UNDERSTANDING SUSTAINABLE DEVELOPMENT: IDENTIFYING KEY REPORTING CHALLENGES

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Abstract

The spotlight on companies to become more sustainable is becoming more intense as are the requirements for reporting the performance. This intensity is reflected in the way organisations and initiatives like World Economic Forum (WEF), Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), Task Force on Climate-Related Financial Disclosures (TCDF), World Business Council for Sustainable Development (WBCSD) and the UN Sustainable Development Goals (SDGs) are affecting corporate stakeholders on issues of sustainability reporting. The task of integrating these and other frameworks to support sustainable development in all different fields is demanding and complex. At the core is understanding sustainable development. A common understanding paves for a definition that can be operationalised for measurements and reporting frameworks. This paper seeks to discuss and identify the main challenges in understanding sustainable development as a prerequisite for forming an integrated measurement framework for sustainable development. Different initiatives, frameworks and definitions are described and discussed. The result is a list of key challenges such as what the role of the company business idea is in sustainability reporting and how economic sustainability should be presented.

Keywords
Sustainability; Reporting; Standards; Planet; People; Profit

1. Sustainable Development and Company Sustainability Reporting

It is easy to agree on that we are not sustainable globally. We currently use yearly the production of about 1.8 planets to satisfy our needs based on the latest information from "the world counts" website and 1.6 planets based on Wackernegal et. al., (2020), which use data from a few years back. We have crossed several planetary limits for a safe future in areas such as climate change and loss of biodiversity (Steffen et. al., 2015). The reality of the limits placed by planetary boundaries was also acknowledged by WCSBD[1] as early as 2009 in its annually updated Vision 2050 that details nine transition pathways for energy, transportation & mobility, living spaces, products & materials, connectivity, financial products & services, health & well-being, water & sanitisation, and food for a transformation to a net zero economy by 2050 (WCSBD, 2009, 2019). WCSBD's Vision 2050 is one of the main guiding documents used by WEF, GRI, SASB and TCDF in their ongoing work towards integrating sustainability reporting standards and reporting metrics. The Vision 2050 articulates the expansiveness of the task at hand thus:

> Living well means that everyone's dignity and rights are respected, basic needs are met, and equal opportunities are available for all. Living within planetary boundaries [*also*] means that global warming is stabilized at no more than +1.5°C, and natural systems are protected, restored and used sustainably. It also means that societies have developed sufficient adaptive capacity to build and maintain resilience in a healthy and regenerative Earth system.

The current global state, however, quite clearly, is not sustainable and the change towards a level of sustainability, what could be referred to as sustainable development, is not currently taking place. All stakeholders, and most critically companies play an important role in steering towards a state of sustainability. This is also easy to note based on the increased focus on sustainability reporting. A 2020 report, for instance, found that almost 96% of 250 of the world's largest companies release an annual sustainability report. Significantly, the same report also found that close to 80% of the largest 100 firms in 52 countries also release a sustainability report every year, while, companies applying third-party assurance to their sustainability reporting has exceeded 50% for the first time (Threlfall et. al., 2020). The impetus for sustainability reporting started in the 1990s when environmental groups and Civil Society Organisations (CSOs) started highlighting the need to take care of the planet. A milestone was passed in 2000, when the Global Reporting Initiative (GRI) published its first sustainability reporting guidelines – The G1 guidelines. Since then the GRI has evolved to a set of reporting standards based on the Triple Bottom Line (TBL) (Elkington, 1998). The increasing pressure on companies to incorporate ESG disclosures into their annual financial statements and account for intangible assets led to a more aggregate set of thought processes, better known as the TBL, after the publication of John Elkington's *Cannibals with Forks: the Triple Bottom Line of 21st Century Business* in 1998. The intent of TBL was to align and aggregate financial, environmental, and social factors to calculate a company's annual performance and in the longer run the value and equity of the company.

The definition of sustainability reporting seems simple in the first instance. It is the disclosure and communication of environmental, social, and governance (ESG) goals by companies and institutions engaged in any form of economic activity that could be considered as productive and contributing to overall development. The aim is also reasonably clear. It is to

[1] WCSBD dates back to the Rio de Janeiro Earth Summit of 1992. Swiss business entrepreneur Stephan Schmidheiny created a forum called Business Council for Sustainable Development, which went on to become Changing Course, a book that coined the concept of eco-efficiency.

benchmark the performance of companies and institutions, ideally year-on-year, against themselves and others within their sectors to assess their progress towards the ESG goals. One could summarise the expectations thus:

1. Once the measurement of a company's overall environmental, social and governance (ESG) footprint on a society begins, it will lead to better awareness, and by extension, a better management of that footprint.
2. A measurement of a company's ESG footprint over time will result in a set of direct and indirect links to a company's overall performance that will be increasingly derived from intangible assets such as diversity, equity, inclusion, human rights management, and environmental performance.
3. A measurable connection of a company's ESG footprint to its overall performance will lead to better internal processes and external business practices, since it is assumed that measurement leads to better management.
4. Companies with better sustainability records will not only perform better at stock market but will also be creating a new form of equity and brand value among customers.
5. Better brand value and equity returns that are connected directly to ESG performance will reward companies with a good sustainability record, while simultaneously putting pressure on those who do not measure up leading to an ecosystem of incentives and disincentives.
6. As time would go by, the approaches, methodologies and tool will also evolve to make ESG measurement integrated, specific and direct.

The imagined ideal state was – and still is to a large extent – that the world will transition into a more sustainable growth and development model where people, prosperity and planet can co-exist with each other. A cursory glance at a set of top-line indicators seems to give the impression that a significant momentum has been achieved towards the direction of the ideal state. That impression is true only to a limited degree of the dials and needles of the system showing progress on specific metrics, leading to key problem that the dramatic increase in corporate sustainability reporting has not in any significant way curbed carbon emissions leading to one of the main global challenges for climate change. In general, sustainability reporting could still be underdeveloped and missing many of the reader expectations. Cöster et. al. (2020) study the quality of sustainability reporting based on to what extent the right things are reported in the right way. The right thing is based on reporting in the entire value chain from cradle-to-grave as proposed in the GRI 101 standard. In addition, the right thing is based on having addressed the main needs of the main stakeholders identified as humanity (People) and nature (Planet). Only about 20% of the 40 studied Swedish and international companies working in Sweden reported for their carbon emissions in the value chain. Since Sweden often is considered a leading country within sustainable development this could indicate that understanding what to report – the right thing – still is an issue. Reporting in the right way, according to Cöster et. al. (2020), is described as having set globally based targets and reporting current performance as well as past performance clearly.

Even with climate, where there exists reasonably good assessment of what is required, only a few companies seem to have linked their own targets to Science Based Targets (SBTi, 2021). A review of 23 Swedish building companies reveals that very few of them have defined what sustainable building means, indicating that the majority still are struggling with understanding what sustainable development means for them (Isaksson & Rosvall, 2020). Despite all the reporting, most of it done based on the GRI standards, companies specifically struggle with what we mean with sustainability and sustainable development. Isaksson and Hallencreutz (2008) argue that to lead change, in this case sustainable development, we need to be able to communicate, which requires measurements, which needs to be based on a definition that is

based on a common understanding. It could be that we need to go back to trying to see how we have understood sustainable development and sustainability in the dominating frameworks such as GRI and institutions like WEF. There are indications that in many fields understanding sustainability and sustainable development could be difficult. Without a common understanding that can be translated into a definition, measuring sustainable development could prove impossible. Even at the level of People and Planet needs there are many impacts to focus on. The Planetary Boundaries Framework singles out two boundaries which each on its own could derail the global system (Steffen et. al. 2015). These are climate change and loss of biodiversity. Isaksson (2021) highlight these two using the Pareto approach adding poverty and particularly extreme poverty as a third vital impact to focus on. The logic is that every company needs to reflect over how the value chain they are part of affect climate, biodiversity, and poverty in addition to the specific impacts of the value chain. This provides a logic for simplifying sustainability to what must be there based on an outside-in needs perspective. This logic is used by Isaksson and Rosvall (2020) who study the building value chain. It is a human right to have a place to live in and the global building construction is responsible for about 40% of carbon emissions. Based on this the conclusion is that sustainable building could be defined as affordable and carbon free. This definition can easily be converted into measurements in different parts of the value chain, for example cement manufacturing can be expressed in terms of value per harm as strength tons per price and carbon footprint. For the user the value is m^2 of building space and the harms are price and carbon footprint. The purpose of this research is to identify key challenges as a starting point for defining and measuring sustainable development leading to good communication and leadership for sustainable development. We have chosen climate as one of the few vital sustainability impacts where rapid action is needed. In chapter 2 we provide a background to the issues discussed and describe the work of leading organisations. In chapter 3 we present a short description of the method for our mainly conceptual paper. In chapter 4 we summarise our findings. In chapter 5 we discuss the implications of our findings. In chapter 6 we present our conclusions of what we see as the main challenges that we have detected for creating a common understanding of sustainability and sustainable development.

2. Sustainable Development Through the Lens of Leading Organisations

2.1 From Sustainability Reporting to Sustainability as the Overarching Problem Statement

There are two inter-related problems with sustainability. First, there isn't one common shared definition of sustainability and secondly, since there isn't a common definition, most of the activities at the ground-level and their measurement and reporting frameworks are designed more from a perspective of exclusion than inclusion. To first approach and then assess sustainability reporting with any kind of a serious intent to evolve an integrated, simplified, and functional framework that expands the scope of materiality in a dynamic manner and leads to a value accounting system needs a clear-cut and overarching definition of sustainability, which cannot really be attempted without a thoughtful look at Sustainable Development (SDGs) comprising of 17 goals and 169 targets thereof. SDGs are the common boundary conditions within which all companies and institutions worldwide seek to, or at least expected to, locate, and position their reports of how they are moving towards greater sustainability. The core theoretical foundation of sustainability, which in turn supports everything related to SDGs and, by extension, any sustainability reporting comes from a set of shared global goals that are traced to the Brundtland Commission report of 1987. Even today, the norms of Sustainable Development put forward by the Brundtland report still serve as cognitive markers in the first instance to measure policies and practices of institutions and companies against the rubric of growth and environment.

Yet the Brundtland report has had a chequered history, not only as one that started in 1972 in Stockholm during the United Nations Conference on Human Environment, but also as one that diverged substantially from some of the original principles, ideas and recommendations agreed to in the Stockholm Declaration. The Stockholm Declaration that emerged from the conference had 26 principles, an action plan with 109 recommendations and a resolution. The first two principles focussed on protection of human rights and natural resources, and the next six did not even mention development. The ninth principle mentioned it thus: development is needed to improve the environment. Between 1972, when Stockholm Declaration was grudgingly accepted, and 1983, when the turn for a globalised economy within many developed countries drastically influenced the definition of Sustainable Development, is where the key framing of sustainable development as it exists today: both as a guiding light and a harsh spotlight on the inadequacies of defining sustainability in any shared common manner.

> Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs. The concept of sustainable development does imply limits – not absolute limits but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities. But technology and social organization can be both managed and improved to make way for a new era of economic growth. … the "environment" is where we all live; and "development" is what we all do in attempting to improve our lot within that abode. The two are inseparable… What is needed now is a new era of economic growth – growth that is forceful and at the same time socially and environmentally sustainable… (United Nations 1987:7–16).

This definition made four assumptions that have continued as the basic foundational material of any approach to sustainability.

1. Economic growth is the default mode of development.
2. Technology is a liberator of contemporary limits on human activities.
3. Technology and society can be managed and improved to contribute to economic growth.
4. Development is primarily about improving human existence.

These assumptions contribute to a starting point that is now accepted at the very least as a matter of common sense that can be articulated thus: environment, ecology, economic growth, and human development are not antithetical to each other and can co-exist.

2.2 The importance of sustainable development for organisations

Socially responsible investment as a category has grown to more than US$30 trillion, which is about one-third of all professionally managed assets (Global Sustainable Investment Alliance, 2021), while investment funds of all kinds have divested close to US $22 billion from 'non-sustainable' companies, which is more than 10 times than what it is was in 2011 and, significantly, ESG was mentioned over 350 times in 2020 in CEO's annual earnings calls, a seven-fold increase over 2016 (CBInsights, 2020). There is also a growing body of academic work that not only put forth the argument cogently and coherently that the companies and enterprises should move from a purely profit and revenue driven business model to one that is focussed more on purpose and creating sustainable value (Edmans, 2020, Magill et al. 2015, Mayer 2018, Schoenmaker & Schramade, 2019, Stout (2012), but also that by producing such a public purpose and a consequent public good a company will create a long-term competitive advantage for itself (Hart & Zingales, 2017). Deriving from the body of work focussing on purpose and sustainability, there is also a vast array of literature that focusses on socially responsible investment (Benabou & Tirole, 2010, Christiansen et al. 2019). On the other end of the spectrum, there is also emerging, but a smaller body of work, that focusses on the power of the consumer and their ability to change the behaviour of companies through their choices,

including the choice to exclude some companies and products from buying decisions (Kitzmueller & Shimshack, 2012, Besley & Ghatak, 2007).

As a set of practices that companies need to follow either from a perspective of mandatory disclosures or from a point of view of recommendatory norms, Sustainability Reporting depends significantly on global institutions and their approaches, standards and reporting frameworks such as Global Reporting Initiative (GRI), World Business Council for Sustainable Development (WBCSD), through its Framework for Portfolio Sustainability Assessment (PSA), the Greenhouse Gas Protocol (GHG), released by World Resources Institute (WRI), and continuously refined every year. There are also several voluntary disclosure initiatives, such as the UN Global Compact and the Carbon Disclosure Project (now only CDP) that are meant to encourage corporations to disclose information on sustainability. The CDP is an international non-profit organisation. The organisation helps companies and other organisations such as cities to disclose their environmental impact. Additionally, and as a response to the 2007-08 global financial crisis triggered by the housing bubble in the US, additional frameworks and standards have emerged to help companies and their investors develop a greater understanding of the risks and benefits of ESG and nonfinancial factors. For example, the International Integrated Reporting Council (IIRC) advocates integration of financial and nonfinancial reports, the Sustainability Accounting Standards Board (SASB) identifies material sustainability factors across industries, and the Embankment Project for Inclusive Capitalism assembles investors and companies to define a pragmatic set of metrics to measure and demonstrate long-term value to financial markets. The GRI framework also promotes integrated reporting in proposing that the GRI standard based report is combined with financial reporting.

Some requirements apply to companies of a certain size within a regional jurisdiction—for example, Directive 2014/95/EU of the European Parliament and the European Council — to issue nonfinancial disclosures. For example, the Swedish Government's legislation on sustainability reporting is a result of the EU directive and mandates that companies that fulfil at least two of the three conditions: 1) Have an average number of employees during each of the last two fiscal years amounting to more than 250, 2) with total assets of more than SEK 175 million and 3) reported net sales of SEK 350 million and more will have to include nonfinancial disclosures as part of sustainability reporting. Assessing the sustainability reporting landscape thus, and only thus, from the perspective of reporting and metrics, may lead one to come to a ready conclusion that we are moving in the right direction. However, a more focussed “factful” interrogative inquiry (Rosling 2018) beyond the various standards, reporting guidelines, measures, metrics, and legal and regulatory framework in countries and across regions clearly indicate that ecological devastation, social inequalities, and wealth concentration has not only increased, but has accelerated significantly. To understand and contextualise this inquiry, it is necessary to peg it to the two pillars of UN SDGs and Climate Change.

2.3 The UN SDGs

The Sustainable Development Goals or Global Goals are a collection of 17 interlinked global goals The SDGs are designed to be a "blueprint to achieve a better and more sustainable future for all". They are included in a UN Resolution called the 2030 Agenda or what is colloquially known as Agenda 2030. The 17 goals include People, Planet and Profit issues. Goals are such as SDG1 No Poverty, SDG 8 Decent Work and Economic Growth, SDG 13 Climate Action, SDG 14 Life below Water and SDG 15 Life on Land. The SDGs, however, have a history of their own. They evolved as a response to some of key drawbacks identified in the Millennium Development Goals (MDGs), particularly those that resulted in a “donor-recipient” relationship. The SDGs, as a result, focus a lot on collaboration, partnerships, shared global responsibility and collective action. In doing so, the SDGs themselves have opened themselves to criticisms that they are focussed more on development and less on sustainability, to the extent

that several governments of the Global South and Civil Society Organisations (CSOs) claim that the "focus on sustainability has been abandoned." (Global Policy Watch 2015).

2.4 Climate change as a key area

Within the SDGs, SDG 13 on climate action is important in that it directly seeks to address climate change. It outlines five targets, three output-based ones and two that are oriented towards the means of achieving them. The output targets are strengthening resilience and adaptive capacity to climate-related disasters; integrating climate change measures into policies and planning; building knowledge and capacity to meet climate change. The two 'how to achieve' targets are focussed on how the three output targets are going to be achieved and measured. They are implementing the UN Framework Convention on Climate Change (UNFCCC); and promoting mechanisms to raise capacity for planning and management. The United Nations Intergovernmental Panel on Climate Change (IPCC) is a body that directly informs UNFCCC on the state of climate change based on climate modelling that is pegged to the target of keeping global warming below 1.5 degree Celsius by 2030. The IPCC studied 6,000 climate events on the back of a 1 degree Celsius rise in global temperatures in the last decade, said the world has to reduce its current rate of carbon and greenhouse gas emissions to zero in the next 12 years if the target has to be met. The report, further, cautioned that we are nowhere near achieving the carbon and emission reductions necessary for reaching the target and by all indications in 2030 would inhabit a planet that is at least 2 degrees Celsius warmer than preindustrial levels (IPCC 2018; Leahy 2018; The Guardian 2018a,b). Similarly, the richest 1% of the global population have used two times as much carbon as the poorest 50% over the last 25 years, while the billionaires' wealth increased by US$3.9 trillion between March 18 and December 31 of 2020, while the number of people living on less than US$5.50 a day might have increased with as many as 500 million comprising totally about half of the global population (Berkhout and Galasso et. al., 2021:21-22).

As part of the evolving multi-stakeholder approach to manage and plan climate mitigation actions and to measure the progress towards SDGs, several institutions, and in particular WEF, SASB, GRI, TCDF, World Resources Institute (WRI), which is the nodal body metricising GHG emissions and providing calculation sheets for GHG protocol, and CDP, have started playing increasingly important roles. The WEF provides recommendations on consolidating and integrating priority sectors, standards, and reporting metrics as part of its push towards Stakeholder Capitalism, Value Accounting and Dynamic Materiality. While the approaches of SASB and GRI differ, the standards are complementary to each other, with the GRI CEO Tim Mohin saying, "The GRI Sustainability Reporting Standards (GRI Standards) and the SASB Sustainability Accounting Standards are designed for different, but complementary, purposes. Stated simply, GRI looks at the company's impacts on the world and the SASB looks at the world's impacts on the company", (GreenBiz, 2018)[2]. The TCDF provides 'reliable climate-related financial information' so that financial markets can price climate-related risks and opportunities correctly and create a smoother transition to a low-carbon economy. In recent years, particularly from 2019, TCDF has been at the forefront of work around creating climate science based financial and non-financial metrics focussed on sustainability financing and carbon markets. The GHG protocol provides accounting standards that are globally the most widely used. Carbon emissions are divided into three scopes. Scope 1 represents the direct emissions from the core business. Scope 2 corresponds to emissions that are generated from the energy used. Scope 3 relates to the rest of carbon emissions in the value chain, both up-stream and down-stream. The GHG protocol, with modelling and statistical support from WRI,

[2] Please see full interview with Tim Mohin at https://www.greenbiz.com/article/can-gri-and-sasb-reporting-frameworks-be-collaborative (Retrieved on 15-07-2021).

released a beta version of a comprehensive cross-sector calculation tool in 2021 as response to the recommendations from WEF, SASB, TCDF and GRI to integrate priority sectors, identify common standards and create integrated reporting metrics[3]. Today, companies often choose to only report parts of the emissions in Scope 3, due to problems with availability of data. However, the recommendation from GRI is to report main impacts such as carbon emissions in the entire value chain. Large companies delivering products directly to customers are more in the limelight which has forced them to improve their reporting. An example of this is IKEA, a global furniture company, that despite all challenges fully reports Scope 3 emissions making it possible to assess the total impact of the goods it is providing.

3. Method

Our paper will understand the issues and challenges of contemporary sustainability reporting in the backdrop of on-going global efforts to align different standards, frameworks and reporting metrics to make sustainability reporting more tightly aligned to science based climate mitigation targets and the achievement of UN SDGs by 2030. The paper is derived from secondary research based on a study of academic literature focussed on sustainability, quality science and management, vision documents, standards, frameworks, approaches, methods and tools put out in the public domain by WEF, SASB, GRI, GHG protocol, TCDF and WCSDB and original transcripts of select global CEO annual addresses to their shareholders and clients.

Further, the paper identifies the most relevant information and documentation that could possibly address the key problem statement of an integrated sustainability reporting. The subsequent analysis is focussed on highlighting the key gaps in the current sustainability reporting and some initial thoughts on how it could possibly be bridged in the future.

4. Results

4.1. Sustainability Reporting as a Domain of Key Problem Statements

Standards, measures, metrics, reporting guidelines and indicators could as well be set of direct and indirect indicators for a whole lot of measures seemingly connected to sustainability, but ironically it has not resulted in any human progress or a development model, as yet, that could divisively be termed as ecologically sensitive and environmentally sustainable. The perceived and real inability of sustainability reporting, as it exists today, to solve the two pressing imperatives of the world today – rapid climate change that is fast approaching a point of no return and a massive ecological destruction that is impacting people and the planet's other inhabitants alike – has led to scathing calls for action from unlikely quarters. This is what billionaire hedge fund manager Sir Christopher Hohn said in his annual 2021 address of his Children Investment Fund Foundation (CIFF):

> One of the things that needs to happen is a lot more naming and shaming of the fund management industry. It's green-washing and hypocrisy. The asset management industry is a joke. They talk but they don't do anything. Asset managers are sheep... a lot of them will say 'we will vote for someone's else's resolution', but why aren't they filing their own resolutions? Pension funds should fire asset managers that fail to use their voting rights to ensure companies produce credible transition plans for net zero [carbon emissions].

Yet to lay the blame exclusively on the inconsistency of sustainability reporting for the lack of urgency or action on the two issues of climate change and carbon emissions, or to go just one level deeper and point out the multiplicities of frameworks, standards, measures and

[3] Please see: https://ghgprotocol.org/ghg-emissions-calculation-tool (Retrieved on 15-07-2021)

metrics, as also the different mandates across industries, sectors and even regions, as the key reasons is akin to missing the forest for the trees. Sustainability reporting, as it exists today, has emerged from two different sources – ESG and Sustainable Development Goals (SDGs) – with each bringing with its own sets of imperatives and complexities. The first set of complexities emerges from the history of ESG goals, and the way in which they have evolved till now and concretised in the form of metrics. ESG goals are expected to identify and concretise what are broadly called as intangible assets of a company in the form of targets and further down in terms of measures and metrics. Further, the expectations are that the metrics are to be directly and indirectly related to the intangible assets within an enterprise. The second layer of complexity, ironically, comes from an intent to keep the conceptualisation of intangible assets and metrics thereof within the three domains of ESG. The third, and final layer of complexity, emerges from the stated objective of measuring the environmental and societal impact of a company or business so that it informs sustainability reporting for companies and sectors eventually leading to a more environmentally sustainable, ecologically sensitive and an equitable model of development and growth.

The origins of ESG can be traced back to the academic tussle of the 1980s between the disciplines of economics and sociology. The tussle was largely around the need to account for behavioural sentiments and actions of individuals and groups in economic decisions. This literal tug-of-war was responsible for the emergence of behavioural economics as a significant discipline. It is within this backdrop that ESG as a concept emerged. It can be traced back to a 1988 article written by sociologist James Samuel Coleman published in the American Journal of Sociology titled *Social Capital in the Creation of Human Capital*. Coleman was based in the University of Chicago, a stronghold of macroeconomics, and his article in challenging the then dominant concept of 'self-interest' prevalent in economics introduced the concept of social capital as an alternative measure of value. Social capital become a key framework that was used by environmental groups and CSOs to mount pressure on governments, institutions, and companies to become more sustainable and ecologically sensitive in their practices.

The increasing pressure on companies to incorporate ESG disclosures into their annual financial statements and a set of non-financial considerations led to a more aggregate sets of thought processes, better known as the Triple Bottom Line (TBL), after the publication of John Elkington's *Cannibals with Forks: the Triple Bottom Line of 21st Century Business in 1998*. The intent of TBL was more on the lines of aligning and aggregating financial, environmental, and social factors to be included as part of calculating a company's annual performance and in the longer run a company or equity's value. By early 2000 and through the decades two key developments took place in the ESG domain. An informal group of financial leaders, city lawyers and CSOs based in London, known as The Virtuous Circle, started to examine the nature of the correlation between environmental and social standards and financial performance. Their work attracted the interest of global banks and investment houses, and what was till then a largely abstract concept confined to the domains of academic disciplines, transformed into a commercially earmarked ESG investment market, and with a provision of sell-side services with HSBC and Citicorp being the first movers by offering a selective investment service. In 2011, Alex Edmans, a finance professor at Wharton, published a paper in the Journal of Financial Economics showing that the '100 Best Companies to Work For' outperformed their peers in terms of stock returns by 2–3% a year over 1984–2009, and delivered earnings that systematically exceeded analyst expectations. These two developments converted ESG from an approach to transform the internal processes of a company to become more sustainable and ecologically sensitive, to one that focussed almost exclusively on an external set of tools to carve out commercially viable investment offerings and value propositions for a new market segmentation. In the decade starting 2010 till now, different multilateral global accords responding to evidence and data brought about by the United

Nations Intergovernmental Panel on Climate Change (IPCC), The Economics of Ecosystems and Biodiversity (TEEB) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the emerging discipline of climate science backed up by increasingly sophisticated climate models have brought about global environmental regulations that are becoming tighter, aligning nationally mandated and timebound commitments to reduce GHG emissions, and moving towards a disclosure regime that is backed by legal and fiduciary frameworks with an aspiration to move towards a sophisticated audit and accounting system. Today, the quantity of global assets managed according to sustainable investment strategies, as per the Global Sustainable Investment Alliance, has more than doubled from 2012 to 2018, rising from US$13.3 trillion to US $30.7 trillion. BlackRock, for instance, reports that assets in sustainable mutual funds and exchange-traded funds in Europe and the United States increased by more than 67 percent from 2013 to 2019 and now amount to US$760 billion. Several quantitative and qualitative surveys, sector-focused studies, and in-depth interviews among key investors, company executive and decision makers across multiple stakeholders (Berg et. al., 2020, BlackRock, 2020, McKinsey 2020, Watanabe & Panagiotopoulou, 2021)[4] revealed the following key gaps:

1. **Lack of a predictable, simple, and integrated reporting framework** that is based on rigorous science-based targets in line with nature's limits. Though there are several global standards bodies dealing with various dimension of sustainability reporting – SASB, GRI, TCFD, NFRD, WBCSD, WBA – and all these five standard setters and measurement bodies are collaborating it hasn't yet led to predictable reporting measures and metrics.
2. **Lack of clear and enforceable mandates in the form of independent third-party auditing and assurance** services, one that does not allow companies any discretion over what standard-setting body to follow. Although 90% of the world's largest companies now produce sustainability reports, only a minority of them are validated by third parties, and only in the form of negative assurance and not positive assurance. Auditing is not even in the horizon. In short, while regulatory bodies like SEC ensure compliance of financial audits, there isn't an equivalent compliance regime for non-financial disclosures.
3. **Reluctance to adopt abstract accounting frameworks** particularly considering that the intangible assets like intellectual property, patents, human capital, knowledge services, products and processes constitute a large part of a company's valuation. This is relevant in the age of globalisation where R&D, design and process patents may rest in one country, while the actual production may happen in the form of an offshoring model in another country. A 2020 study by Value Consulting Company Ocean Tomo reveals that less than 20% of the S&P 500's market value was derived from intangible assets in 1975. Today, it is approximately 90% of the total value of the company.
4. **Lack of any significant effort to move from revenue accounting to value accounting for incorporating double and dynamic materiality,** particularly from the perspective to taking into consideration some of major developments happening at the World Economic Forum (WEF), a key nodal body, in the domain of stakeholder capitalism. A clear and measurable set of metrics for intangible assets is the key to move from revenue to value accounting, yet there is an information gap in financial statements because current accounting standards are not designed to capture intangible assets, especially those such as human capital, intellectual property, though they are mentioned as material for ESG goals.
5. **False positives from irrelevant targets** that emerge from companies filing their reports without specifying clear baselines, definitions and mentioning key criteria like ecological limits

[4] Please see BlackRock's People & Money 2020 survey: https://www.blackrock.com/ch/individual/en/literature/brochure/people-and-money-2020-ch-en-rc-brochure.pdf (Retrieved on 18-07.2021)

constraining economic growth. Even though over 55,000 sustainability reports were filed by 1000 of the largest companies across key geographies over a period of five years from 2015 to 2020 (Ocean Tomo, 2020), less than 1% of the companies stated explicitly how they are integrating goals connected to the 2030 timeframe of SDGs or environmental goals connected to long-term climate change models and forecasts. Haffar et Searcy (2018) study to which extent the Planetary Boundaries (PB) framework (Steffen et al. 2015) is reflected in environmental reporting in 50 leading Canadian companies and observe: "A total of 303 targets were identified, distributed across eight different corporate performance areas. None of these targets was found to be quantitatively tied to any PB thresholds".

6. **Lack of transparency in supply chains and source specific GHG emissions** that result from a continuous underinvestment in developing internal capabilities and capacities for mapping the sources of raw materials, supply chain specific GHG emissions and measuring specific process focussed carbon footprints. With several large companies, especially Fast-Moving Consumer Goods (FMCG) firms, having diversified, outsourced, and globalised their supply chains and production hubs, the discovery and mapping of supply chain related GHG emissions have become more complicated than ever.

7. **Reporting just the tip, not the iceberg,** particularly those of GHG emissions connected to an accurate calculation of the carbon footprint emerging from all parts of the value chain. From the perspective of a GRI framework, which is now the dominant framework being used by companies for sustainability reporting, a company needs to measure Scope 1, 2 and 3 emissions. Scope 1 are direct emissions, Scope 2 are those associated with purchased electricity and Scope 3 include all upstream and downstream emissions, including those of supplier, distributors, by employees, business travel and so on. In 2019 CDP, the world's leading aggregator of corporate carbon emissions data, reported that fewer than half of the companies that disclose such data in their sustainability report actually track and report on scope 3 emissions, even though many of them, especially those with outsourced and globalised manufacturing and distribution footprint, generate as much as 95% of their GHG emissions that would typically fall within Scope 3.

8. **Inability to embrace and deploy technology for reliable ratings,** especially technologies connected to big data, artificial intelligence, blockchain, GIS and map-based location sourcing, satellites. ClimateTRACE is one good example of an initiative that seeks to leverage digital technology suites to make accurately measure GHG emissions at source. Additionally, despite the growth in the ESG rating agencies, the data quality and consistency are a major issue. A research study conducted by MIT's Sloan School of Management that focussed on six top ESG ratings agencies found that the "correlations between the ratings are on average 0.54 and range from 0.38 to 0.71. This means that the information that decision-makers receive from ESG rating agencies is relatively noisy" (Berg et. al., 2020).

9. **Lack of a customer-focussed sustainability information for decision making,** more so considering that there is no standard format for sustainability reporting. Many sustainability reports are often just narratives of intent. Additionally, even if specific information is being given in a particular report, there is no ready reckoner or a reference guide for a customer to make an informed decision. Many reports, especially from clothing and fashion brands for instance, give information about their sustainability in the form of pounds of CO_2 per unit of clothing or the reduction of chemicals like phosphorous released into the environment in units like grams. What exactly is the environmental impact of that piece of information is not given. Additionally, even when easily understandable measures, like litres of water used, are deployed, the methodologies vary so much that there is no comparability for decision making. For example, two different factories of a popular soft drink located in India estimated that to produce one litre of the soft drink took less than two litres and 70 litres respectively. These differences are often due to how the interfaces of the studied process are set. With interfaces at the factory limits the water consumption included is only for producing the soft drink and for plant internal water use. When including the entire value chain and the sugar used the water consumption increases considerably. If irrigation is needed for growing the sugar the consumption could go well beyond 70 litres per litre of soft drink.

4.2. From Sustainability Reporting to Sustainability as the Overarching Problem Statement

There are two inter-related problems with sustainability. First, there isn't one common shared definition of sustainability and secondly, since there isn't a common definition, most of the activities at the ground- level and their measurement and reporting frameworks are designed more from a perspective of exclusion than inclusion. A good example of how the definition of sustainability perforce becomes a by-product of a series of exclusions – also called as negative screenings – can be found in the category of socially responsible investment. According to the Global Sustainable Investment Alliance, nearly two out of every three dollars classified as socially responsible investment are in negative screen fund where the main criteria of including them are from a series of explicit exclusions (say, tobacco or firearms). Such investment funds may be attractive from a market segmentation perspective, but it does very little to track, promote, or reward ESG impact. A 2020 study by Barclay's looked at two decades of ESG investing and found no difference between the holdings of sustainable and traditional funds, and an investigation by the Wall Street Journal revealed that eight of the 10 biggest ESG funds in 2019 were invested in oil and gas companies[5]. The main problem is that the business idea is normally not included in sustainability reporting. In the GRI standards value is reported as revenue exemplified by Disclosure 201-1 "Direct economic value generated and distributed". This means that it does not matter from which business the economic value comes from: it could be guns or baby food. Including the business idea and putting a user value on it is no simple task. This is a major challenge, which could require some serious managerial thinking in cases such as oil production.

4.3. Moving towards Responsible Sustainability Reporting

The key gaps that have been identified in the Results Chapter are not unacknowledged by large global corporations. In fact, these gaps have now literally transformed into a clarion call to let all stakeholders know that the time for incremental thinking and measures and continuing with business as usual has long passed. The intense pressure to disclose and standardise, integrate, and simplify measures is reflected BlackRock CEO Larry Fink's 2021 letter to business leaders:

> I believe that the pandemic has presented such an existential crisis. It has reminded us how the biggest crises, whether medical or environmental, demand a global and ambitious response. Assessing sustainability risks requires that investors have access to consistent, high-quality, and material public information. We strongly support moving to a single global standard.

The context to Fink's letter came from the September 2020 World Economic Forum (WEF) consultation paper on Stakeholder Capitalism and integrated metrics, which says:

> Value-creation plans must optimize performance against current and future material ESG issues. The next stage in this evolution will be the introduction of initiatives that aim to improve performance on ESG issues that are likely to be material for a company in the future. Businesses that do this will gain a competitive advantage and investors that select companies taking this approach will benefit.

The paper included in-depth interviews and consultations with more than 200 companies, investors, and other key stakeholders, with over three-quarters of the respondents agreeing that reporting on a set of *universal, industry-agnostic ESG metrics* would be useful for their company, financial markets, the economy and for the society. *Universal metrics* includes an implicit acknowledgement of a *universal responsibility*. This raises the possibility of a much-needed move from a current siloed approach of a specific company-focussed Sustainability Reporting to a more broader sector and industry focused *Responsible Sustainability Reporting*

[5] Please see: https://www.wsj.com/articles/sec-review-highlights-potentially-misleading-esg-practices-among-funds-11618019507 (Accessed on 18-07-2021)

that allows for benchmarking of standards and metrics across sectors, stakeholders and industry groups. The WEF paper in suggesting 21 core metrics and disclosures and 34 expanded metrics and disclosures creates the necessary conditions for such a move to fructify. Since the core metrics are an integration of established metrics and disclosures from different standards, which cover all GRI's Scope 1 emissions boundaries, it doesn't add any new compliance or measurement burden on companies. The expanded metrics aggregating 34 metrics and disclosures measures a wider value chain that has a direct impact on *enterprise value* and/or *value accounting*. Such an aggregation and integration of metrics and disclosures expands the current scope of materiality substantially, making *Responsible Sustainability Reporting* as a continuous process that will require key stakeholders, in particular institutional funders and large international investment corporations, to make expanded materiality as one of the key conditions for accessing any ESG related funding and sustainability funds. It also turns materiality from a static entity, as it stands today, to a dynamic state that becomes the cornerstone of all sustainability measurement.

4. Discussion

What this paper reinforces with some urgency is that the need for defining sustainability as a common shared understanding can neither be overstated nor can it be put off for later. Within this context, if one assesses and analyses the current state of sustainability reporting it is quite clear that ESG as both a framework and a methodology to approach and measure sustainability needs to drastically expand. The expansion required is on two counts. One, the 'E' needs to include more direct and indirect sources of GHG emissions in order to accurately measure carbon footprint, while at the same time evolving a lifecycle accounting process for carbon abatement, carbon sink and net zero initiatives of different stakeholders. Two, and without any delay, there is a need for a renewed focus on 'S' and 'G'. For that focus to materialise one needs to include concepts and methods of measuring Social Capital [UN's Human Development Index (HDI)] the Quality of Life (QoL) and non-financial metrics and values, for which a good starting point would be the 2021's reform of the European Union's Sustainable Finance Disclosures Regulation (SFDR)[6]. The renewed focus on 'S' and 'G' brings in the much-needed balance by bringing back the triumvirate of People, Planet and Prosperity as an inter-related entity. If the 'what' is getting increasingly clear, the 'how' is still a big open research question. Is it then possible to start addressing the 'how' by exploring the relationship between ESG as mode of governance with TBL providing a comprehensive set of indicators? Such a line of inquiry might be quite productive considering that Dynamic Materiality and Value Accounting as proposed by WEF for a shift to Stakeholder Capitalism perforce requires GRI to move away from its almost exclusive focus on revenue accounting.

Another dimension that emerges from this paper is that any effort to evolve a common shared understanding of sustainability turns SDGs from just a set of goals and targets to be achieved within a specific timeframe to a core value proposition for corporations, institutions and other stakeholders. Value propositions are typically never created only by goals or intent, but through a grounded set of inter-related processes of continuous action and continuous improvement, and more in the form of milestones rather than goals. This requires system thinking as a first order approach and a system engineering as a second order approach to deal with complexities that emerges once we acknowledge the interrelatedness of ESG factors and their impact on measuring sustainability accurately and holistically. Again, it seems that the 'what' of the pathway is quite clear, but the 'how' of it is still an open research question. Is it, then, possible to start on the journey of systems thinking by first identifying the system itself using the

[6] Please see: https://www.ipe.com/news/german-investors-expect-positive-impact-of-new-eu-disclosure-rules/10050752.article [Retrieved on 16-07-2021]

planetary boundaries framework, something that has been explicitly suggested by WCSBD in its Vision 2050 document? Such an effort might be useful, as valuable further research in itself, to understand stress parameters of the system, similar to how stress tests for products and software systems are conducted in companies and standards are set, contributing to evolving a common understanding of sustainability.

The final dimension that emerges from this paper is a combination of two seemingly different aspects. Seemingly so since they are more 'two sides' of the same puzzle. A common shared understanding of sustainability that is a continuously evolving value proposition with an overlaying and expanded ESG governance framework that is fed by TBL-based metrics within a systems engineering approach that is foundationally linked to planetary boundaries is extremely ambitious and places a serious demand on corporations, institutions, people, communities, groups and different stakeholders. What is being asked for, in literal terms, is a complete overhaul of how we have assessed, evaluated, measured, and reported growth, development and progress till now. The 'what' is quite clear, with the urgency of unexpected climate events lending it additional gravitas of reality. The 'how' is where the two aspects of measurement and frameworks comes into the picture. For the 'what' to become 'how' it is clear that sustainability measurements need to account for various scenarios, contexts and maturity levels of different stakeholders and scenarios. Additionally, different frameworks need to be classified, aligned, and standardised. Is it, then, possible for researchers to look at measurability as a spectrum, rather than as a specific and rigid tool, that infuses both absolute and relative measures through an eco-efficiency approach? There is some merit in pursuing this line of inquiry since it provides for both measurement and frameworks to be seen in an integrated manner. Not only does a measurability spectrum provide the necessary robustness to accommodate the expansion of the ESG framework but also the space to include future proposals, like the Scope 4 negative emissions suggested in CDP. It also quite literally provides the heavy lifting tools needed to align frameworks into a planetary boundaries-led systems model.

5. Conclusions

The gaps in *Sustainability Reporting* and the effort to move towards *Responsible Sustainability Reporting* clearly indicates that sustainability cannot be seen anymore as one of the many factors that is going to influence how we live, eat, produce, and consume. It has become *the* key factor. This paper seeks in its own small way to contribute to the global discourse on sustainability by making a case that it is probably time to start looking at sustainable development and sustainability and its associated indicators using a system perspective. However, it is easier said than done, but it will surely never be done till one doesn't begin somewhere. From that perspective, this paper lays out areas that are possible areas of future research in the form of five key questions:

1. How can the world move from an ownership model of enterprise value to a stakeholder model of ecological value within stakeholder capitalism?
2. How can an organisational transformation take place that institutionalises dynamic materiality into its day-to-day operations and processes?
3. How can Science Based Targets help create a shared understanding of sustainability for all stakeholders and more accurate assessment and measurement of SDGs?
4. Is there a merit to making carbon accounting more nuanced by using carbon emissions to refer to carbon dioxide, while greenhouse gas emissions for non-CO_2 emissions?
5. Is it time for us to start measuring sustainability, and by extension sustainable development, as a maturity spectrum and a set of milestones rather than as goals?

This paper makes the case that it is possibly time to start conceiving of sustainability in the same manner as Quality and integrate it into every single capability that is identified within an

organisation. Such an approach, it is hoped, will turn sustainability reporting from a post facto year-end report into a set of processes that are monitored on a real-time basis. Sustainability requires genuine collaboration and partnerships as envisaged in SDG 17 and this paper seeks to contribute to that spirt and provide more energy and ideas to the sustainability innovation ecosystem.

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