economic and social component with a lot of factors accounting to them bearing difficulties in counting up and connecting the components, particularly since impact can be achieved not only short but also very long-term. As discussed above already, nonetheless, a major issue within the topic of measuring impact is the lack of a mutual understanding of the term social impact itself, with all these contributing factors leading to available assessment concepts missing a similar perception of what to assess as well as for which reason and based on which theory (Maas & Liket, 2011).

2.5.1 Theory of Change

Within a 'theory of change' a logical argumentation chain is being developed describing the way specific activities lead to a set of consequences which are vital for accomplishing the ultimate targeted impacts. Under that premise, the theory of change can be designed for any kind of engagement like an initiative, a strategy, a system, a business or a guideline, as long as actions and goals can be clearly determined and where engagement leads to changes or adjustments with reference to appearing concerns and choices made. Strategic management and process foresight can be the use-cases for the application in order to identify possibilities, limitations and relevant metrics to keep track of for existing states. In particular for impact assessments, a theory of change provides an elementary component since it bears the potential to determine meaningful variables driving the impact, distinct assessment questions, midmost outcomes as a milestone for success with respect to activities which impact will occur on the long run and factors of integration with the need for further examination. However, for any impact assessment by applying a theory of change it is of importance to undertake frequent revision of the developed model in order to understand the change shaping the chain (Ebrahim

& Rangan, 2014; unicef, 2014). The following illustration describes the theory of change expressed in a logical results chain:

Figure 3. Theory of change



Source: own illustration with regard to (Ebrahim & Rangan, 2014; unicef, 2014)

2.5.2 Making impact value-creation tangible for stakeholders

Stakeholder capitalism can be described as a private organizations orientation to develop long-term value for all existing stakeholders. On their article on measuring stakeholder capitalism the World Economic Forum (2020, p. 6) also points out the availability of numerous ESG (environmental, social and governance) measurement methods coming along with "…the lack of consistency and comparability of metrics as pain points preventing companies from credibly demonstrating to all stakeholders their progress on sustainability and their contributions to the SDG's". Moreover, they argue that from their consultation process with several involved corporations and its key-stakeholders they conclude that the disclosure of global, intersectoral ESG indicators would provide benefits not only for them but also for the economy and financial markets overall (Ebrahim & Rangan, 2014; unicef, 2014). Based on this insight they developed a framework to capture sustainable value creation incorporating four pillars, namely principles of governance, planet, people, and prosperity, with referring core metrics and disclosures. However, the achievements made in each of the pillars are exceedingly interlaced to the ones in the others and the authors highlight that the pillars as well as the linked metrics shouldn't be perceived as distinct units. In order to screen and rank the different themes and underlying

metrics to each pillar, principles like the conformity to already formulated models, relevance for value generation on the long run, magnitude of the capacity to act, universal nature throughout different industrial sectors as well as corporate models and the practicability of reporting have been considered. The objective of the developed framework is to start accounting in a more congruent and assimilable way on the major components of sustainable worth. Moreover, it supports the organizations to bring their financial and sustainable statements into line, with the intention of presenting an easy to understand and uniform measurement unit to their stakeholders (World Economic Forum, 2020). In total the developed model contains 21 core and 34 expanded metrics and disclosures, however within the framework of this master thesis only the core metrics will be considered due to the extensive character of the framework and the limited scope of research. In the following, the structure of the framework summarized – the extended theory and metrics behind the approach are provided within the appendix.

Due to the growing demand of companies to specify and integrate their purpose in the middle of their practices, the mutual understanding of governance continues to develop. However, the fundamentals of agency, responsibility and accountability still present the essence to what's being considered proper governance.

Table 2. Pillar: Principles of governance content

Subject	Governance: Core metrics and disclosures
Governing purpose	Setting purpose
Quality of governing body	Governance body composition
Stakeholder engagement	Material issues impacting stakeholders
Ethical behavior	Anti-corruption
	Protected ethics advice and reporting mechanisms
Risk and opportunity oversight	Integrating risk and opportunity into business process

Source: adapted from World Economic Forum (2020)

The pillar planet refers to the motivation of avoiding further corrosion of the planet by undertaking necessary efforts on climate change, environment-friendly consumption as well as fabrication and environmentally oriented exploitation of organic supplies in order to promote the demands of current and upcoming generations.

Table 3. Pillar: Planet content

Subject	Planet: Core metrics and disclosures
Climate change	Greenhouse gas (GHG) emissions
	TCFD implementation
Nature loss	Land use and ecological sensitivity
Freshwater availability	Water consumption and withdrawal in water-stressed areas

Source: adapted from World Economic Forum (2020)

The pillar people refers to the motivation of stopping destitution and hunger on a large scale as well as assuring to people of every kind a positive space to accomplish their capabilities with respect to non-discrimination and dignity.

Table 4. Pillar: People content

Subject	People: Core metrics and disclosures
Dignity and Equality	Diversity and inclusion (%)
	Pay equality (%)
	Wage level (%)
	Risk for incidents of child, forced or compulsory labor
Health and well-being	Health and safety (%)
Skills for the future	Training provided

Source: adapted from World Economic Forum (2020)

The pillar prosperity refers to the motivation of assuring to people of all kind the ability to live in a flourishing and enriching surrounding and that progress happens in accordance with the environment.

Table 5. Pillar: Prosperity content

Subject	Prosperity: Core metrics and disclosures
Employment and wealth generation	Absolute number and rate of employment
	Economic contribution
	Financial investment contribution
Innovation of better products and services	Total R&D expenses ($)
Community and social vitality	Total tax paid

Source: adapted from World Economic Forum (2020)

3 Teaching Case – Microsoft

3.1 Overview of information-technology segment

3.1.1 The industry

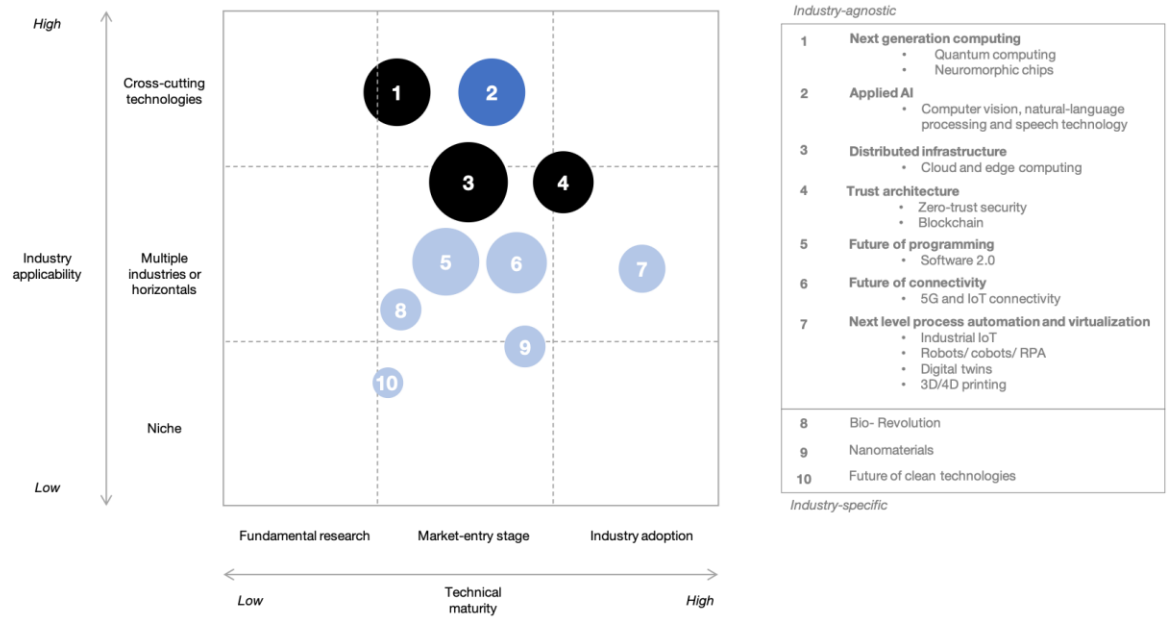
As pointed out by the OECD Information Technology Outlook, information and communications technology actions mainly refer to the ones that perform, provide and show data electronically. Related industries are typically involved in building the necessary instruments and tools, software as well as services which allow to execute these actions and can be categorized by different industry groups (OECD, 2006). Within the IT sector there are the industry groups of software and services, technology hardware and equipment as well as semiconductors and semiconductor equipment – withing the sector of communication services there are the industry groups of media and entertainment as well as telecommunication services (*GICS - Global Industry Classification Standard*, o. J.). However, it is to mention that most established organizations within the ICT segment are acting in several of the industries at the same time (OECD, 2006). The worldwide IT spending on data center systems, enterprise software, devices, IT services as well as communication services reached an amount of 3.87 trillion U.S. dollars in 2020 and is predicted to grow by about 15.5 percent to around 4.47 trillion U.S. dollars in 2022. One driver of the expected growth is the rising need for electronic devices and tools in order to foster remote working conditions – becoming increasingly important with the ongoing pandemic. Since the areas of IT services and communication services incorporate a wide range of distinct instruments and services providing the vital foundation for various business operations, like connecting tools, the biggest proportion of capital goes into the area of IT services and communication services (*IT Spending by Segment Worldwide 2012-2022*, o. J.). With an expected share of 35 percent in 2022 of the IT industry worldwide, North America is anticipated to remain the largest market for information technology directly followed by Asia with 31 percent and Europe with 22 percent (*Global IT Industry Share by Region 2022*, o. J.).

3.1.2 Industry drivers and the 4th industrial revolution

As memory space and central processing unit power continue to increase on an immense scale, and access for people to data bases as well as education of all kind is peaking within this age, the central term of discussion within related literature is all about the Fourth Industrial

Revolution (Baller et al., 2016; McKinsey & Company, 2021; Schwab, 2016). The Fourth Industrial Revolution can be described by a global transformation being embodied by a shift to innovative approaches consolidating digital, biological and physical technologies. The essence of the Fourth Industrial Revolution isn't the development of new electronic components or scientific knowledge specifically, but more precisely the transformation to innovative approaches raised from the cornerstones of the preliminary digital revolution, proposing a strong impact as well as threats on peoples life (Baller et al., 2016). In their research on the IT industry, the OECD concluded that especially in the ICT sector, research and development defines one of the major drivers of ICT advancement as well as growth in novel and advanced products and services (OECD, 2006). In further characterization of drivers within the global IT segment, the World Economic Forum pointed out not only the changing nature of innovation, progressively originated from computerized technologies and the new enterprise formats it enables, but also the growing importance to embrace and develop constantly and the need to build a resilient framework for the digital economy particularly in terms of governance (Baller et al., 2016). With a link to the Fourth Industrial Revolution, major technology trends shaping the industry in the current age can be described by figure 2, with the circle size illustrating the momentum between 2018 and 2020 and the circle color being the momentum compared with 2015 to 2018 (dark illustrates "lower", medium illustrates "no change and brighter illustrates "higher").

Figure 4. Top technology trends



Source: adapted to (The top technology trends | McKinsey, 2021)

Especially the trend of distributed infrastructure continues to bear potential, since over 75 percent of data created by companies is going to be processed by edge or cloud computing by 2025. With more than one trillion U.S. dollar's value potential of quantum-computing use cases at full scale by 2035, next generation computing presents a core trend as well. However, with more than 75 percent potential to enhance usability, conversion and personalization of all digital-service touch points, applied AI might be one of the most promising trends to watch (McKinsey & Company, 2021).

3.1.3 Challenges within the industry

At the same time as these developing trends present the capacities to foster massive social as well as economic progress, they likewise bear high risks to fuel detrimental and accidental outcomes, which is the reason organizations and legal authorities as well as general public have to assess advisable the new technologies. Special importance is attached to regulators, politics and standards to exploit the value of these technologies and mitigate threats simultaneously. Corporate formats evolved within the Fourth Industrial Revolution don't fit easily in existing norms and the fast-paced development across different industries combined with a huge amount of data to progress requires innovative approaches to govern the technologies. As an example, drones and IoT bear threats to privacy issues, global blockchain ledgers might break domestic

fiscal regulations and applied AI can't be classified in prevalent structures (WEF & Deloitte, 2020). Coming along with the integration of these new technologies, five key areas of risk can be described – business, society, operational risk, compliance and legal. While the area of business and society primarily describe the taking of accountability in terms of data ethics, social values and sustainment of a data-driven culture in a business context or of awareness of a social duty in the context of society, the operational risk refers to creating steadiness of actions and the management as well as minimization of operational risk (McKinsey & Company, 2021). As already mentioned, particular relevance is attached to governance threats in terms of compliance and legal. The limited or lack of regulation presents a lack of readiness for the aftermath of implemented technologies like AI and by misuse of the developed technologies, actors might be able to create an adverse impact or influence on the society, legal authorities or businesses. In addition to the risk of privacy and data sharing, the challenge of liability and accountability assignment of the technologies raises concern of the legal status of for example decentralized autonomous organizations. Moreover, without market incentives to create secure products there are cyber and other security concerns, there is a lack of coherence about the extent of human involvement in AI sourced technologies and lastly there is the risk of cross-border inconsistencies and limited data flows given potential inabilities to share financial and health data globally (WEF & Deloitte, 2020).

3.2 Microsoft

3.2.1 Microsoft's idea

Microsoft is a technology-driven business, whose mission is to empower every person and every organization on the planet to achieve more. The company allows digital transformation in order to create space for an intelligent cloud and an intelligent edge. Attempting to design local possibilities, growth and impact all over the world, Microsoft's systems and tools support to foster small business output like startups, large business competitiveness and public-sector performance as for example in context of advanced educational and health outcomes (Microsoft, 2019, 2021a). The company founded in 1975, develops and reinforces software, services, devices and solutions striving to create new value for its users and support individuals as organizations to accomplish their complete capacities. Their main services include cloud-based solutions as well as solution support, consulting services and online advertising on a global scale. The company's products on the other side incorporate operating systems, cross-device productivity applications, server applications, business solution applications, desktop

and server management tools, software development tools and video games. In addition to that Microsoft designs, produces and sells devices like personal computers, tablets, gaming and entertainment consoles, further intelligent devices and similar accessories (Microsoft, 2019). The organization is public traded as MSFT on the Nasdaq, has it's headquarter in Redmond, Washington and more than 180.000 employees in worldwide subsidiaries (Microsoft, w. y.-a).

3.2.2 The industry role of Microsoft

Several indicators suggest the company of Microsoft has great significance within the global economy. Observed by Forbes, Microsoft is placed second within the largest companies of the world by market capitalization in 2021 with 1,996.6 billion U.S. dollars after Apple (Forbes, 2021). Ranked by revenue, Microsoft places 33rd with 168 billion U.S. dollars in 2021 within the largest companies worldwide and is considered to be one of the Big Tech businesses along with Alphabet, Amazon, Apple and Meta (Financial Times, 2021; Zimmermann et al., 2021). This is also being illustrated when examining the values of the top technology brands worldwide in 2021 where Microsoft places third with 410.27 billion U.S. dollars after Google and Apple and shows a growth rate of about 186 percent in brand value throughout the last five years (Reuters & Kantar, 2021; Statista, 2021). Despite the fact that market rivals like Apple proceed to reduce Microsoft's market share, Windows persists to be globally the most popular operating system by a huge margin (Statista, 2022). The five leading tech brands collectively experienced significant revenue growth and an immense boost in user bases into billions in the last years enabling them to reach a combined market value of more than four trillion U.S. dollars and increasing their digital footprint as well as impact on the global economy (Statista, 2021). In an online survey undertaken in the U.S. by Statista in 2019 more than two third of the 1953 respondents stated to regularly use products or services from Microsoft and of those individuals about half agree Microsoft plays an integral part in their lives and a pioneering role in this age. Three quarter of the respondents feel positive about the organization, illustrating the global presence of the company (Statista, 2019).

3.2.3 Microsoft's resources

In 2021 Microsoft delivered $168 billion in revenue with an 18 percent increase compared to the previous year. The company splits its activities into three segments over which revenues are distributed almost evenly – the productivity and business processes, the intelligent cloud and more personal computing. The operating income increased 32 percent to $70 billion and the company proceeds to establish high performing new franchises. In 2021 LinkedIn and the

organizations security business reached $10 billion in annual revenue for the first time (Microsoft, 2021a). Except their employees, the corporation has a global community of about 17 million partners, 75 million customers in 190 different countries, in combination with their technology enabling Microsoft to drive impact at large scale (Microsoft, 2020b). The network of suppliers extends over twenty-two countries with about 413 supplier factories and the company has more than 60 datacenter regions globally distributed enabling quicker access to data and cloud services while respecting crucial data storage requirements (Microsoft, 2021b, 2021a). In addition to that the coding tool GitHub has over 65 million developers using the platform, LinkedIn more than 774 million members and almost 250 million people use Teams on a monthly basis. The company's expenditure on research and development amounted to 20.7 billion U.S. dollar in 2021 (Microsoft, 2021a).

3.2.4 Corporate strategy and values

Microsoft's objective is to promote innovation which "generates new ecosystems of inventors, partners, developers, creators, changemakers, public servants, frontline workers, and knowledge workers who, together, drive the engines of growth and opportunity in ways that benefit everyone " (Microsoft, 2021a, p. 2). The company is pursuing their goals by providing platforms and instruments which increase their possibility to support institutions all over the world to technologize itself. Their solution areas incorporate applications and infrastructure, data and AI, developer tools, the power platform, business applications, LinkedIn, modern working conditions, protection from cybercrime and gaming. In order to address the world's most pressing issues beyond these opportunities, Microsoft takes an attempt to take on further responsibility while focusing on four interrelated pillars defining their purpose (Microsoft, 2021a).

1) Support inclusive economic growth

   Within this pillar specific focus is on reaching all kind of individuals with the economic growth Microsoft is fostering. Especially access to broadband in rural areas in order to promote access to education, healthcare and economic opportunity as well as access to digital skills by connecting resources across Microsoft, LinkedIn and GitHub is addressed. Moreover, focus lies on giving support to close the Disability Divide with a recently developed commitment for the development of suitable technologies and on making their technologies in particular for NGOs by discounts and donations.
2) Protect fundamental rights

Within this pillar Microsoft is attempting to undertake special efforts in order to tackle racial injustice and inequity with their Racial Equity Initiative and the ongoing representation of their ecosystem by engaging with several stakeholders. Additionally, the company is striving to protect institutions and processes of democracy by the developed Democracy Forward Program to guard elections and journalism as well as defend disinformation. Lastly, efforts to reduce modern slavery and human trafficking within Microsoft's business and supply chain and support of humanitarian action as well as emergency response by commitment of several resources is being undertaken.

3) Commit to a sustainable future

   Tackling the immense challenge of handling the climate change, Microsoft released its first sustainability report in 2021 presenting its progress in terms of carbon negativity, zero waste and water positivity by 2030. Furthermore, the corporation is creating a Planetary Computer in order to support manage and safeguard the worlds natural systems. Distinct focus lies also on meeting the requirement of new technology and partnerships to solve the worlds carbon problem. As a consequence, the Microsoft Cloud for Sustainability was launched and the $1 billion Climate Innovation Fund was founded to speed up the creation of solutions.

4) Earn trust

   Due to Microsoft's objective of making customers and partners become independent with them, the organization highly values trust being built on privacy, security, digital safety, responsible use of AI as well as transparency. To protect individuals having the rights on their personal data, Microsoft supports the General Data Protection Regulation as well as the passage of comprehensive federal privacy legislation in the U.S. Moreover, the responsible development and use of AI is a crucial element within their business, taking on a principled approach based on fairness, reliability and safety as well as inclusiveness and accountability. With their Office for Responsible AI and the CSR Reports Hub detailed information and access to data is being provided in order to maintain trust.

Microsoft's corporate values are respect, integrity and accountability and the company's culture is oriented towards one that centers on their commitment to a growth mindset. This mindset was in particular performing good in the recent years of the pandemic and strengthened the understanding of customers and teamwork while respecting principles of diversity and inclusion. The principles persist to be prime issues for the employees and are integrated into

business performance and career development system. The company's managers behavior is based on care in order to strengthen their teams and achieve success through empowerment and accountability, and the ambitions driving Microsoft come down to reinventing productivity and business processes, building the intelligent cloud and edge platform as well as creating more personal computing (Maxwell, 2020; Microsoft, 2021a).

3.2.5 Commitment to Sustainability

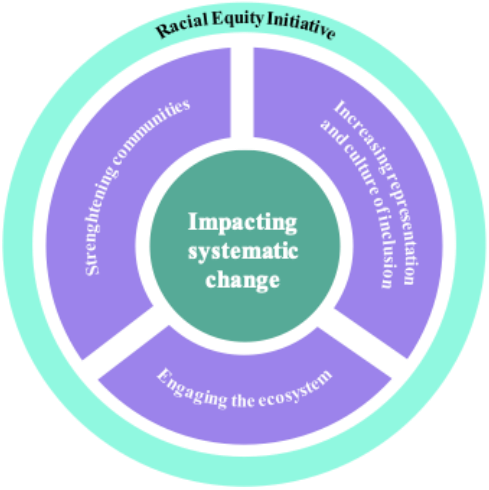
Microsoft has a strong commitment towards their corporate social responsibility and the achievement of impact. The company contributes in particular to the core areas of sustainability, the addressment of racial injustice and inequity and the investment in digital skills. In terms of sustainability Microsoft focusses on carbon, water, waste and ecosystems with the opportunity to scale by significantly decreasing the harmful consequences of the company's operations and increasing the beneficial influence of their technology. Microsoft's strategy however, doesn't only focus on its operations, but rather uses this as a starting point to enlarge by assuring the measures advance as well the communities and take influence on the product strategy. By technology endorsement of customers and partners and active acceleration through financial resources, legal involvement and fostering innovation, Microsoft is able to create global impact. While taking responsibility for carbon, water, waste and land footprint throughout the operations linked to products and facilities, developing innovative technology and services to drive environmental sustainability, supporting customers and partners worldwide to reduce their footprint through these products and services, and using their voice on public policy actions associated to climate change – Microsoft highlights their most relevant asset to drive these opportunities are their employees. Besides the targeted actions regarding the reduction of footprint of one of these four aspects, the organization also pursues more universal approaches to achieve impact as the Climate Innovation Fund or AI for Earth. Amounting to $1 billion US dollar, the CIF is going to finance over a period of four years in order to support developed climate technologies as well as the new development of non-existing or niche

Figure 5. Sustainability commitment

Source: adapted from (Microsoft, 2020a)

technologies. AI for Earth was launched with the intention to provide access to cloud and AI technology for scientists and organizations worldwide striving to protect earth. The initiative powers research and development by connecting individuals, instructs on cloud and AI to enhance community involvement and promotes permission to AI technologies through subsidies. The progress on each of the four commitments is among other reports being published in the publicly accessible Environmental Sustainability Reports from 2020 and 2021 with detailed information and metrics regarding carbon negativity, water positivity, zero waste and the ecosystems, the Microsoft Impact Summary 2021 as well as Microsoft Corporate Social Responsibility Report 2020 (Microsoft, 2020a, 2020b, 2021a, 2021d).

Figure 6. Addressment racial injustice and inequity



Source: adapted from Microsoft (2021d)

In terms of addressing racial injustice and inequity, Microsoft is committed on reaching and empowering all communities. The company developed a set of actions relevant to enhance the lived experience at Microsoft as well as the shift in communities in which they live and are employed, focused on three multi-year pillars being 1) increasing representation and strengthening a culture of inclusion 2) engaging their ecosystems and 3) strengthening their communities. Since Microsoft operates in an enormous business ecosystem, the organization has particular interest in reaching a high degree in diversity within their communities. For this reason, special importance is given to their engagement in aspects of banking, supply chain and the wider Microsoft partner ecosystem (the US partners). Under this premise Microsoft continues to increase access to financial resources in order to help Black and African American businesses as well as the communities the operate in, they expanded possibilities for Black and African American suppliers to accomplish sustainable growth on the long run and with the intention to accomplish further inclusive growth for Black and African American partners they offer access to capital, financing and training. Additionally, Microsoft has cooperated with partners as well as committed to initiatives within local districts and collectives to initiate and scale various campaigns and projects. A different attempt of addressing racial injustice and inequity is being undertaken in the increase of transaction volume with Black- and African American-owned financial institutions as well as the increased deposits with the latter

allowing higher funds for local communities. Furthermore, the Black Channel Partner Alliance was launched to help collaborators handling the Microsoft Cloud and unravel partner benefits.

In addition to these efforts, Microsoft strives for diversity and inclusion within their own human resources. The company endorses numerous extremely active Employee Resource Groups for women, families, racial and ethnic minorities, military, people with disabilities, or who identify as LGBTQI+, offering the possibility to get support and socializing. With regards to pay equity, the Racial Equity Initiative, employees with disabilities, related indexes and metrics detailed information and data is being provided within the Global Diversity and Inclusion Report as well as the Progress Report on the Racial Equity Initiative thematizing extensively the discussed areas of banking, supply chain and U.S. partners (Microsoft, 2021a, 2021f, 2021c).

In terms of the investment in digital skills Microsoft announced in June 2020 its global skills initiative with the objective to provide improved digital skills to the people mostly affected by employment losses – especially in the light of the strong consequences brought by the pandemic. Using resources from LinkedIn, GitHub and Microsoft Learn it seeks to accumulate tools to identify employments and the required skills by the application of data, teaching material by free provision of learning tracks as well as content for the required skills, and cheap certification possibilities. Under this premise free access is being provided to LinkedIn Learning, Microsoft Learn and GitHub Learning Lab combined with Microsoft Certifications as well as LinkedIn job explorers. Furthermore, Microsoft announced to support nonprofit businesses with $20 million in cash grants with $5 of them allocated to community-based nonprofit businesses managed by communities of color in the U.S. A more long-term approach can be identified in the development of a new learning app in Microsoft Teams aimed at upskilling current as well as new employees, and the granted access for legal authorities to structured data allowing improved evaluation of economic needs. With these actions issues like the quickly rising global unemployment rate especially hitting people with lower educational standard, disabilities or of color and women as well as the downward trend in employee-training are being tackled. More than 42 million individuals worldwide have participated in the free training within the global skills initiative by now and further developments in order to connect participants with suiting employers and expand personal network have been implemented. Detailed data on the characteristics of the global skills initiative can be found in the 2021 and 2016 Annual Report as well as the Official Microsoft Blog (Microsoft, 2021a; *Microsoft 2016 Annual Report*, 2016.; Smith, 2020b, 2021).

3.2.6 Responsible Sourcing

Interrelated with these core areas Microsoft takes special efforts as well in responsible sourcing and prevention of modern slavery and human trafficking. The business group Microsoft Devices in charge of the ideation, design, development, manufacturing, packaging and distribution of Microsoft's hardware, packaging and related software products build a responsible sourcing program in 2005 in order to ensure suppliers satisfy standards worked out in the Microsoft Supplier Code of Conduct and their Social and Environmental Accountability Specification (Microsoft, 2020b, 2021e). The organization doesn't obtain natural resources directly, but alternatively partners with direct suppliers to produce goods and components holding risks within the supply chain regarding factors like the exposure to social, environmental and economic concerns, location, function and regulation of suppliers as well as their power to influence them. A global supply chain as for Microsoft bears great issues regarding various politics, cultural norms, regulation and infrastructure. The company's responsible sourcing approach is therefore based on values of integrity referring to integrating the suiting processes and work with suppliers to tackle risks and maintain standards, accountability referring to the definition of clear standards and holding responsibility for them and respect ensuring high standards for safety and an environment promoting equity and dignity. In 2018 Microsoft integrated a Human Rights Core Group in order to concentrate on responsible sourcing all over its global supply chain and simplify human rights initiatives. Based on the UN Guiding Principles on Business & Human Rights as well as Global Network Initiative Principles, concrete responsibility and initiatives are stated within the Standards of Business Conduct, Microsoft Human Rights Statement, Microsoft Devices Responsible Sourcing Report and the Microsoft Stakeholder Engagement Report (Microsoft, w. y.-b, w. y.-c, 2021b). Special focus lies on prohibiting child labor and discrimination, use only voluntary labor, ensure workers access to work-related documents, provision of return transportation of foreign workers and fair compensation, promotion of awareness on human trafficking concerns, formulation of clear working conditions and treatment based on respect and dignity as well as meeting working hour and rest day requirements and ensuring freedom of association.

3.2.7 Sustainable Development Goals

Microsoft shares the belief digital transformation of the worldwide economy and innovative constructions of digital cooperation bear the potential to support tackling the challenges described by the UN Sustainable Development Goals. The organization believes in its shared responsibility as an organization as well as its societal role aligned with their mission and

executes a wide range of initiatives directly and indirectly linked to all of the 17 SDG's. While acknowledging technology as their essential asset, Microsoft is highlighting innovators must pair technology-enabled with standards promoting all kind of individuals. Based on the before mentioned four pillars, Microsoft is especially focusing on SDG 4 Quality Education, 8 Decent Work and Economic Growth, 13 Climate Action and 16 Peace, Justice and Strong Institutions. Numerous programs, partnerships and supports have been implemented regarding especially the four target SDG's, but also all remaining ones, stated in detail within the Microsoft United Nations Sustainability Development Goals reports from 2020 and 2021 (Art & Emejulu, 2020, 2021). Supporting data can be found on the Microsoft website under the section News or Legal (*Home | News Center Microsoft*, w. y.; *Legal Resources from Microsoft*, w. y.)

3.2.7.1 Quality Education

Especially under the premise of sub-target 4.4 demanding particular awareness to technical skills and ICT employment training, Microsoft strengthens and works towards all kind of stages of education i.e., education institutes, educators as well as students to allow inclusive, engaging and immersive learning. Accordingly, the organization is contributing its assets and power of speech to provide disadvantaged individuals with the necessary schooling on ICT and digital skills for a profession within the digital job-market. It does so by concentrating on providing learning tracks and business-acknowledged certificates to qualify individuals of all ages with required to stay competitive, creating the potential of nonprofit organizations and teaching institutions to scale their impact, and assisting intercession as well as joint measures to foster employment or structural progress within the digital industry. By 2019, more than 110 partnerships with NPO's and NGO's all over 42 countries have been established providing millions of young individuals with in-depth IT-skills and expertise and Microsoft's grantees have educated about 180,000 instructors to educate on digital expertise and provide sufficient assets and skills to address a huge number of scholars with quality training (Art & Emejulu, 2020, 2021).

Programs, Partnerships and Support for Quality Education

With the goal to facilitate education possibilities for children and young individuals exposed to challenges and natural catastrophes Microsoft created The Learning Passport in collaboration with UNICEF. Moreover, being a founding member of The Global Education Coalition for Covid-19 and its academic interruption counter, the organization aims to simplify inclusive learning possibilities for children and youth as well as created an extensive toolkit of materials

and learning possibilities for instructors, parents and scholars to embrace remote education. Microsoft Philanthropies created the Technology Education and Literacy Schools program in 13 states with more than 620 schools linking teachers with tech-specialists to enable lasting IT-programs. With Microsoft Learn material for free professional-level technical skills content is provided. Partnerships with schools as Colégio Casa Mãe in Portugal are able to unite Microsoft's education solutions in order to evolve digital literacy, foster learning and build expertise as well as social skills. The partnership with BLUETOWN a danish internet service provider operating in Ghana, Microsoft seeks to provide access to locally valuable study-subjects. Through support of education ministries as in Bahrain and Azerbaijan by Microsoft Global Training Partners and provision of Microsoft Teams, the company helps determining hybrid learning strategies and schooling teachers on tools. Formerly underrepresented students, such as women or Black and African—American people, in technical areas are supported by the Datacenter Academy Scholarship in Wyoming and the Great Aspirations Scholarship Program helps placing advisors in schools in rural Virginia. By a grant from the Microsoft Community Empowerment Fund an Innovation Lab for children, parents and educators has been established for the Science Center of Iowa promoting creativity critical thinking (Art & Emejulu, 2020, 2021).

3.2.7.2 Decent Work and Economic Growth

Taking a look at sub-target 8.2 acknowledging the relevance of technical upgrading and innovation to enable increased economic performance, Microsoft is dedicated to enable competence and economic chances fueled by access to technology within the societies Microsoft is serving. The organizations work regarding this SDG is peaking in the beforementioned commitment to investing in digital skills i.e., the global skills initiative and grants to NPO's worldwide (Art & Emejulu, 2020, 2021).

Programs, Partnerships and Support for Decent Work and Economic Growth

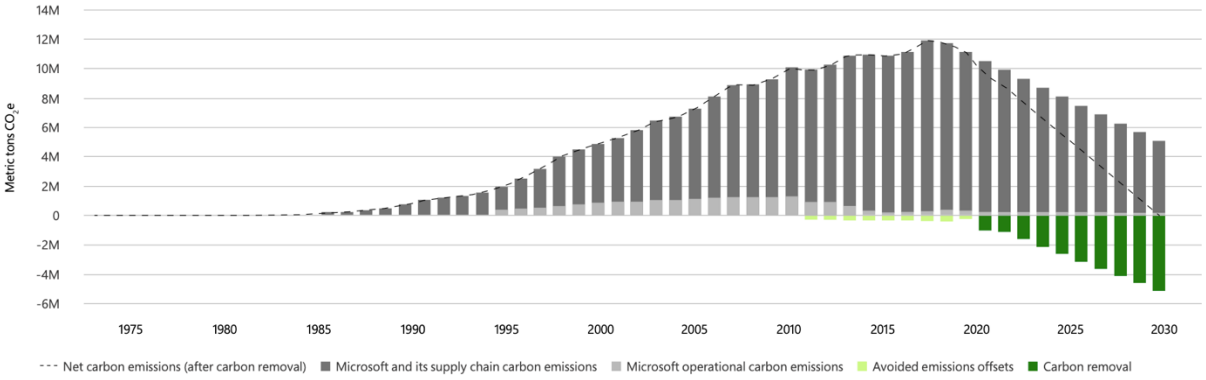
With the launch of the Africa Development Center the first engineering offices in Africa have been established in an attempt to accelerate digital transformation and enable lasting societal impact. Moreover, the Microsoft 4Afrika Initiative aims at distributing affordable access to the internet, promoting skill building for employees as well as investing in local technology advancements. The Microsoft Software and Systems Academy contributes critical career expertise for transitioning service members and veterans and Microsoft Leap Apprenticeship Program enrolls and teaches nontraditional talent for job opportunities in the global IT-industry.

Partnerships as the Global Skills Academy in collaboration with UNESCO and other major organizations pursue the goal to provide digital upskilling and training possibilities for the youth in the Middle East and Africa and the partnership with the United Nations High Commissioner for Refugees provides digital skills training in Kenya. Additionally, working together with Skillful, a nonprofit initiative of the Markle Foundation, Microsoft works to support the almost 70 percent of Americans without degrees to develop job opportunities. In an attempt to provide further assistance on visibility into potential career paths for students as well as prepare underserved and underrepresented scholars, Microsoft supports the Southern Virginia Youth Career Choice Expo and donates scholarships to the Big Bend Community College Computer Science Program in Washington State (Art & Emejulu, 2020, 2021).

3.2.7.3 Climate Action

Dedicated to exploit knowledge and assets to decrease carbon production and foster clean energy technologies, Microsoft is willing to commit their voice and standing as global technology business aligned with sub-target 13.2 demanding to integrate climate change measures into national policies, strategies and planning as well as their technology in terms of sub-target 13.3 asking for improved education and awareness-raising on climate change mitigation, adaption, impact reduction and early warning. Consequently, the organization made an announcement January 2020 to follow a forceful program decreasing carbon emissions by more than 50 percent for direct issuance as well as their whole supply and value chain until 2030 i.e., being carbon negative. As top goal Microsoft is seeking to withdraw all the emitted emissions since its foundation by 2050. In combination with the Climate Innovation Fund supposed to spur worldwide creation of carbon reduction, capture and removal technologies, the company updated their supplier code of conduct and announced January 2020 to extend their internal carbon fee on scope 3 emissions. The fee implies every business unit being held financially accountable for all their emissions also with respect to value and supply chain actions and in return being invested for sustainability advancements(Art & Emejulu, 2020, 2021).

Figure 7. Microsoft's pathway to carbon negative by 2030



Source: Microsoft (2020a)

Programs, Partnerships and Support for Climate Action

While guaranteeing all their products meet their energy standards, Microsoft is operating to advance energy-saving features for their hardware product portfolio. Assuring the minimization of materials used and reporting of GHG-emissions, the company also demanded Tier 1 suppliers to the same acting in their Carbon Disclosure Project. Under the same premise, Microsoft prohibited using ozone-depleting chemicals and evaluated the use of hydrofluorocarbon to reduce related emissions and expenditure. Deploying new server cooling approaches as liquid immersion cooling is a program helping to create datacenters with significantly decreased energy and water usage. Furthermore, the Microsoft Sustainability Calculator was created to support organizations assess their carbon emissions caused by their IT-infrastructure. Microsoft itself is decreasing emissions by reducing their need for diesel-fuel backup power at their datacenters by 2030 anchored in their supplier code of conduct. Through major partnerships as the Transform to Net Zero initiative, the firm aims to conduct and provide research, advisory as well as analyzed instructions for organizations of all kind to accomplish net zero emissions. Additionally, 50$ million have been invested into the Energy Impact Partners platform for innovation of new technologies with the intention to shape global energy and transportation structures. By providing Microsoft Azure as in the partnership with Terrafuse, organizations are supported to grasp climate-related risk through physics-enabled AI models, or the partnership with the polar scientist Joseph Cook, further comprehension of the Earth's melting glaciers through data from drones and satellites is being and enabled (Art & Emejulu, 2020, 2021).

3.2.7.4 Peace, Justice and Strong Institutions

As worldwide technology source, Microsoft faces up to its accountability in terms of creating new tools protecting institutions, enabling to work in collaboration with businesses, legal authorities and global organizations to formulate structures for trustworthy application and regulation of technology. Under that premise, Microsoft shares the conviction technology can be a key-driver in raising accountability and transparency of institutions, ensuring inclusive and responsive decision-making and public access to information with regard to sub-target 16.6, 16.7 and 16.10. Moreover, sub-target 16.9 providing legal identity and 16.2 ending abuse, exploitation and trafficking of children as well as 16.4 significantly decreasing illicit financial arms and flows might be tackled by the development of innovative tech-tools. As one of the most significant projects, the security program Microsoft AccountGuard is being provided for free for Human Rights Organizations including detection of cyber threats, security guidance and further teaching on cyberattacks (Art & Emejulu, 2020, 2021).

Programs, Partnerships and Support for Peace, Justice and Strong Institutions

With regard to SDG 16, Microsoft has elected to take the role of a Business Avenger, committed to contribute financially, with business operations and high-level influence to accomplish these objectives by 2030. In addition, the Microsoft Defending Democracy Program as well as Microsoft Video Authenticator have been developed to enforce cybersecurity and disinformation threats to democracies worldwide. Partnerships as with Dartmouth College allowed the development of PhotoDNA – a tool aimed to identify, report and remove millions of child exploitation images. Moreover, the collaboration with the Law Enforcement Assisted Diversion program a dashboard has been created supporting to divert individuals accused of low-level drug or sex work to a case manager instead of imprisonment. Furthermore, partnering with the University of Washington, Sensity and USA TODAY fosters the collaborative advancement of media literacy by supporting the management of exposure to deepfake- and disinformation-risks. In terms of support, Microsoft takes a role being one of the funders of the CyberPeace Institute helping vulnerable societies, fostering transparency as well as discussions on behavior within computer networks (Art & Emejulu, 2020, 2021).

4 Teaching notes

4.1 Synopsis

Within this case the integration of the SDG's in Microsoft's corporate strategy and making them a key-driver has been analyzed. Up to this date Microsoft moved apart from being a pure technology company providing hard- and software to an organization deeply anchoring sustainability within their corporate values but also actively engaging on a large scale to foster impact for the communities and environment it is operating in. Giving the SDG's major relevance ensured both new use cases for their technology as well as the convergence of impact-creation and the company's success.

The first part of the case gives an overview on the technology industry, its current drivers and challenges as well as the special role of technology related to the achievement of the SDG's. The second part of the case explains Microsoft's sustainability commitment also in terms of the SDG's and links data to enable an extensive impact assessment. The third part

4.2 Learning objectives

With the objective to be applied as educational tool, the case study should be used as an illustrating example for lecture debates in strategy and management Master-courses like Managing Social Innovation, Business Ethics as well as Impact Investing and Advanced Strategic Management. The case study thereby relates academic management concepts to real-life practice enabling scholars to execute following tasks:

- Assess the fundamental pillars of Microsoft's sustainability strategy in a corporate context and identify how the SDG's can be integrated within the technology industry
- Analyze the social, environmental and economic impact being created for different stakeholders
- Understand the benefits of integrating the SDG's for an organization as well as its stakeholders and consequently assess potential future cases

After carefully reviewing this case study scholars should be able to advance on their competence how to apply their strategic and managerial expertise in the context of impact creation. Working on an up-to-date topic of a worldwide leading technology company trains scholars for management scenarios in practice which demand tactical reasoning. The case describes and conveys how the integration of social and environmental measures within the

private sector can create not only business but also impact possibilities and lead to significant developments in terms of global goals. Moreover, students shall learn how a sustainability strategy can be anchored in the corporate strategy, how it is able to drive success and innovation as well as how impact can be measured by applying an analysis framework. In addition, potential discrepancies in pursuing profit and impact related goals can be resolved for scholars.

4.3 Pedagogical overview

Given the complex nature of successfully implementing a sustainability strategy and making impact tangible, the case study should be provided previous to the scheduled session by the tutor. Especially, since this case study involves a few reports required to answer the teaching questions, the previous distribution allows scholars to thoughtfully read the literature and get an overview on the information provided. Moreover, the tutor guiding through the case should be aware of and certain about the frameworks being applied to answer the teaching questions as well as the literature providing the required information. At the beginning of the in-class discussion, the tutor should present the familiarize the students with the topic and the models and the teaching questions should consequently be analyzed in groups of five scholars and subsequently be discussed in class. Ideally, the case study should be made a subject of discussion in a 90-minute class according to the following figure.

Table 6. Board plan

Activity	Conducted by	Content	Time (min)
Introduction	Instructor	Recap of case study	10
		Recap of frameworks	10
Teaching question 1	Group of 5 students	Achieved impact of integrated SDG's	15
Teaching question 2		Value creation for stakeholders	20
In-class discussion	Class	Discussing answers to teaching questions	30
Conclusions	Instructor	Key takeaways and wrap-up	5

4.4 Assignment questions and analysis

This sub-chapter is designed to support the tutor by providing potential solutions answering the stated teaching questions. The formulated teaching questions are designed to apply previously studied theoretical models on an actual business case scenario. Scholars should apply their managerial knowledge as well as analytical skills to identify the correct answers to the following questions.

4.4.1 Microsoft's integration of the SDG's and achieved impact

TQ 1: How is Microsoft integrating the SDG's in their sustainability strategy and what is the achieved impact?

First, Microsoft's commitment to sustainability in line with its corporate strategy should be shortly assessed to understand the company's positioning. To assess how Microsoft is integrating the SDG's into their sustainability strategy, it is of importance to identify the main inputs and activities the company is delivering. Furthermore, these results should be applied to the logical model of a theory of change which has been previously introduced to derive outputs, outcomes and finally the impact Microsoft is achieving. The gained knowledge on the theory of a sustainability strategy and impact definition should be recalled. For this assessment, the instructor should emphasize that the Environmental Sustainability Report 2020 and 2021, Global Diversion and Inclusion Report 2020, Microsoft Devices Responsible Sourcing Report 2021 as well as the Microsoft Impact Summary 2021 should be taken into account.

The reader should identify Microsoft undertakes a corporate attempt to take on responsibility based on the four interrelated pillars being to support inclusive economic growth, protect fundamental rights, commit to a sustainable future and earn trust. Deriving from this alignment, the organization formulated its corporate social responsibility in a commitment to sustainability with strong focus on the core areas of sustainability, the addressment of racial injustice as well as investing in digital skills and undertakes special efforts with regards to responsible sourcing. Besides working on all SDG's, the reader should be able to identify the four SDG's Microsoft is focusing on and the introduced activities. Weighing up the different definitions for impact as by Rosenzweig et al. (2004, p. 7) "By impact we mean the portion of the total outcome that happened as a result of the activity of the venture, above and beyond what would have happened anyway" and by the European Venture Philanthropy Association (2018, p. 22) "… we define

social impact as the attribution of an organization's activities to broader and longer-term outcomes, which are in turn defined as the changes, benefits, learnings, or other effects (positive or negative, both long and short term) that result from an organization's activities", the reader should conclude to make use of a theory of change, since it enables the reader to determine not only the way the SDG's are integrated and play a vital role to achieving the four interrelated pillars, but also the impact on an environmental, social and economic dimension:

Figure 8. Theory of change: Microsoft inputs

Figure 9. Theory of change: Microsoft activities

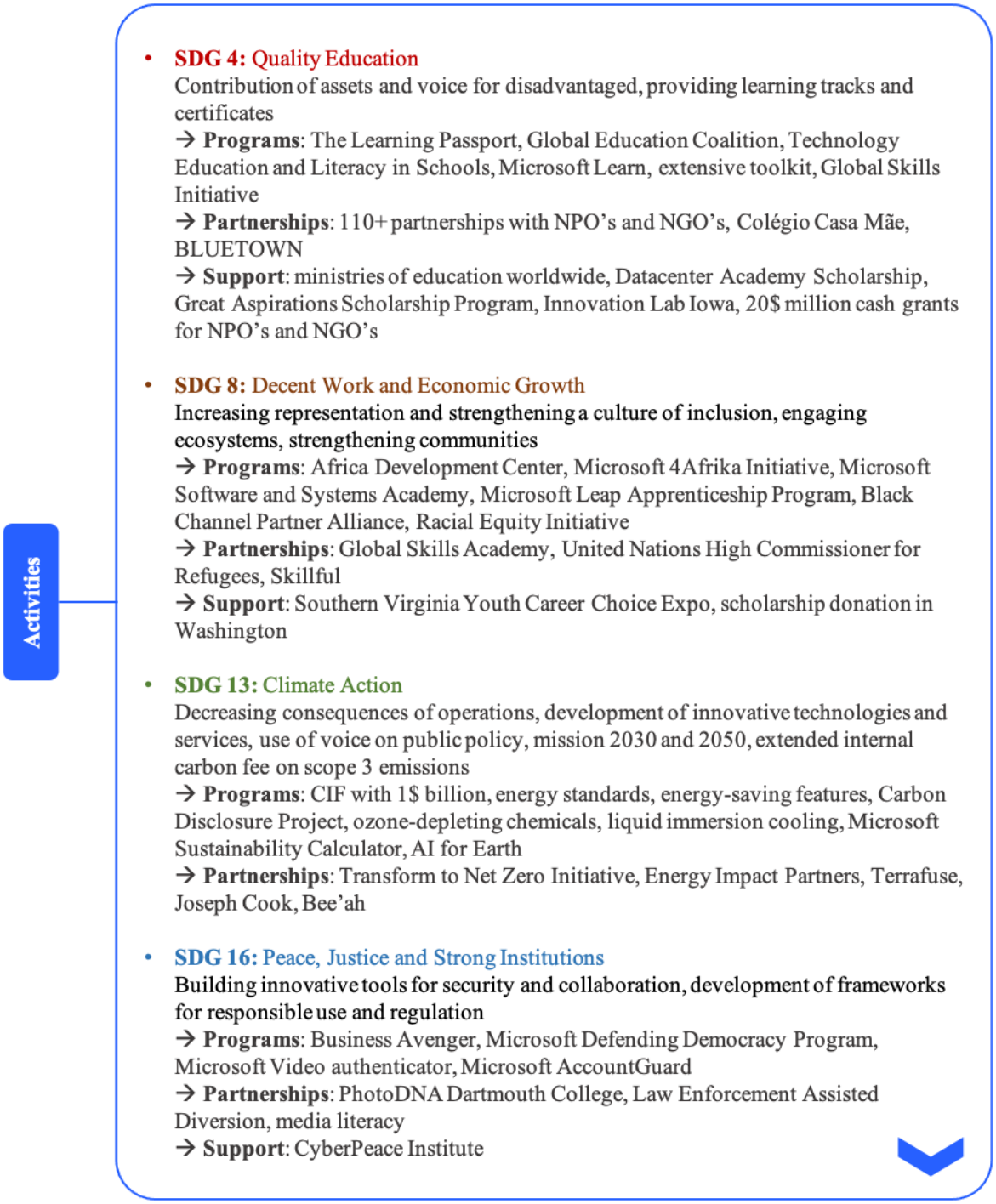
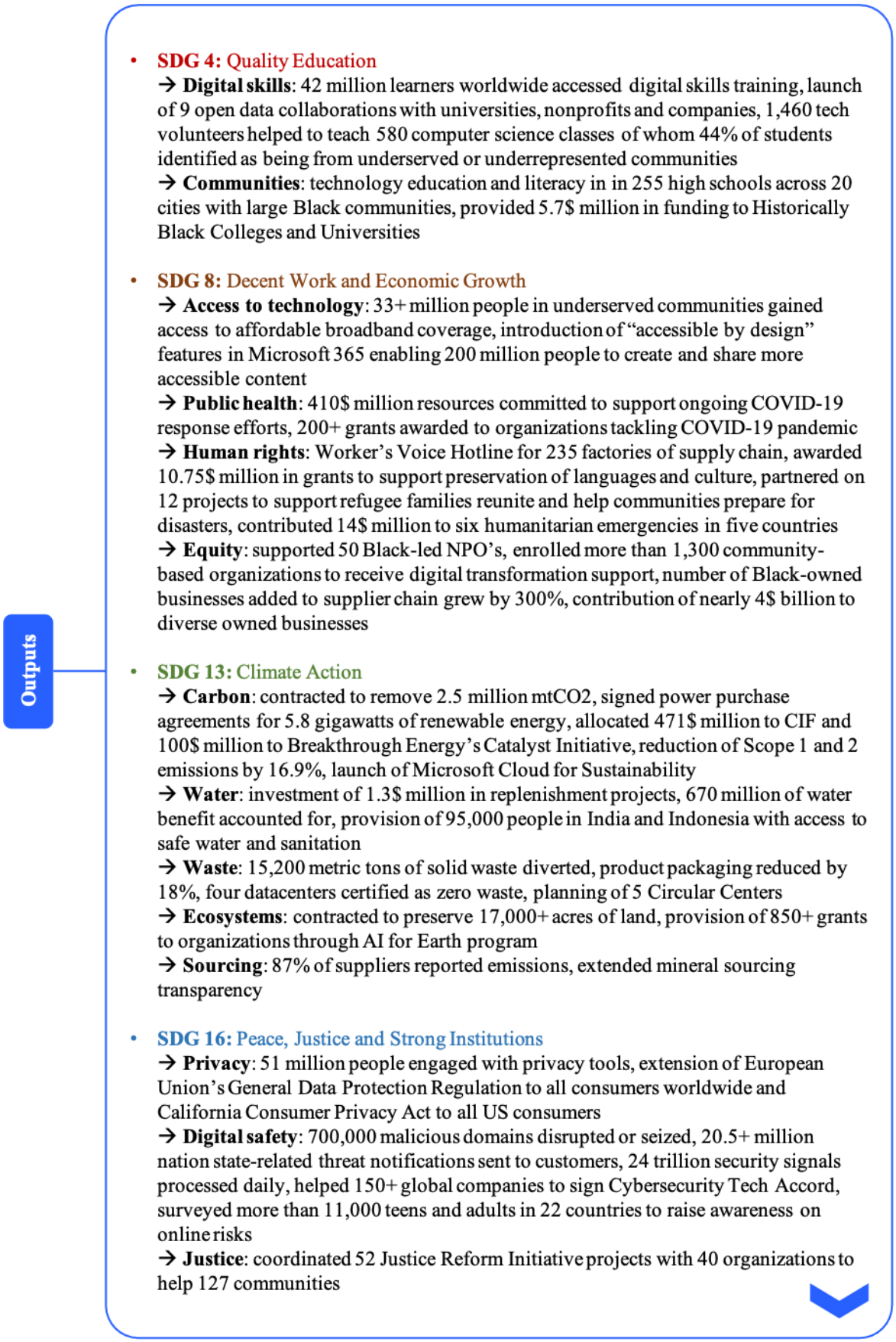


Figure 10. Theory of change: Microsoft outputs



Source: Own illustration with data from the Microsoft Impact Summary 2021, Environmental Sustainability Report 2020 and 2021, and 2020 Microsoft Corporate Social Responsibility Report (*2021 Environmental Sustainability Report*, w. y.; Microsoft, 2020b, 2020a, 2021d)

Figure 11. Theory of change: Microsoft outcomes

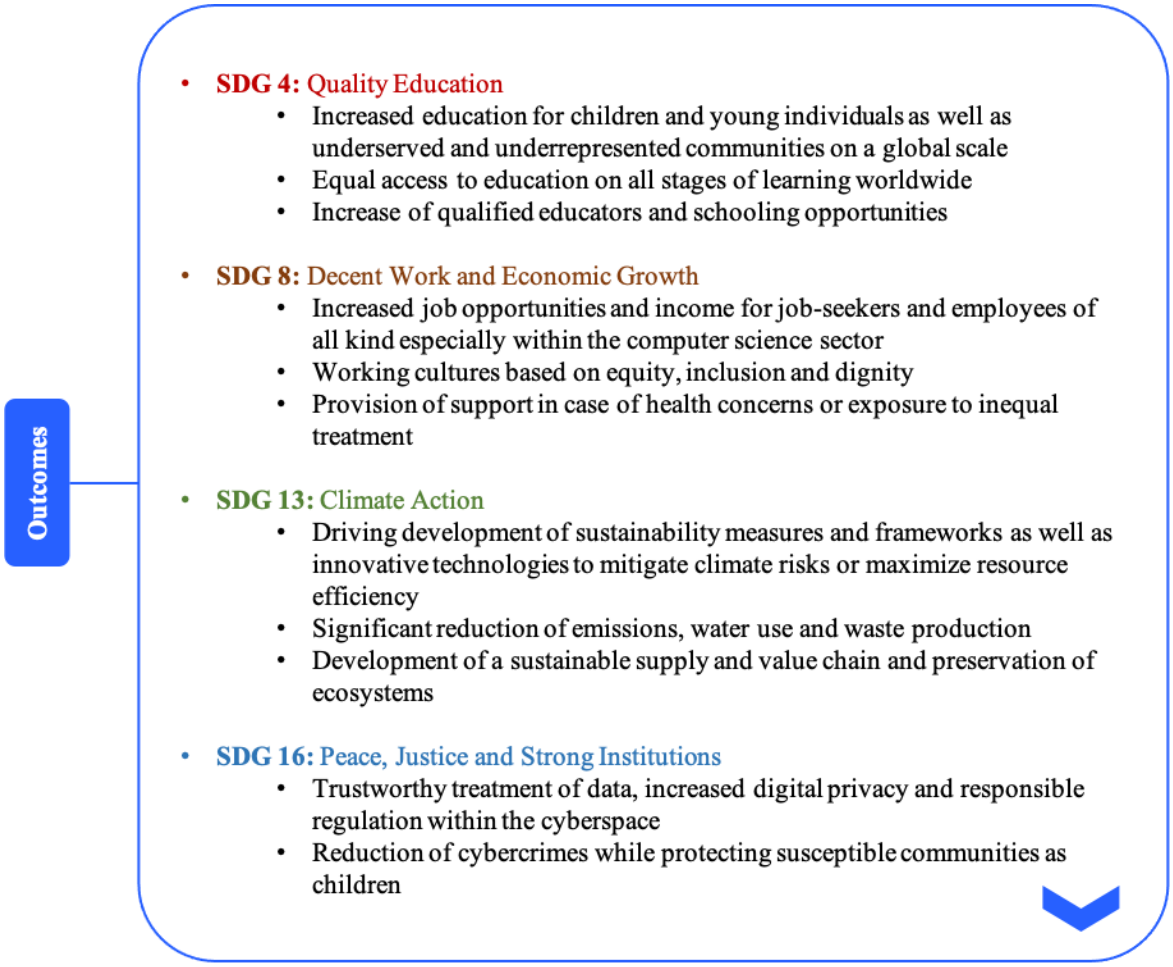
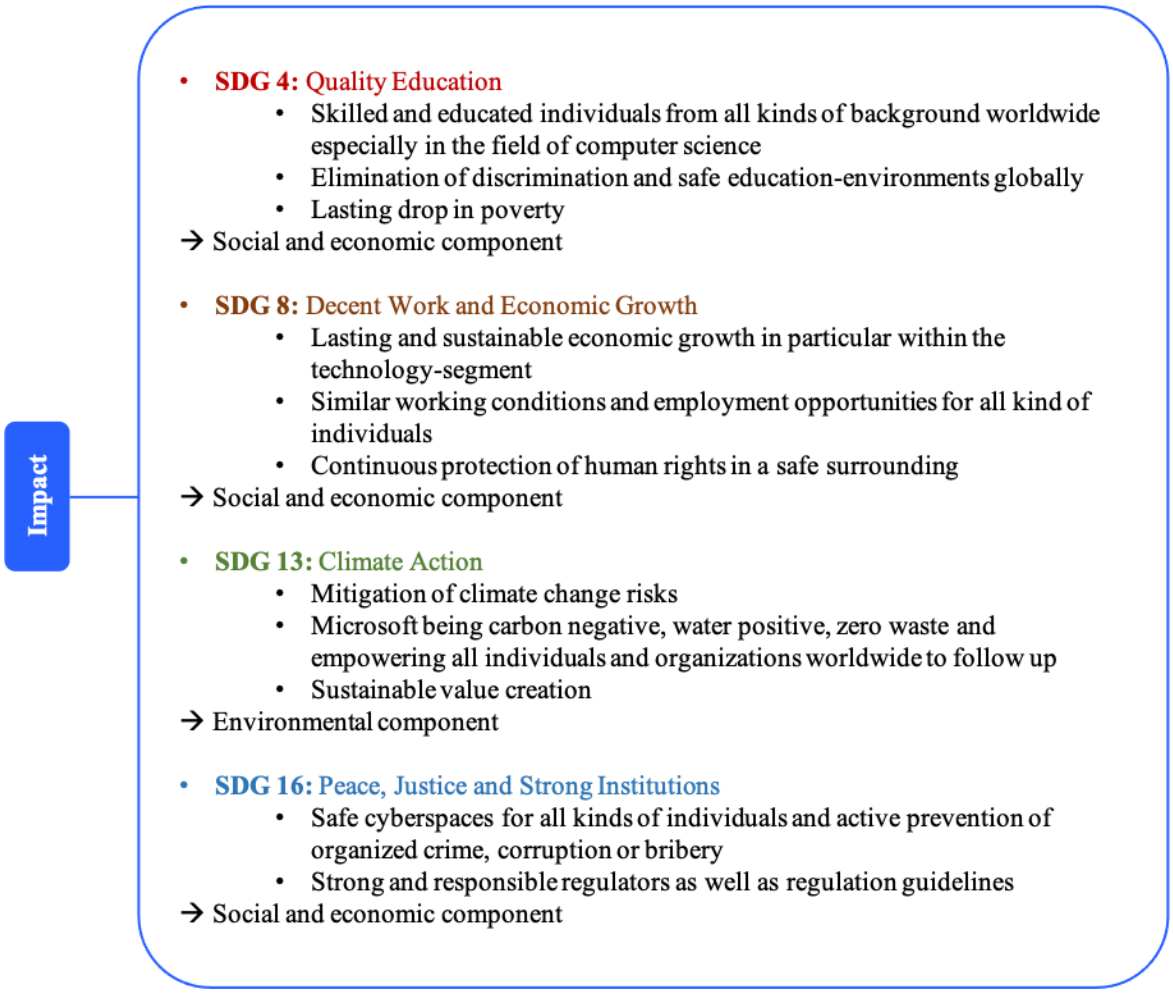


Figure 12. Theory of change: Microsoft impact



As already analyzed within the content of the teaching case, the framework illustrates specific actions deriving from alignment on the SDG's 4, 8, 13 and 16 are incorporated in an organizational context and bear the potential to create lasting impact on the society, the environment as well as the global economy.

4.4.2 Sustainable value creation for stakeholders

TQ 2: How can sustainable value creation be made tangible to conclude the benefits for stakeholders?

To start off, the information and data related to impact actions from the different reports should be gathered and analyzed. The reader is aware, that the core areas Microsoft focusses on regarding their commitment to impact creation are sustainability, addressment of racial injustice and inequity and the investment in digital skills. For all of these areas' reports providing detailed

data on projects and achievements within the last years should be taken into account for this assessment. Interrelated with their commitment to these areas, the data on the organization's actions in terms of responsible sourcing and directly targeting the SDG's should be considered. As a consequence, they can be applied to framework developed by the World Economic Forum (2020):

Figure 13. Pillar: Governance Microsoft I

	Governance: Core metrics and disclosures
Governing purpose	Setting purpose With Microsoft's mission "to empower every person and every organization on the planet to achieve more" and its core values of respect, integrity and accountability for their actions an alignment between a business and social perspective can be clearly identified. The company refers to their mission in action as innovation, diversity and inclusion, corporate social responsibility, trustworthy computing, development in AI and responding to Covid-19 together giving a precise overview of their priorities in terms of economic, environmental and social issues.
Quality of governing body	Governance body composition Seven Executive Officers with the following character traits: - Executive Vice President, Chief Commercial Officer since 2013 (Male, other significant positions within sales and finance context) - Executive Vice President, Chief Marketing Officer since 2014 (Male, other significant positions within marketing and management context) - Executive Vice President, Chief Human Resources Officer since 2015 (Female, other significant positions within management context) - Executive Vice President, Chief Financial Officer since 2013 (Female, other significant positions within finance and strategy context) - Chief Executive Officer since 2014 (Male, other significant positions within management, engineering and computer science context) - President and Vice Chair since 2015 (Male, other significant positions within management and law context) - Executive Vice President, Business Development, Strategy and Ventures since 2020 (Male, other significant positions within management and software context)

Source: Own illustration with data from the Microsoft Annual Report 2021 and Microsoft News (Executive Officers, w. y.; Microsoft, 2021a)

Figure 14. Pillar: Governance Microsoft II

Stakeholder Engagement

Material issues impacting stakeholders

The topics relevant to stakeholders were identified within Microsoft's approach on reporting governance and corporate social responsibility. The stakeholders with key interests are the following:

- **Customers**: Product satisfaction, usability, customer service, business accounts
  Engagement: Online feedback, support communities, product satisfaction surveys, usability studies, research forums, account managers, customer service representatives
- **Investors**: Financial returns/ performance, corporate governance principles, social responsibility and impact
  Engagement: Investor communication such as earnings calls, annual meeting, corporate governance information through a director video interview series, direct communication from independent members of the board. Contacting institutional investors about governance and citizenship related topics, and providing summaries of feedback to the board.
- **Employees**: Income, security, training, responsibility, ESG impact, equality, dignity, career opportunities
  Engagement: Employee feedback, opportunities to report compliance concerns
- **Supplier**: Revenue/ Performance, security, social and environmental accountability, alignment of interests, responsibility
  Engagement: Capacity-building workshops and trainings, engagement through supplier advisory boards, hosting annual supplier summit, participation in industry coalitions, supplier surveys on CSR issues
- **Civil society/ NGOs**: Partnerships, ESG initiatives, impact creation, empowerment
  Engagement: Engagement with thousands of NGOs ranging from environmental sustainability to employee diversity and child safety
- **Communities**: Local support, safety, health, empowerment, ESG initiatives, education, serve economic and social needs
  Engagement: Local CSR teams work with community groups and partner with local NGOs, sharing of insights through calls and annual global summit
- **Industry coalitions and public-private partnerships**: Industry development, standards, collaboration, impact creation
  Engagement: Participation in industry coalitions and collaborative work
- **Policymakers**: Public engagement, support ESG initiatives, transparency, accountability
  Engagement: Engagement in policy issues directly and through industry associations
- **International Government Organizations**: Consultancy, collaboration, social and environmental development, digitalization
  Engagement: Engagement with a range of UN agencies and other international government organizations for consultancy and long-term partnerships

Furthermore, the most important ESG issues to stakeholders were developed and explained within the 2020 Environmental Sustainability Report being: Climate and Energy, Ethics and Integrity, Human Capital, Human Rights, Natural Resources, Privacy and Data Security, Inclusive Economic Opportunity and Responsible Sourcing.

Source: Own illustration with data from the Microsoft Environmental Sustainability Report 2020 and 2021, Microsoft Stakeholder Engagement in the Governance of Corporate Social Responsibility Report and 2020 Microsoft Corporate Social Responsibility Report (*2021 Environmental Sustainability Report*, w. y.; Microsoft, w. y.-b, 2020a, 2020b)

Figure 15. Pillar: Governance Microsoft III

Ethical behavior	Anti-corruption Microsoft is committed to prohibit corrupt payments of all kinds. With their Anti-Corruption Compliance Program, they designed a system to prevent, detect and fix compliance issues. Additionally, their Trust Code enables and empowers employees or third parties to report potential integrity concerns and have an investigation team reviewing it as well as driving awareness to the topic. Moreover, anti-corruption training programs are offered in order to grow skills around ethical decision-making. Anti-corruption training is also required for partners and suppliers. With their Compliance Analytics Program sales quotes are created, screened by a risk model and flagged quotes reviewed in order to approve or stop deals. In 2020 the Anti-Corruption Technologies and Solutions Initiative has been announced in order to mobilize the power of data to assist governments in bending the curve of corruption.
	Protected ethics advice and reporting mechanisms Microsoft's standards of business conduct are anchored in their Trust Code, reflecting the organizations culture and values. Through various channels, Microsoft offers opportunities and empowers employees to report concerns as well as guidance in various languages on how to handle concerns.
Risk and opportunity oversight	Integrating risk and opportunity into business process Within its 2021 Annual Report, Microsoft is assessing their company risks as well as chances with respect to different dimensions. The risks and chances are being assessed annually and progress can be found within the reports. Microsoft is continuously committed to adapt to risks and materialize chances. Risks: - Increasing competition and rapidly transforming customer preferences - Investments in infrastructure and devices will increase operating costs and potentially decrease operating margins - Success is dependent on attraction and retainment of qualifies employees - Limited near-term flexibility for certain components manufactures by third-party contract manufacturers - Exposition to economic risk from foreign exchange rates (10% decrease), interest rates (100 BP increase), credit risk (100 BP increase) and equity prices (10% decrease) Chances: - Covid-19: customers accelerate digital transformation priorities - Transforming workplaces to deliver new business applications - Building and running cloud-based services - Applying AI to drive insights and act accordingly - Tackling security from all angles with integrated end-to-end solutions - Inventing new gaming experiences - Progress on becoming carbon negative, water positive, and producing zero waste by 2030, building the planetary computer, racial equity initiative

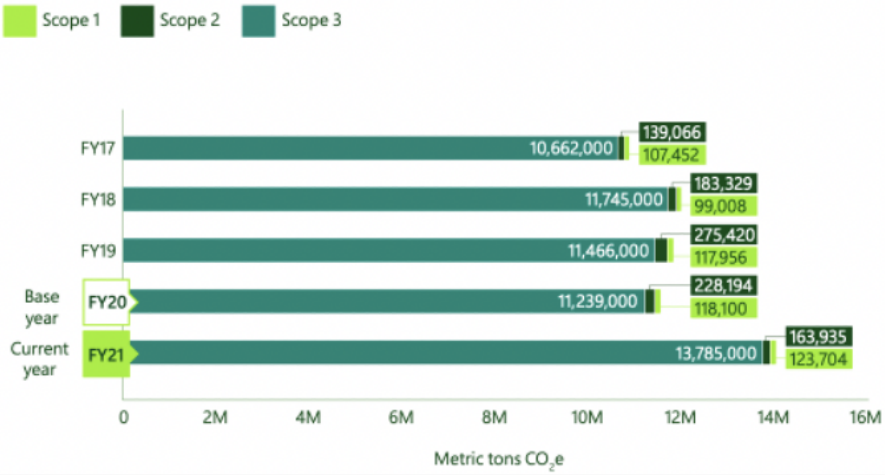
Source: Own illustration with data from the Microsoft Annual Report 2021 and the Microsoft Legal Compliance as well as Research Website (Commitment to Anti-Corruption and Anti-Bribery, w. y.; How to Report a Compliance Concern, w. y.; Read Our Business Standards, w. y.; „Revealing the Hidden Structure of Corruption", w. y.; Microsoft, 2021a)

Figure 16. Pillar: Planet Microsoft

Planet: Core metrics and disclosures

Climate change

Greenhouse gas (GHG) emissions



In 2021 Microsoft managed to reduce their Scope 1 and 2 emissions by 58,654 mtCO2 equaling 16.9%. However, the Scope 3 emissions determined through growth of their cloud services business and increase in sales and usage of their devices increased by 22.7%. The amount of Scope 3 emissions, which make up about 97.96% of total emissions, are driven to the major part by purchased goods and services (35.03%), capital goods (29.70%) and the use of sold products (28.07%). The remaining drivers are Fuel- and energy related activities (2.20%), upstream transportation (1.60%), waste (0.04%), business travel (0.16%), employee commuting (0.57%), downstream transportation (0.32%), end of life of sold products (0.14%), and downstream leased assets (0.13%). With effort of reducing the Scope 3 emissions, 87% of Microsoft's in-scope suppliers reported their emissions giving a more detailed picture for future efforts.

Furthermore, Microsoft contracted to remove 2.5 million mtCO2, incorporating 1.4 million mtCO2 contracted in FY21 and 1.1 million mtCO2 in FY22 until now, meeting their cumulative 2-year goal.

TCFD implementation

In line with the Paris Agreement, Microsoft undertakes a wide range of projects and implements approaches in order to limit global warming. For the sake of the extent within this research, only the major projects are being summarized here. Within FY21 Microsoft contracted to new power purchase agreements of about 5.6 gigawatts of renewable energy within ten nations worldwide and resulting in about 8 gigawatts of renewable energy in total.

Additionally, in combination with ENGIE Impact, WSP and CDP, the company provided a series of in-depth capacity-building tools and resources in order to support organizations and suppliers disclosing their GHG emissions and consequently derive new processes by that.

471$ million have been committed through the Climate Innovation Fund in order to support global goals on climate change and further 100$ million have been donated to Breakthrough Energy's Catalyst Initiative.

With respect to its own products, Microsoft launched the Microsoft Cloud for Sustainability in an attempt to enable comprehensive, integrated and automated sustainability management for organizations and they improved reduced their carbon footprint for several products as for the Surface Pro 8 with a decrease in energy consumption of 17% compared to the Surface Pro 7.

Source: Own illustration with data from the Microsoft Environmental Sustainability Report 2020 and 2021 and 2020 Microsoft Corporate Social Responsibility Report

Figure 17. Pillar: Planet Microsoft II

The company's commitment is that by 2030 100% of its energy supply will come from carbon-free resources and in line with that reduce their Scope 3 emissions by more than half by 2030 through reduction strategies in datacenters, redesigning devices and engagement with their supply chain. The company targets to innovate in renewable energy and carbon reduction, pilot diesel-free backup power as well as reduce embodied carbon, decarbonize their supply chain, enable product carbon comparability and continue to invest in carbon removal while driving quality.

Nature loss

Land use and ecological sensitivity

Microsoft's land use footprint is 11,000 acres and the company contracted to protect more than 17,000 acres of land, enabling them to execute their target of protecting more land than they use by more than 5,000 acres.

No evidence is given which percentage is in or adjacent to protected areas and/ or KBA's, however, Microsoft undertakes special commitments in order to take responsibility for their land footprint. Under that premise, they partner and share approaches with the National Fish and Wildlife Foundation and The Nature Conservancy to contribute to the purchase and protection of 236,000 acres of the Maya Forest land as well as to the purchase of permanent conservation easements in Montana, Colorado, New Mexico and Nevada that will protect the migration corridors for species of greatest conservation need. Moreover, Microsoft takes efforts to identify opportunities for their datacenters to give back to the natural environment through an assessment of ecosystem performance in 12 datacenter areas with the target to be finished by 2021.

Freshwater availability

Water consumption and withdrawal in water-stressed areas

	FY17	FY18	FY19	FY20	FY21
Total Water Withdrawals[15]	5,148	6,719	7,505	7,618	**7,657**
Third-party water	5,040	6,586	7,367	7,513	**7,600**
Surface Water	91	104	104	89	**41**
Ground Water	17	29	34	16	**16**
Total Water Discharges[15, 16]	3,236	3,393	3,559	3,651	**3,179**
Third-party water	3,236	3,393	3,559	3,651	**3,179**
Total Water Consumption[15]	1,913	3,326	3,946	3,967	**4,478**

The total water withdrawal from regions with water stress was 1,698ML (22%) mainly sourced from third-party water, whereas total water discharge from regions with water stress was 915ML (29%) and total water consumption from regions with water stress was 783ML (17%). The water risk evaluation was analyzed by applying WRI's Aqueduct tool and the disclosed data consider take high or extremely high baseline water stress into consideration.

Source: Own illustration with data from the Microsoft Environmental Sustainability Report 2020 and 2021 and 2020 Microsoft Corporate Social Responsibility Report

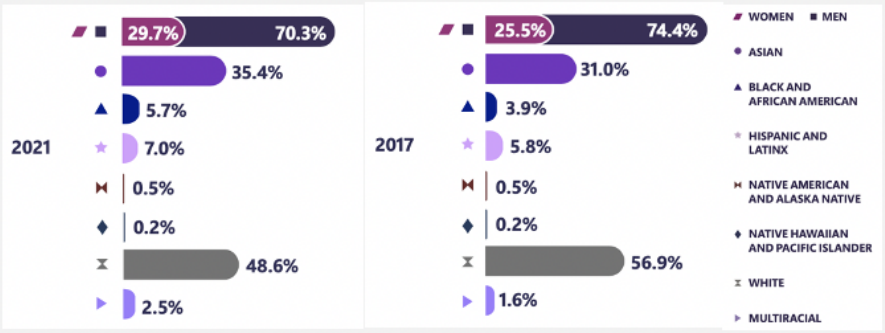
Figure 18. Pillar: People Microsoft I

People: Core metrics and disclosures

Dignity and Equality

Diversity and inclusion (%)

Microsoft core business excluding LinkedIn, GitHub and minimally integrated gaming studios:



In particular for women, Black and African American- and Hispanic and Latinx employees and upward trend is observable. Comparing the up-to-date data to the one from 2017, the size of global core Microsoft workforce increased by 41.6%, while the number of women employees globally grew by 64.9%. For Black and African American, Hispanic and Latinx, Asian and multiracial employees in the US a growth rate of 35.4% was detectable.

Pay equality (%)

Microsoft claims, all racial and ethnic minority employees in the US summarized receive 1.006$ for every 1.000$ earned by their white counterparts (Black and African American 1.002$, Hispanic and Latinx 1.003$, Asian employees 1.008$). Moreover, women in the US receive 1.002$ for each 1.000$ received by their counterparts in the US who are men. Within a global perspective, women in the US, Australia, Canada, China, France, Germany, India, Ireland, Israel, Japan, Romania, Singapore and the UK receive 1.001$ for each 1.000$ received by men in these accounted geographies.

Wage level (%)

Microsoft's CEO total compensation amounted to about 49.9$ million in 2021. This compensation is set up by the salary of about 2.5$ million, stock awards of about 33$ and a nonequity incentive plan compensation of about 14.2$ million. The CEO-pay-ratio lies around 282:1 therefore and Microsoft's median employee pay amounts to about 176,858$.

Risk for incidents of child, forced or compulsory labor

Within Microsoft's approach of Responsible Sourcing and their Social and Environmental Accountability (SEA) requirements, the organization crucial human rights and environmental risk can raise within minerals mining and production incorporating the potential risk of forced and child labor, hazardous working conditions and use of chemicals. To tackle these risks, Microsoft actively engages and collaborates with individuals, NGO's, governments or enterprises as The Responsible Business Alliance, Initiative for Responsible Mining Assurance, Responsible Mineral Initiative, IMPACT or Pact.

In 2021, Microsoft executed a risk assessment for all of their active factories indicating the top ten non-conformance results are working hours, occupational safety, supplier responsibility, emergency preparedness, wages and benefits, industrial hygiene, freely chosen employment, hazardous substances and child labor avoidance. Additionally, they created a prioritized mineral list including the referring key industry risks, goals and top producer countries per mineral. The list is built up by Aluminum, cobalt, copper, gold, lithium, magnesium, nickel, tantalum, tin and tungsten mainly for printed circuit boards and batteries and is being sourced from mostly from China, C.R. Congo, Chile, Australia, and Indonesia.

Source: Own illustration with data from the Microsoft Annual Report 2021, Global Diversity

& Inclusion Report 2021, Microsoft Devices Responsible Sourcing Report 2021, research on compensation for Microsoft employees (Microsoft, 2021a, 2021c, 2021b; Salary.com, w. y.)

Figure 19. Pillar: People Microsoft II

Health and well-being	Health and safety (%) The company's health and safety specialists work intensively with Microsoft's stakeholders in order to build a solid base of health and safety standards. With committed toolkit guide suppliers Microsoft conducts risk evaluations to identify, track and minimize safety risks within their supply chain. By working with factory managements, the design new approaches and technologies to ensure safe manufacturing, as in 2021 a pre-assessment stage before onboarding high-risk suppliers have been introduced. Microsoft is gathering data on work-related injuries and diseases in line with US Occupational Safety and Health Administration at their key Tier 1 Assembly suppliers' factories through detailed record-keeping supporting the organization to identify problem areas and enable progress on improvement. The Tier 1 Assembly suppliers indicated zero fire accidents and an Occupational Health and Safety Administration's recordable injury rate of 0.016 compared to 0.123 in FY14. A Health and Safety guideline for suppliers has been developed and according training provided, they launched specific Occupational Health and Safety programs as for cyanide safety and machine handling as well as increased efforts to conduct on-site risk assessment. Machine safeguarding non-conformances decreased by 17%, operational health and safety risk operations decreased by 18% and hazardous substances non-conformances decreased by 8%.
Skills for the future	Training provided Precise numbers on the average hours of training per employee and the average training and development expenditure are not being reported by Microsoft. However, detailed information on training and development opportunities can be found. Microsoft is committed to provide training in order to educate and engage employees and provides several opportunities to upskill. These include personalized and integrating learning possibilities on Microsoft Learning as well as LinkedIn Learning, in-classroom sessions, coaching on career development as well as customized manager training with the intention to advance coaching and mentoring skills. Moreover, specific focus lies on the responsible sourcing training, where the company conducts training, workshops, and audits with employees and suppliers. By 2021, 206 suppliers absolved Social and Environmental Accountability requirements training and 97% of third-party auditors have been trained to enhance performance for on-site risk assessments as well as supplier compliance. Additionally, training on Health and Safety guidelines as on handling feedback for supervisors is being provided.

Source: Own illustration with data from the Microsoft Annual Report 2021, Global Diversity & Inclusion Report 2021 and Microsoft Devices Responsible Sourcing Report 2021 (Microsoft, 2021a, 2021c, 2021b)

Figure 20. Pillar: Prosperity Microsoft

	Prosperity: Core metrics and disclosures
Employment and wealth generation	Absolute number and rate of employment Since 2016 Microsoft's number of employees is continuously growing on average by 13,400 employees per year. With 114,000 employees in 2016 the company hired as much people to provide jobs for about 181,000 employees in 2021. Exact numbers on the distribution per gender, age group or other indicators are not being reported.
	Economic contribution Direct economic value generated and distributed 2021: o Revenues: 168,088$ million o Cost of revenue: 52,232$ million o Operating income: 69,916$ million o General and administrative expenses (besides others including payroll and employee benefits): 5,107$ million (3% of the revenue)
	Financial investment contribution 2021 Microsoft's intends to create new and compelling products and services in order to introduce and take on disruptive technology trends. As a consequence, the company is investing in a broad range of upcoming technology innovations and trends and funds research at the corporate level with a long-term perspective. - Total share repurchases: 22,970$ million - Total dividend payments: 16,880$ million, 2.24$ per share - Net cash used in investing: (27,577) $ million
Innovatio	Total R&D expenses ($) Research and Development expenses amount to 20,716$ million, representing 12% of the total revenue.
Social vitality	Total tax paid Income before taxes: 71,102$ million Provision for income taxes: 9,831$ million - Current taxes: US federal 3,285$ million, US state and local 1,229$ million, Foreign 5,467$ million - Deferred taxes: (150) $ million

Source: Own illustration with data from the Microsoft Annual Report 2016 and 2021 (Microsoft, 2021a, 2021a)

Evaluation:

Applying the framework on measuring stakeholder capitalism enables the reader not only to make sustainable value creation tangible by suggesting specific metrics, but also creates a detailed picture of the company's stakeholders and in which way they are benefitting from its corporate as well as sustainable strategy by determining concrete numbers and projects. However, it remains unclear to which extent stakeholders' interests are being satisfied and how good the provided results are. Whether or not stakeholders' needs and interests are satisfied and how good Microsoft performs in comparison to other leading technology companies needs further research.

5 Discussion

This dissertation's objective was to assess how a company's sustainability strategy can be efficiently integrated into its corporate strategy under the premise of achieving impact and how this strategic alignment creates lasting value for stakeholders. The chosen organization Microsoft demonstrates a distinct methodology to efficiently integrate sustainability measures being described by making the SDG's a key driver of the corporate strategy.

Within the literature review, it was pointed out that a major challenge organizations face remains to identify ways how a sustainability strategy can be incorporated into the corporate strategy bridging the step of converting the theory into explicit exercises (Baumgartner, 2014; Epstein & Roy, 2001). Moreover, the relevance of the SDG's for the private sector was highlighted since corporations bear the potential to address universal issues (Scheyvens et al., 2016). Microsoft takes on responsibility by integrating their sustainability strategy based on the core areas of sustainability, the addressment of racial injustice and inequity and the investment in digital skills with the SDG's particularly focusing on Quality Education, Decent Work and Economic Growth, Climate Action and Peace, Justice and Strong Institutions in a corporate context. As a consequence of their activities, long-term impact as the drop in poverty, mitigation of climate change and equal human treatment and sustainable value creation for its stakeholders is being created on a social, economic and environmental component.

Microsoft's engagement and strategic positioning could be accused of greenwashing and acting under the premise of maximizing profitability. Nonetheless, as discussed within the first teaching question, Microsoft has a high commitment of sustainability and anchored corresponding values deeply within their corporate culture. Great efforts have been undertaken to transfer the SDG theory into specific programs, partnerships and support and keep track of sustainable outcomes. Combined with its financial strength and global networks, the company was able to establish activities tackling universal challenges while providing detailed report on their progress.

Within the case study and the first teaching question the dimensions of Microsoft's strategic positioning have been discussed. Furthermore, it was assessed how Microsoft is realizing the theory of its sustainability strategy by incorporating the SDG's and which short-, medium-, and long-term impact can be achieved. The second teaching question discussed the dimensions of stakeholder capitalism in order to make sustainable value creation tangible by applying specific

metrics. However, given the global scale and interrelatedness of Microsoft's operations as well as considering the great number of stakeholders, the framework failed to address a few metrics precisely by numbers.

6 Conclusion

The premise of acting in a sustainable and responsible way with regard to environmental, social and economic dimensions continues to shape the future and leads organizations to reconceptualize their strategic positioning through the integration of sustainable strategies. In particular the private sector bears the potential and the capabilities to take on significant actions in order to achieve impact. With the technology sector at the forefront of the Fourth Industrial Revolution, the industry is able to support major progression on the SDG's through big data platforms, AI, Blockchain and IoT. These trends result in impact and sustainable value creation within the technology industry, which is being researched and assessed within this dissertation by the use of qualitative and quantitative secondary data. Pursuing the dissertation framework of a teaching case, Microsoft was selected to be the company of discussion. Microsoft is one of the five leading technology brands worldwide, with a strong commitment act on sustainability and take on responsibility by relying on their global resources, network and technologies.

The teaching case was executed by creating an understanding of sustainable strategy, impact definition and stakeholder capitalism as well as introducing and applying the theoretical models of a theory of change and measuring stakeholder capitalism framework. The latter present Microsoft's structures how to incorporate sustainability in a business in line with actions to create impact and sustainable value for several stakeholders globally.

Summarizing the key results, Microsoft:

- Focusses on the SDG's 4, 8, 13 and 16 to take on distinct programs, partnerships and support in an attempt to enforce their theoretical commitment to sustainability
- Creates quantifiable short-term impact whereas medium- and long-term impact is to be qualitative derived from their actions regarding various dimensions with emphasis on sustainability, racial injustice and inequity and investing in digital skills
- The created value is categorized among the pillar's principles of governance, planet, people, and prosperity revealing concrete numbers and its benefits for the stakeholders

- Especially benefits in the fields of ethical behavior, climate change, nature loss, freshwater availability, dignity and equity, health and safety, skills for the future, job opportunities, wealth generation and economic growth, innovation of products and services as well as for communities and social vitality have been pointed out for stakeholders

Creating a detailed picture of how formulate, align and integrate a sustainability strategy while ensuring long-term value creation for stakeholders is of importance for managers and stakeholders of a business. Given the framework of this dissertation only examines one company and uses secondary data, it constrains the potential to translate the achieved insights to other cases. Nonetheless, the developed results showcase a best practice example for technology organizations worldwide. Microsoft was able to manage the explained tensions on how to successfully integrate a sustainability strategy and create value, which is investigated in this case. Scholars executing this case study are able develop an understanding how enabling impact can be aligned with the stakeholders' interests and a win-win-win situation for the company, the stakeholders and the sustainability can be achieved.

Concluding, the selected frameworks are meaningful and significant to answer the questions for the organization of interest. Nonetheless, the degree of reliance of these results is limited first of all to the use of secondary data only, since even after speaking to several Microsoft employees, neither of them was allowed to disclose more data than one being reported in all the publicly available studies. Moreover, this research only breaks down the main actions Microsoft is undertaking, given its extensive character. The findings are furthermore limited to the determined industry and enterprise properties.

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8 Appendix

Appendix I: Technology for Global Goals

Innovative technology traits, as for example the raised effectiveness of methods, higher transparency and liability of involved parties or the transformation to distributed approaches enable the Fourth Industrial Revolution to have immense influence on at least 70 percent of the targets within the SDG's with already available developments (Gawel & Herweijer, 2020). The Sustainable Development Goals Report 2019 illustrated advancement was still slow or actually regressive and the world is far from reaching global goals to tackle climate change, secure ecological diversity, end hunger or poverty just to mention a few (United Nations, 2019). The global market for accomplishing the SDG's has been predicted to reach a value of about 12 trillion U.S. dollar per year only in the fields of food and agriculture, cities, energy and materials and well-being (Business & Sustainable Development Commission, 2017). The World Economic Forum in collaboration with PwC presented over 300 applications ranked by maturity to the SDG's based on the technologies from the Fourth Industrial Revolution and determined metadata on geography, technology fixed, the goal addressed and its priority within the goal, relevant partners and facilitators as well as limitations to scale. As a result, they state in particular SDG 3, 7, 9, and 11 display a huge amount of applications with existing solutions, big data platforms support progression of 100% of the SDG's, AI is central to more than 50 percent of the applications, Blockchain relevant for a quarter and IoT for a third of the applications (Gawel & Herweijer, 2020).

Another factor influencing the development of strategies to decrease negative environmental as well as social impact while enhancing running processes is presented by the regulations of a country – in the sense that it can either fuel corporation's sustainability activities or at the same time also harm or restrict economic possibilities (Christainsen & Haveman, 1981; Conrad & Morrison, 1989; Dean & Brown, 1995; Porter, 1995). For that reason, Darnall (2009) underlined the relevance of the knowledge about the connection between regulations, sustainable goals and the subsequent economic outcome for the formulation of a sustainability strategy as well as policy makers (Darnall et al., 2010).

Appendix II: Impact of Covid-19 on technology industry

A major factor in answering the ongoing pandemic is technology. Virtual working and meeting on digital platforms quickly became a key element for remote laboring and both contact tracking

technologies as well as rapid communication and conversion of data allowed for a more precise picture of the virus dispersion. Although worldwide confinements decelerated the global economy, a boost within the IT industry was observable since it facilitated the development of telemedicine-, online retail- and social distancing measures. Urgency to uncover innovative approaches in order to handle sudden issues fueled ground-breaking innovations in particular in the field of technology. Nonetheless, overhasty implementations and enormous amounts of users for digital resolutions enhance threats of congestion, electronic offense or disparity. As information technology is essential to manage the pandemic, its employment bears threats deriving from its possible influence on the people to the appropriate development of approaches for catastrophe management (WEF, 2020). The most significant fundamental shift will be in the constellation of the way people deal with technology coming along with the most important possibility for legal authorities as well as people to achieve the capabilities of a genuinely worldwide digital society (Saran, 2020).

All in all, the magnitude and aspiration of the SDG's concept calls for a revived international collaboration in order to assure its execution (United Nations, 2015b). However, the Covid-19 pandemic has exacerbated the issue of achieving the SDG's– Politics potentially have less assets or awareness to interact with and activate stakeholders although simultaneously the discourse among administrates and society is of special significance at the moment in contemplation of directing legislative efforts and sustaining shared solidarity (United Nations, 2020).

Appendix III: MDGs

Preliminary to the development of the SDG's, the UN member states already formulated the so-called Millennium Development Goals (MDG's) in the year 2000 under the premise of shaping the global development agenda until 2015. They comprised the eight essential elements of poverty, education, gender equality, child mortality, maternal health, disease, environment as well as global partnership, and each of them being endorsed by 21 distinct objectives (United Nations, 2015a). The MDG's proved to be effective within a lot of topics and as a consequence are considered as one of the most beneficial courses of actions of the past to fight poverty. Nevertheless, approaching 2015 it got progressively obvious the developed concept of the MDG's alone wasn't enough in order to withstand the driving global environmental and societal issues. With a legislative agenda as the major force of the MDG's and the sustainability-debate at the forefront of global development, the need of an agenda designed to address sustainable

challenges in detail for policy makers as well as the private domain gained of significant relevance (Pedersen, 2018). Moreover, in order to tackle further aspects deriving from the 'triple bottom line' approach to sustainability, more importance is attached to environmental sustainability, economic development, the possibility for independent global application and a growing issue about non-material factors of development within the SDG's (Scheyvens et al., 2016).

Appendix IV: More on Microsoft industry role:

Despite the fact that market rivals like Apple proceed to reduce Microsoft's market share, Windows persists to be globally the most popular operating system by a huge margin (Statista, 2022). The five leading tech brands collectively experienced significant revenue growth and an immense boost in user bases into billions in the last years enabling them to reach a combined market value of more than four trillion U.S. dollars and increasing their digital footprint as well as impact on the global economy (Statista, 2021).

Appendix V: Measuring stakeholder capitalism framework details:

Figure 21. Referring to table 2: Pillar: Principles of governance content

Subject	Governance: Core metrics and disclosures
Governing purpose	Setting purpose The company's stated purpose, as the expression of the means by which a business proposes solutions to economic, environmental and social issues. Corporate purpose should create value for all stakeholders, including shareholders.
Quality of governing body	Governance body composition Composition of the highest governance body and its committees by: competencies relating to economic, environmental and social topics; executive or non-executive; independence; tenure on the governance body; number of each individual's other significant positions and commitments, and the nature of the commitments; gender; membership of under-represented social groups; stakeholder representation.
Stakeholder engagement	Material issues impacting stakeholders A list of the topics that are material to key stakeholders and the company, how the topics were identified and how the stakeholders were engaged.
Ethical behavior	Anti-corruption 1. Total percentage of governance body members, employees and business partners who have received training on the organization's anti-corruption policies and procedures, broken down by region. a) Total number and nature of incidents of corruption confirmed during the current year, but related to previous years; and b) Total number and nature of incidents of corruption confirmed during the current year, related to this year. 2. Discussion of initiatives and stakeholder engagement to improve the broader operating environment and culture, in order to combat corruption.
	Protected ethics advice and reporting mechanisms A description of internal and external mechanisms for: 1. Seeking advice about ethical and lawful behavior and organizational integrity; and 2. Reporting concerns about unethical or unlawful behavior and lack of organizational integrity.
Risk and opportunity oversight	Integrating risk and opportunity into business process Company risk factor and opportunity disclosures that clearly identify the principal material risks and opportunities facing the company specifically (as opposed to generic sector risks), the company appetite in respect of these risks, how these risks and opportunities have moved over time and the response to those changes. These opportunities and risks should integrate material economic, environmental and social issues, including climate change and data stewardship.

Source: adapted from Measuring Stakeholder Capitalism (World Economic Forum, 2020)

Figure 22. Referring to table 3: Pillar: Planet content

Subject	Planet: Core metrics and disclosures
Climate change	Greenhouse gas (GHG) emissions For all relevant greenhouse gases (e.g., carbon dioxide, methane, nitrous oxide, F-gases etc.), report in metric tons of carbon dioxide equivalent (tCO2e) GHG Protocol Scope 1 and Scope 2 emissions. Estimate and report material upstream and downstream (GHG Protocol Scope 3) emissions where appropriate.
	TCFD implementation Fully implement the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). If necessary, disclose a timeline of at most three years for full implementation. Disclose whether you have set, or have committed to set, GHG emissions targets that are in line with the goals of the Paris Agreement – to limit global warming to well below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C – and to achieve net-zero emissions before 2050.
Nature loss	Land use and ecological sensitivity Report the number and area (in hectares) of sites owned, leased or managed in or adjacent to protected areas and/or key biodiversity areas.
Freshwater availability	Water consumption and withdrawal in water-stressed areas Report for operations where material: megaliters of water withdrawn, megaliters of water consumed and the percentage of each in regions with high or extremely high baseline water stress, according to WRI Aqueduct water risk atlas tool. Estimate and report the same information for the full value chain (upstream and downstream) where appropriate.

Source: adapted from Measuring Stakeholder Capitalism (World Economic Forum, 2020)

Figure 23. Referring to table 4: Pillar: People content

Subject	People: Core metrics and disclosures
Dignity and Equality	Diversity and inclusion (%) Percentage of employees per employee category, by age group, gender and other indicators of diversity (e.g. ethnicity)
	Pay equality (%) Ratio of the basic salary and remuneration for each employee category by significant locations of operation for priority areas of equality: women to men, minor to major ethnic groups, and other relevant equality areas
	Wage level (%) 1. Ratios of standard entry level wage by gender compared to local minimum wage. 2. Ratio of the annual total compensation of the CEO to the median of the annual total compensation of all its employees, except the CEO.
	Risk for incidents of child, forced or compulsory labor An explanation of the operations and suppliers considered to have significant risk for incidents of child labor, forced or compulsory labor. Such risks could emerge in relation to: a) Type of operation (such as manufacturing plant) and type of supplier; and b) Countries or geographic areas with operations and suppliers considered at risk
Health and well-being	Health and safety (%) 1. The number and rate of fatalities as a result of work-related injury; high-consequence work-related injuries (excluding fatalities); recordable work-related injuries; main types of work-related injury; and the number of hours worked. 2. An explanation of how the organization facilitates workers' access to non-occupational medical and healthcare services, and the scope of access provided for employees and workers.
Skills for the future	Training provided Average hours of training per person that the organization's employees have undertaken during the reporting period, by gender and employee category (total number of hours of training provided to employees divided by the number of employees) Average training and development expenditure per full time employee (total cost of training provided to employees divided by the number of employees).

Source: adapted from Measuring Stakeholder Capitalism (World Economic Forum, 2020)

Figure 24. Referring to table 5: Pillar: Prosperity content

Subject	Prosperity: Core metrics and disclosures
Employment and wealth generation	Absolute number and rate of employment Total number and rate of new employee hires during the reporting period, by age group, gender, other indicators of diversity and region. Total number and rate of employee turnover during the reporting period, by age group, gender, other indicators of diversity and region.
	Economic contribution 1. Direct economic value generated and distributed, on an accrual's basis, covering the basic components for the organization's global operations, ideally split out by: o Revenues o Operating costs o Employee wages and benefits o Payments to providers of capital o Payments to government o Community investment 2. Financial assistance received from the government: total monetary value of financial assistance received by the organization from any government during the reporting period.
	Financial investment contribution Total capital expenditures minus depreciation, supported by narrative to describe the company's investment strategy. Share buybacks plus dividend payments, supported by narrative to describe the company's strategy for returns of capital to shareholders.
Innovation of better products and services	Total R&D expenses ($) Total costs related to research and development.
Community and social vitality	Total tax paid The total global tax borne by the company, including corporate income taxes, property taxes, non-creditable VAT and other sales taxes, employer-paid payroll taxes, and other taxes that constitute costs to the company, by category of taxes.

Source: adapted from Measuring Stakeholder Capitalism (World Economic Forum, 2020)

Figure 25. Microsoft GHG emissions

Table 2
GHG emissions by type

	FY17	FY18	FY19	FY20	FY21
(mt)					
Scope 1					
Scope 1 – CO_2	82,448	81,263	95,667	96,700	**94,292**
Scope 1 – CH_4	2	2	2	2	**3**
Scope 1 – N_2O	1	1	1	1	**1**
Scope 1 – HFCs	23	17	20	19	**27**
Scope 1 – SF_6[9]		0	0	0	**0**
Scope 2 (Location-Based)					
Scope 2 – CO_2	2,684,866	2,929,720	3,537,892	4,079,782	**4,720,190**
Scope 2 – CH_4	64	188	222	271	**318**
Scope 2 – N_2O	37	39	47	53	**57**
Scope 2 (Market-Based)					
Scope 2 – CO_2	138,411	182,313	273,900	226,933	**163,354**
Scope 2 – CH_4	3	12	17	15	**6**
Scope 2 – N_2O	2	2	4	3	**1**
($mtCO_2e$)					
Scope 1	107,451	99,009	117,956	118,100	**123,704**
Scope 1 – CO_2	82,448	81,263	95,667	96,700	**94,292**
Scope 1 – CH_4	45	45	50	53	**63**
Scope 1 – N_2O	248	261	256	236	**150**
Scope 1 – HFCs	24,710	17,408	21,951	21,070	**29,177**
Scope 1 – SF_6[8]	–	32	32	41	**22**
Scope 2 (Location-Based)	2,697,554	2,946,043	3,557,518	4,102,445	**4,745,197**
Scope 2 – CO_2	2,684,866	2,929,720	3,537,892	4,079,782	**4,720,190**
Scope 2 – CH_4	1,605	4,700	5,550	6,768	**7,942**
Scope 2 – N_2O	11,083	11,623	14,076	15,895	**17,065**
Scope 2 (Market-Based)	139,066	183,329	275,420	228,194	**163,935**
Scope 2 – CO_2	138,411	182,313	273,900	226,933	**163,354**
Scope 2 – CH_4	84	293	430	377	**150**
Scope 2 – N_2O	571	723	1,090	884	**431**

8 In FY18 the estimating of SF_6 leakage at datacenters began.

Table 3
GHG emissions by region ($mtCO_2e$)

	FY17	FY18	FY19	FY20	FY21
Scope 1					
Asia	9,699	6,483	7,330	8,650	**9,664**
Europe, Middle East, Africa	44,873	41,276	57,957	61,719	**69,251**
Latin America	6,260	6,173	3,919	3,871	**4,403**
North America	46,620	45,076	48,750	43,860	**40,386**
Subtotal	*107,452*	*99,008*	*117,956*	*118,100*	***123,704***
Scope 2 (Location-Based)					
Asia	439,035	528,277	691,772	804,567	**942,892**
Europe, Middle East, Africa	399,194	519,058	681,743	860,858	**866,689**
Latin America	20,968	23,450	25,403	15,707	**16,204**
North America	1,838,357	1,875,258	2,158,600	2,421,313	**2,919,412**
Subtotal	*2,697,554*	*2,946,043*	*3,557,518*	*4,102,445*	***4,745,197***
Scope 2 (Market-Based)					
Asia	121,930	174,533	266,725	219,416	**157,841**
Europe, Middle East, Africa	14,460	7,301	7,463	7,376	**5,353**
Latin America	2,053	751	632	594	**433**
North America	623	744	600	808	**308**
Subtotal	*139,066*	*183,329*	*275,420*	*228,194*	***163,935***

Source: Microsoft Environmental Sustainability Report 2021 (2021 Environmental Sustainability Report, 2021)

Figure 26. Microsoft GHG emissions contributed

Table 4
GHG emissions intensity ($mtCO_2e$/Revenue M$)

	FY17	FY18	FY19	FY20	FY21
Revenue (M$)	96,571	110,360	125,843	143,015	**168,088**
Scope 1	1.1	0.9	0.9	0.8	**0.7**
Scope 2 (Location-Based)	27.9	26.7	28.3	28.7	**28.2**
Scope 2 (Market-Based)	1.4	1.7	2.2	1.6	**1.0**
Scope 1 + 2 (Location-Based)	29.0	27.6	29.2	29.5	**29.0**
Scope 3 (Business Travel)	4.3	4.2	3.8	2.3	**0.1**

Table 5
Carbon offsets ($mtCO_2e$)

	FY17	FY18	FY19	FY20	FY21
GHG Emissions within Carbon Neutral Boundary[9,10]	573,871	652,282	781,345	612,927	**292,106**
Offsets Applied to Reporting Year	573,871	652,282	781,345	612,927	**292,106**
Net GHG Emissions within Carbon Neutral Boundary[10]	–	–	–	–	–
Total Removal Offsets Contracted[11]					**1,391,187**

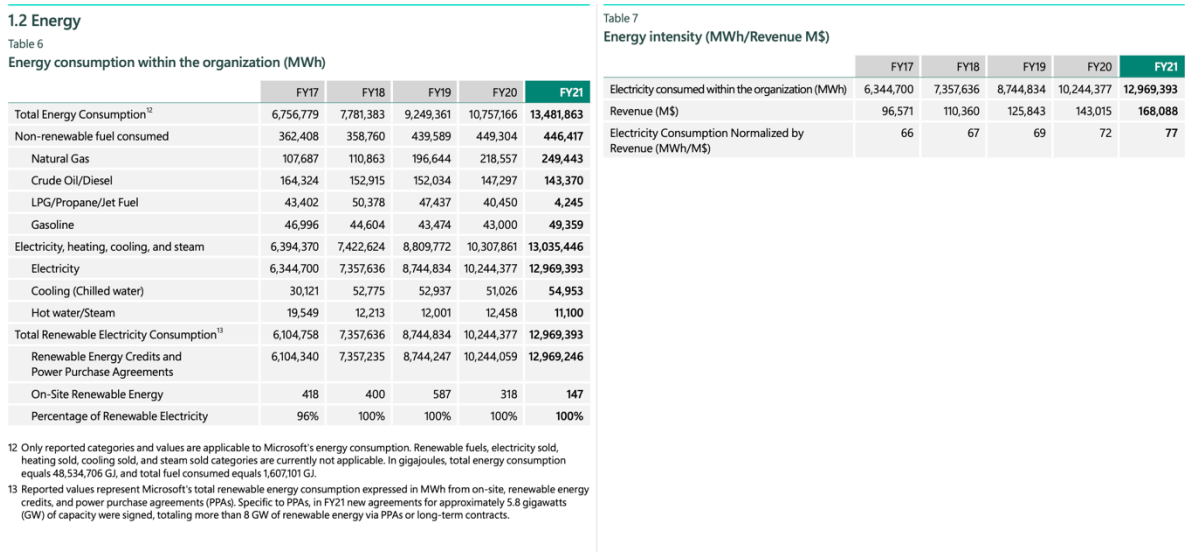
9 Represents the values prior to historic recalculations due to acquisitions and methodology changes.

10 This data supports Microsoft's ongoing target to be carbon neutral every year from fiscal year 2013 onward. The boundary for this carbon neutral commitment includes global Scope 1, Scope 2 Market-based, and Scope 3 business air travel. As progress is made towards the carbon negative commitment, which includes purchasing removal offsets, the commitment to carbon neutrality will also be maintained.

11 Values reported represent offsets contracted. Contracted removal values only include removal credits that have been evaluated as compliant with Microsoft's quality removal criteria. This number might change based on contract fulfillment.

Source: Microsoft Environmental Sustainability Report 2021 (2021 Environmental Sustainability Report, 2021)

Figure 27. Microsoft energy consumption



1.2 Energy

Table 6

Energy consumption within the organization (MWh)

	FY17	FY18	FY19	FY20	FY21
Total Energy Consumption[12]	6,756,779	7,781,383	9,249,361	10,757,166	**13,481,863**
Non-renewable fuel consumed	362,408	358,760	439,589	449,304	**446,417**
Natural Gas	107,687	110,863	196,644	218,557	**249,443**
Crude Oil/Diesel	164,324	152,915	152,034	147,297	**143,370**
LPG/Propane/Jet Fuel	43,402	50,378	47,437	40,450	**4,245**
Gasoline	46,996	44,604	43,474	43,000	**49,359**
Electricity, heating, cooling, and steam	6,394,370	7,422,624	8,809,772	10,307,861	**13,035,446**
Electricity	6,344,700	7,357,636	8,744,834	10,244,377	**12,969,393**
Cooling (Chilled water)	30,121	52,775	52,937	51,026	**54,953**
Hot water/Steam	19,549	12,213	12,001	12,458	**11,100**
Total Renewable Electricity Consumption[13]	6,104,758	7,357,636	8,744,834	10,244,377	**12,969,393**
Renewable Energy Credits and Power Purchase Agreements	6,104,340	7,357,235	8,744,247	10,244,059	**12,969,246**
On-Site Renewable Energy	418	400	587	318	**147**
Percentage of Renewable Electricity	96%	100%	100%	100%	**100%**

12 Only reported categories and values are applicable to Microsoft's energy consumption. Renewable fuels, electricity sold, heating sold, cooling sold, and steam sold categories are currently not applicable. In gigajoules, total energy consumption equals 48,534,706 GJ, and total fuel consumed equals 1,607,101 GJ.

13 Reported values represent Microsoft's total renewable energy consumption expressed in MWh from on-site, renewable energy credits, and power purchase agreements (PPAs). Specific to PPAs, in FY21 new agreements for approximately 5.8 gigawatts (GW) of capacity were signed, totaling more than 8 GW of renewable energy via PPAs or long-term contracts.

Table 7

Energy intensity (MWh/Revenue M$)

	FY17	FY18	FY19	FY20	FY21
Electricity consumed within the organization (MWh)	6,344,700	7,357,636	8,744,834	10,244,377	**12,969,393**
Revenue (M$)	96,571	110,360	125,843	143,015	**168,088**
Electricity Consumption Normalized by Revenue (MWh/M$)	66	67	69	72	**77**

Source: Microsoft Environmental Sustainability Report 2021 (2021 Environmental Sustainability Report, 2021)

Figure 28. Microsoft water consumption

1.3 Water

Table 8

Water and effluents (megaliters)[14]

	FY17	FY18	FY19	FY20	FY21
Total Water Withdrawals[15]	5,148	6,719	7,505	7,618	**7,657**
Third-party water	5,040	6,586	7,367	7,513	**7,600**
Surface Water	91	104	104	89	**41**
Ground Water	17	29	34	16	**16**
Total Water Discharges[15, 16]	3,236	3,393	3,559	3,651	**3,179**
Third-party water	3,236	3,393	3,559	3,651	**3,179**
Total Water Consumption[15]	1,913	3,326	3,946	3,967	**4,478**

14 In FY18 the water data collection methodology was adjusted to include more accurate data center withdrawal estimates. FY17 withdrawal estimates were not retroactively adjusted. 50% of the change from FY17 to FY18 is from the methodology adjustment, and the other 50% is from organizational growth. For FY21 total water withdrawal from areas with water stress was 1,698 ML (22%) and was primarily sourced from third-party water; total water discharge to areas with water stress was 915 ML (29%); and total water consumption from areas with water stress was 783 ML (17%). Water risk assessment conducted using WRI's Aqueduct tool and reported values consider high or extremely high baseline water stress.

15 Brackish surface water/seawater and produced water categories are not relevant to Microsoft since there is no withdrawal or discharge of water from and to these sources. For withdrawals, data breakdown between 'freshwater' and 'other water' categories, and withdrawal sources is currently unavailable and will be part of data improvements going forward. For consumption, gathering data around water storage will also be part of our future data improvements.

16 Only discharges to third-parties are relevant since water that is not consumed at Microsoft sites is discharged to local municipal treatment plants. Discharges to surface water, groundwater, seawater and volume sent for use to other organizations are not applicable. For discharges, data breakdown between 'freshwater' and 'other water' categories is currently unavailable and will be part of data improvements going forward. Primary treatment of water is not relevant because there are no onsite water treatment plants in Microsoft operations, as there is no requirement to conduct onsite primary treatment of discharge by any environmental regulation or standard.

Source: Microsoft Environmental Sustainability Report 2021 (2021 Environmental Sustainability Report, 2021)

Figure 29. Microsoft land protection

1.5 Ecosystems

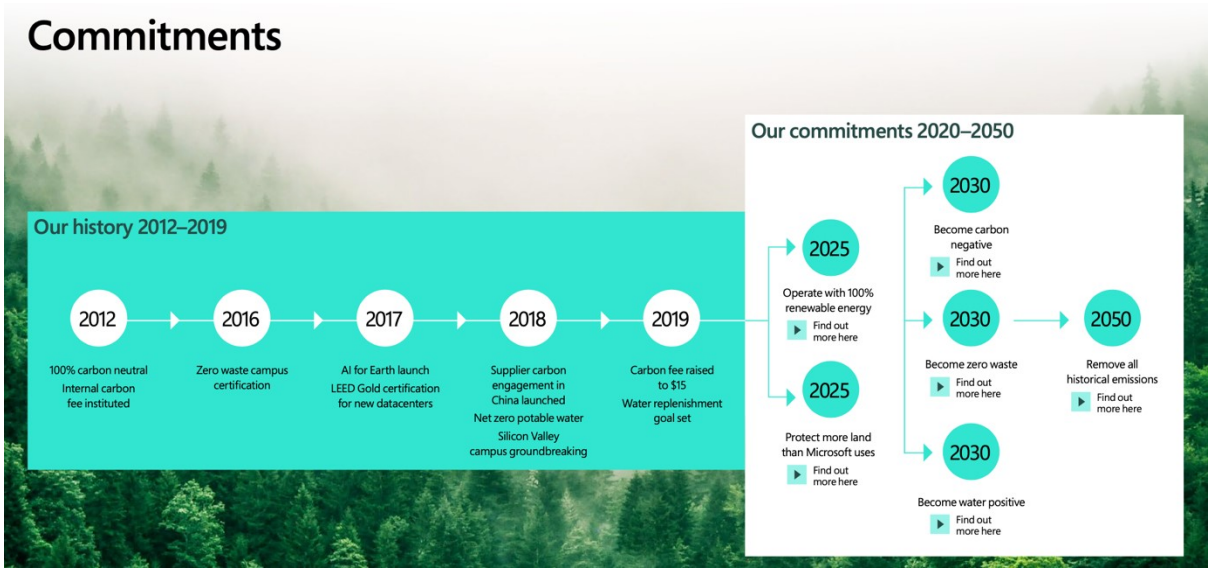
Table 10

Land protection

	FY21
Total size and country location of all habitat areas selected for protection for which contributions were made	US: 4,998 acres Belize: 12,270 acres
A description of partnerships for which contributions were made that exist with third parties to protect habitat areas	Since making this commitment in April 2020, Microsoft identified two leading land protection organizations, the National Fish and Wildlife Foundation (NFWF) within the United States and The Nature Conservancy (TNC) globally, to partner with to achieve the commitment to protect more land than we use. A data-informed approach to identify ecosystems most at risk was used, using TNC's last chance ecosystem framework and NFWF's national landscape conservation framework. Within each of the two partnerships the following organizations will hold the conservation easement/ own the protected land: • The Nature Conservancy: Belize Maya Forest Trust • National Fish and Wildlife Foundation: Montana Department of Fish, Wildlife, and Parks; New Mexico Land Conservancy, Rocky Mountain Elk Foundation for the US.
Total acres categorized by the status at the close of the reporting period as either (i) funded or (ii) protected	17,268 acres (funded)
Period in which funding occurred	As of the fiscal year ended June 30, 2021

Source: Microsoft Environmental Sustainability Report 2021 (2021 Environmental Sustainability Report, 2021)

Figure 30. Microsoft future outlook



Source: Microsoft (2020a)