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Review

Implementing the Sustainable Development Goals: A Review of Strategic Tools and Frameworks Available to Organisations

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Abstract: The Sustainable Development Goals (SDGs) provide a bold aspiration for a sustainable, prosperous and equitable future. There is universal agreement that the goals cannot be achieved by 2030 on a business-as-usual trajectory, and that we need new agents of change, such as business, government and civil society. An array of tools and frameworks have recently been developed to support organisations in engaging with the SDGs. However, it is not understood if these tools/frameworks can enable transformative actions. This study used a scoping methodology to review the tools available to organisations for SDG action. These tools were then analysed against a generic model of the 'strategic management' process, in order to determine their usefulness in impacting organisational strategy. It was found that most of the tools are only applicable to 'mapping' and 'reporting' activities, which occur after strategies have been developed and even implemented. A small number of tools were found to align with the early stages of strategic management, that is, 'problem definition' and 'goal setting'. No tools were identified which substantially engaged with actual strategy development, the stage which can shape transformative change. This gap indicates how future research could address organisational strategy, to foster as-of-yet unexplored SDG action.

Keywords: Sustainable Development Goals; strategic management; strategic planning; organisational strategy; corporate social responsibility; organisational action; transformations

1. Introduction

There is a broad consensus that the current trajectory of modern society is untenable [1]. For decades, unsustainable practices have prevailed: populations are swelling, environments are being degraded by human activity and the scourge of inequality remains unchecked [1,2]. The unsustainability present in the current paradigm is not without acknowledgment, with preventative action occurring at a promising but still insufficient rate [1]. In recent years, this effort has been led by unification around the Sustainable Development Goals (SDGs). Formally ratified as an agenda by the United Nations (UN) in 2015, the SDGs consist of 17 global goals for all UN member states to work towards by 2030.

The SDG framework provides a template for a sustainable future with goals traversing: poverty, health, education, climate change, forests, oceans and cities [3]. True consensus on the SDGs is difficult to achieve due to the near-universal applicability of the goals, but broadly, the SDG agenda is perceived to be a valuable tool for assemblage; rallying the peoples of the world around a central vision for a better future [4]. The intention of the goals is not simply to provide a shared guide, but to mobilise societal change and channel investments and strategies towards urgent global problems [5]. More specifically, the UN agenda which prescribes the goals states that "bold and transformative steps

... are urgently needed to shift the world onto a sustainable and resilient path" [6]. The goals were conceptualised as a ground-breaking aspiration, but progress is slow more than three years into the SDG lifespan with the UN reporting that "current progress is insufficient to meet the Agenda's goals and targets by 2030 . . . [particularly] for disadvantaged and marginalised groups" [7]. More directly, the UN states that the current "rate of global progress is not keeping pace with the ambitions of the agenda, necessitating immediate and accelerated action by countries and stakeholders at every level" [7]. In other words, gradual progression is insufficient to achieve the goals; a complete paradigm metamorphosis is required.

The transformation required to achieve the SDGs necessitates a united approach from all levels of society. An essential component of the agenda's implementation is the role of the private sector and organisational SDG action. The UN explicitly refers to this role in paragraph 41 of the SDG agenda, stating that "the role of the diverse private sector, ranging from micro-enterprises to cooperatives to multinationals . . . is important in the implementation of the new agenda" [6]. The goals require a vast amount of financing to achieve before the 2030 deadline. Currently, USD 132 billion has been invested into SDG action worldwide, while it is estimated that USD 5–7 trillion is required [8,9]. Governments cannot possibly fulfil this funding requirement; private sector investment is essential to address this colossal shortfall [10].

How can organisations engage with the SDGs and work towards realising them? As the goals are future-facing, any organisational action towards the SDGs requires some level of planning and strategising. 'Strategic management' is a well-defined academic field that encompasses the processes and tools for the development of key decisions and actions in organisations and their execution [11]. Tangible organisational action of any kind requires integration with the complete strategic management process; that is, when objectives are set, strategies are developed and execution is planned [12]. Therefore, tangible organisational action towards the SDGs would similarly require the goals to be embedded throughout the strategy process. Without such an integration into the strategic management process, SDG actions taken by organisations may remain as trivial efforts, or isolated 'projects', without enabling the organisation to deliver consistent and ongoing SDG impact.

To support organisations in engaging with and acting upon the SDGs, a suite of tools and frameworks have been developed by scholarly and practice communities over the past years. Examples include: the new version of the 'Global Reporting Initiative' which includes the SDGs, the 'SDG compass' and the 'SDG industry matrix' [13–15]. These tools address different aspects in organisations' engagement with the SDGs. For instance, the SDG compass tries to help with visualising organisational contributions to the goals, while the Global Reporting Initiative tries to help with reporting impact against the SDGs. However, no research has investigated how these frameworks/tools fit within the strategic management process, or if they can enable truly transformative actions. In this paper, we seek to answer this question and identify any gaps in the tools that are available to organisations for delivering fundamental positive impact on the SDGs. We acknowledge the value and usefulness of the tools that are being rapidly developed in academia and in practice communities. But we also contend that in going forward, we need to take a step back, critically scrutinise the existing tools and position them within broader strategy processes in organisations. This will help us reveal any potential disconnect between existing tools and the strategic management process. In this way, we may be able to develop frameworks and tools that can better engage with the strategy process and truly enable transformative actions for realising the SDGs, before we reach the 2030 deadline.

To deliver on our research objective, a scoping review methodology was used to investigate the existing strategic tools/frameworks that are available to organisations to enact SDG action. These tools were categorised into three typologies in relation to what they try to achieve. The three typologies were then positioned into a generalised model of the strategic management process, to identify where the existing tools fit within the process, and where the gaps are. This study is intended to be applicable in an interdisciplinary manner: useful in practice by categorising some of the key existing SDG tools

for organisations, as well as for scholarship, by indicating the gaps and providing a research agenda as new tools and frameworks are developed for organisational SDG action.

2. Conceptual Background

2.1. The SDGs

The SDGs can be considered as an extension of the now defunct Millennium Development Goals (MDGs), the first attempt at a global strategy for extreme poverty alleviation, which expired in 2015 [16]. The MDGs, initiated in the year 2000, focused on pressing issues such as reducing hunger, basic access to education, basic access to water and sanitation, reducing maternal mortality and child survival [16]. They adopted a simplified definition of development as 'meeting basic needs', and did not include social and environmental considerations [17]. They were, therefore, regarded as an agenda for developing countries, relevant to governments, donors and aid organisations [17].

By 2015, the end of the lifespan of the MDGs, final scores on progress were varied. For instance, alleviating poverty and access to clean water were broadly considered successful, despite geographical disparities, whereas goals related to access to sanitation or maternal mortality were off-target [16]. Scholars in particular, highlighted the need to reframe the three pillars of sustainable development—economic, social and environmental—to view it as a nested concept, and of relevance to developing and developed countries alike [5].

The decision to move beyond the MDGs to a new universal set of goals that fully integrates economic, social and environmental challenges, was made in the 2012 UN Rio+20 Conference on Sustainable Development. The new goals were expected to broaden the narrow scope of the MDGs to include a wider variety of issues in a long-term sustainability agenda that is applicable to all nations [3]. The following three years, post-Rio Conference, involved multi-stakeholder consultation across the globe in which hundreds of businesses, universities, governments and civil society groups participated [17]. Surveys were also ran in which citizens were asked what they would like to have included in the new goals [17]. Subsequently, the SDGs, encompassing 17 goals for economic prosperity, social inclusion and environmental sustainability, were adopted by all UN member states in 2015.

A key difference between the SDGs and the MDGs is the type of parties involved: the MDGs focussed almost exclusively on government-led action, whereas the SDGs emphasise a united effort, particularly from non-state actors [8]. In fact, scholars have argued that the success of the SDGs depends on moving beyond cockpit-ism—the view that top-down action by governments and intergovernmental organisations alone will address global challenges [18]. They have called for mobilising new agents of change, including businesses, cities and civil society [18].

Despite the broad consensus on the necessity of action from non-state actors, the mechanisms for doing so are unclear [17]. A 2015 survey indicated that more than 70% of globally operating companies were already planning to engage with the SDGs, and more than 40% of them were intending to embed the SDGs into their business strategy within five years [19]. Since then, many reports and business strategies have been published with the SDGs language (and logos) present in them, but no assessment has been done on whether or how the SDGs have been truly embedded into business strategies.

2.2. Organisational Strategy

Organisations are inherently diverse with innumerable structures, value propositions and functions. Due to this diversity, any form of general analysis is often restricted to the industry or structure of the entity [20]. A unifying characteristic of organisations, however, is the decision making process [21]. Regardless of the structure and function, all organisations must make decisions to ensure ongoing operation.

Formal actions shaping organisational decision making are often referred to as strategies [21]. 'Strategy' is a highly transferable concept, spanning a number of distinct academic fields. Historically, 'strategy' has been associated with military philosophy, a lineage which was then transferred into

regimented corporations and governments catalysed, post-WWII [22]. This broad coverage is generally reflected in the spanning academic literature, with 'strategy' referring to the "direction and scope of an organisation over the long-term, which achieves advantage in a changing environment through its configuration of resources and competences" [23]. However, this definition is used as a catch-all for general, amorphous organisational functions; an activity that varies drastically depending on the scale and focus of said organisation.

The process of developing a strategy and allocating resources for its execution is often called 'strategic management' (SM) [24]. Strategic management can be defined as "an understanding [of] the strategic position of an organisation, making strategic choices for the future and managing [that] strategy in action" [23]. SM is a common approach to modern, organisational strategy. The primary use of SM is simple; it is a method that can be used to address the complexity that accompanies any decision-making process within organisations [11]. Organisations are multifaceted systems that produce innumerable possibilities for action; the near-infinite range of alternatives must be reduced to a select few to then choose and strategise from [20]. Effectively, SM allows for a range of possibilities to be sorted, by highlighting those which are most important and valuable to the organisation's future [11].

SM contends with the full complexity of organisational operation, structure and decision-making. As a result, modifications to this process will have effects equal to the wide-scale view of the process—that is, organisation-wide [25]. Traditionally, the importance of SM has been conceptualised as part of the 'dynamic capabilities' framework for organisational competitive advantage [26]. This framework is based upon the premise that SM is essentially a method for wielding an organisation's assets and strategy, to both achieve and subsequently maintain a competitive advantage in changing environments [26]. More specifically, SM can be used to reconfigure internal and external factors, in order for the organisation to succeed under dynamic conditions [26]. This positioning of SM as a crucial component of an organisation's future illustrates the significance of the process, and the potential for substantial change if the process is modified.

2.3. A Generalised Model of Strategic Management

The literature on strategic management present a myriad of processes for how organisations should or could develop their strategies [21,27–34]. Despite their differences, most of those processes share a few key phases and activities. These are:

1. An ideation phase, where the strategic objectives are defined and articulated;
2. A development phase, where multiple options or pathways to realise the objectives are devised and evaluated, and the preferred options/pathways are then selected as the strategy;
3. An implementation phase, where the selected strategy is executed and then monitored.

We briefly describe each phase below. When put together, these three phases can represent a simplified model of the strategic management process, as shown in Figure 1. This figure is a synthesis of the process described in various literature, with the characteristic components from a number of foundational texts reviewed and collated into a single diagram [21,27–34]. Due to this generalised characteristic, the diagram represents a typical strategic management process, which is broadly applicable to organisations, rather than a diagram that is specialised for a single industry or entity type.

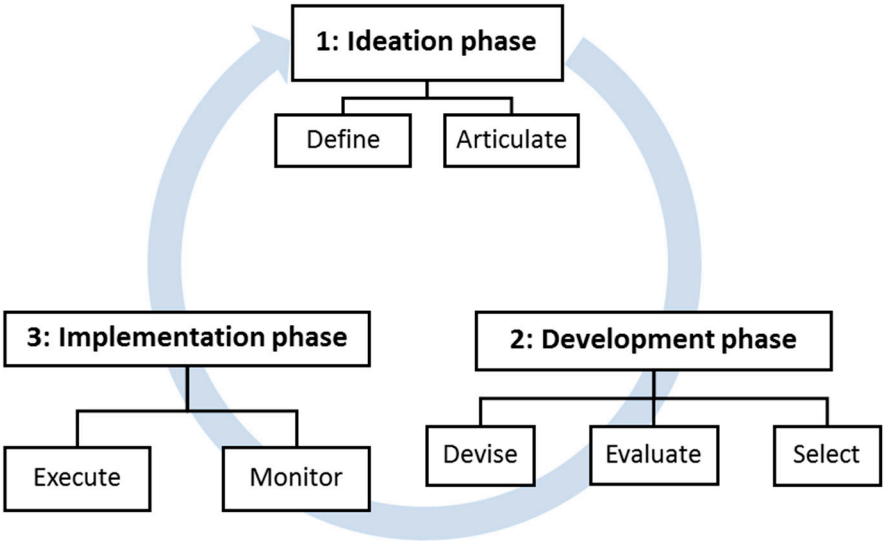

Figure 1. A generalised strategic management process that is synthesised from the foundational literature on the topic.

2.3.1. The Ideation Phase

The ideation phase involves developing a set of objectives that need to be achieved by the enterprise [24]. The starting point for developing the objectives are the expected, or desired, outcomes [35]. The outcomes are mandated, or incentivised, by external or internal needs and are informed by the organisation's socio-economic purpose [21,34]. Once broadly defined, the expected outcomes are often articulated in the form of specific and measurable objectives that the organisation can work towards [35].

2.3.2. The Development Phase

In the development phase, the options or pathways that can realise the objectives are devised [34]. The options are then analysed, based on external opportunities and threats, as well as the internal strengths and weakness [21]. Once they have been sense-checked, their financial feasibilities has been assessed, and ideally, their broader social, environmental and political suitabilities have been understood, one option or a group of options will be selected for implementation.

2.3.3. The Implementation Phase

The implementation phase involves an execution of the strategy. This phase is often the interface between the organisation and its customers or clients, and is where the enterprise activity is observed by the broader society [30]. In an ideal world, the implementation phase will be closely monitored and evaluated, in order to provide learning and feedback back into the strategy process [21].

2.4. Organisational Strategy and the SDGs

Businesses and organisations are no longer perceived to be just economic entities; they are now viewed as key components of broader society [17]. Specifically, the environmental and social impact of organisations has become increasingly significant [36]. This sentiment began in the 1970s/1980s, when environmental management/legislation became more forceful, and organisations needed to demonstrate formal compliance [37]. This integration of environmental concerns progressively evolved to consider the organisation's broader impacts, not just for regulatory compliance, but also for competitive advantage and commercial ethics [37]. This holistic perspective of organisations is commonly referred to as 'corporate social responsibility' (CSR).

CSR is a well-established concept that primarily focuses on the need—or advantage—for organisations to consider and improve the positive societal impacts of their operations [38]. CSR is a contested field, with many competing interpretations of what constitutes 'positive societal impact', and how it should be achieved. There are four primary types of CSR approach [39]: instrumental, where social activities are used to enhance economic results; political, where the influence of the organisation is used to produce societal good; integrative, where societal impact is ingrained into the organisation's structure; ethical, where the organisation addresses direct ethical responsibilities. SM approaches to CSR primarily fit within the 'integrated' category, as efforts in this area affect the underlying structure and management of an organisation [39]. The use of SM to address the wider responsibilities of organisations has been extended to more directly address economic, social and environmental considerations that underpin 'sustainable development' [40]. Aligning with other modern approaches to commercial sustainability, this utilisation of SM illustrates the applicability of the concept to all topics that require holistic strategizing, rather than solely economic strategy setting.

The SM process has also been used as a tool to facilitate organisational alignment and action towards sustainable development. Sustainable development is a concept that grew from various parts of environment-related activism and academia, but it was formally introduced in the 'Brundtland report' of 1987. This report referred to sustainable development as an economic, environmental and social form of development that meets the needs of the present, whilst not jeopardising that of the future [41]. The three pillars of sustainable development—economical, environmental, and social—are synonymous with the underpinnings of CSR that were discussed previously. The application of the SM process to fulfil businesses CSR obligations has also been extended to include sustainable development [42]. Sustainable development acts to further define organisational efforts towards sustainability, providing a template for the direction and format of organisational action.

The SDGs are an extension of sustainable development, quantifying the concept into the 17 goals of the agenda. Due to this synergy, it would be expected that SM could also be used to assist businesses to act towards the SDGs, as it was for sustainable development [43]. As discussed earlier, the SDGs cannot be achieved on a business-as-usual trajectory, and they require concerted efforts by different actors and a suite of transformative actions and strategies [15]. The combination of the capacity for SM to produce transformative actions and strategies, as well as its already-established synergy with sustainable development, make it a valuable concept for investigating organisational SDG action. The starting point for such an investigation needs be an understanding of the nature of the existing tools and frameworks that are available to organisations for SDG action, and how they fit within the strategic management process. Such an understanding helps with identifying whether or not existing tools can enable the required transformations, and where the gaps might be. The following sections try to address those questions.

3. Methodology

This study was designed as a scoping investigation of the existing SDG tools that are available to organisations across a range of disparate fields. Due to the breadth of the research topic, a scoping study methodology was utilised. Scoping studies are defined as a "technique to map relevant literature in a field of interest . . . for broader topics where many different study designs may be appropriate" [44]. They are slightly different to systemic reviews, as they enable a broader and more comprehensive study of literature regardless of their research design or their quality. Some of the key differences between scoping studies and systemic literature reviews are highlighted in Table 1.

Table 1. Key differences between scoping studies and systematic reviews of the literature—adapted from [45].

Scoping Study	Systematic Review
Addresses a broad topic in all relevant literature, regardless of the study designs.	Focuses on a well-defined and specific question where appropriate study designs are identified in advance.
Comprehensive coverage of the studies without quality appraisal.	Narrow range of quality-assessed studies selected.
Search terms chosen loosely at the outset and then redefined in a reflexive way once some sense of the volume and the general scope of the field is gained.	Search terms are pre-defined.
Inclusion and exclusion criteria are devised post hoc, based on increasing familiarity with the literature.	Inclusion and exclusion criteria are pre-defined.
Presents a narrative account of existing literature based on an analytic framework.	Synthesises evidence or aggregates findings from different studies.

This study aims to consider a broad range of existing SDG tools and frameworks, which are developed by multiple disciplines and across various academic and practice communities. Therefore, the scoping study methodology, which enables a broad coverage of diverse literature, was selected.

The scoping study framework is drawn from a classic and widely referenced scoping study structure suggested by Arksey and O'Malley [44]. This framework has been used in previous studies that mapped SDG information across multiple fields [43]. The framework is composed of five distinct stages:

Stage 1: identifying the research question.
Stage 2: identifying relevant studies.
Stage 3: study selection.
Stage 4: charting the data.
Stage 5: collating, summarising and reporting the results.

A qualitative-style, reflexive approach was utilised throughout the stages, due to the broad applicability of the subject area, with iterative refinement needed, as inter-related concepts and fields were uncovered in the relevant literature.

3.1. Stage 1: Identifying the Research Question

The primary objective of this study required a broad examination of the types of SDG-related tools. As such, the operational question guiding this review was defined as: What are the SDG-related tools available to organisations, and how can we categorise them in relation to their nature and their purpose?

3.2. Stage 2: Identifying Relevant Studies

The review approach employed for this study was tempered with a number of conditional criteria, in order to identify relevant documents. These were: time span, language, search database and search keywords.

Time span: This study was undertaken from mid to late 2018. Initially, only studies/documents published in the period of 2015–2018 were included in the search, as the SDGs have only been active in this timeframe. As the review process progressed, the time period was expanded to include material from 2000–2018, as it was found that some SDG tool types were adaptions of previously published sustainability tools, and that the original publications needed to be identified.

Language: A language specification was applied in this study, with all studies/documents being included in the review process being written in English. It should be noted that some sustainability-related academic research was found to be published in non-English text. The narrowing

of the language requirement may have omitted some relevant studies/documents. However, it was expected that most relevant documents would be available in English, and this study was seeking to convey the broad thematic categories of SDG tools, rather than an exhaustive inventory of every possible tool.

Database/Source: The publications/documents considered in this review were sourced from online databases. The databases were Scopus and Web of Science. Together, these are the major bibliometric databases for academic publications, and were utilised due to the significant literature coverage that they offer [46]. Due to the diverse origins of SDG-related tools, Google was also used to source relevant grey literature (i.e., non-academic publications) which may not have been picked up from academic databases. The inclusion of Google as a search method was primarily prompted by the explicit reference to SDG consultancy tools currently utilised by large organisations, which are not evident in academic literature [47].

Keywords: The search terms used in the review process were initially defined loosely as suggested in the framework of a scoping study [44]. As the review progressed, these terms were reflexively refined to improve the coverage and scope of the search results. The search terms ultimately used were: "SDGs" OR "Sustainable Development Goals", AND "strategy" OR "strategic planning" OR "strategic management", AND "tool(s)" OR "framework(s)" OR "model(s)". For academic papers, the search terms had to appear in titles or keywords or abstracts. For the grey literature searched in Google, there was no restriction as to where the search terms had appeared.

3.3. Stage 3: Study Selection

Using the keywords above returned 194 publications (academic papers as well as industry/consulting reports), which had to be screened for their relevance. The selection criteria were defined as below. Studies were included if all of the selection criteria were met, in order to discard irrelevant studies, and ensure that the operational question for this review was adhered to. The selection criteria were:

- Explicit reference to the SDGs: This was determined to exclude other sustainability tools that make no reference to the SDGs, given that this review was explicitly focussing on the SDGs and not on just any sustainability tool;
- Applicability to a broad range of sectors (that is, sector neutrality), such as: private enterprise, public utilities, etc.: This was determined to ensure that the results of this study would be generic enough to apply to any organisation in any sector;
- Developed as a supportive tool/framework for organisations: This was determined to exclude studies that develop tools for the conceptual analysis of the SDGs, mainly for academic purposes.

For academic papers, abstracts were read to determine whether they met the selection criteria. For non-academic publications, executive summaries (when available) were read, or the entire document was quickly scanned.

This resulted in 50 documents that were included for full reading and further analysis. A comprehensive list of these documents can be found in the Supplementary Materials.

3.4. Stage 4: Charting the Data

The publications obtained from the review process were then analysed through charting. This process involved each source being analysed, based upon common characteristics. The Descriptive-Analytic method was used, which includes applying a common analytical framework to all resultant publications and extracting standard information from them [48]. Guided by the aim of the study and the research question stated in Section 3.1 (that is, to understand the nature and purpose of the existing tools), the following common information was sought and extracted, for all 50 publications:

(a) Nature or type of the tool: Was the tool presented in the publication a reporting tool for reporting against the SDGs? Was it a mapping tool against the SDGs? Or something else?
(b) Purpose of the tool: What purpose did the tool try to achieve or help with?
(c) Background to its development: Was the tool developed specifically for the SDGs, or was it an already-existing sustainability tool that had been adapted for the SDGs?

3.5. Stage 5: Collating, Summarising and Reporting the Results

The Results section below reports on the review results, based on the above information extracted from the publications. The following Discussion section then elaborates on the positioning of the tools within the strategic management process.

4. Results

The results of the scoping review are summarised in Table 2. As explained above, charting the data was conducted to identify the nature, the purpose, and the background of the existing tools. This resulted in the identification of three broad categories of tools, based upon the dominant focus or nature of the framework or tool that was being reviewed. These were:

1. Mapping tools/frameworks: The purpose of these tools is to help organisations with mapping their existing programs, initiatives, or their value chains against the SDGs, to identify how they are dealing with the SDGs in their current activities.
2. Reporting tools/frameworks: The purpose of these tools is to help organisations with performance benchmarking against the SDGs and including the SDGs in their sustainability reports.
3. Aligning tools/frameworks: The purpose of these tools is to help organisations to utilise the SDGs for competitive advantage and to align their business activities with this new opportunity.

Table 2. Thematic typology of tools/frameworks that are currently available to organisations for action towards the Sustainable Development Goals (SDGs).

	Purpose of the Tool	Background of the Tool	Example *
Mapping	To help organisations with mapping their existing programs or value chains against the SDGs	Adapted from previous sustainability tools	'Mapping to the SDGs' by ICMA
		Developed for the SDGs (SDG-specific)	'SDG Compass' by UN Compact
Reporting	To help organisations with performance benchmarking and reporting against the SDGs	Adapted from previous sustainability tools	Global Reporting Initiative (GRI)
		Developed for the SDGs (SDG-specific)	'How to report on the SDGs' by KPMG
Aligning	To help organisations with using SDGs as a competitive advantage, and to align business activities accordingly	Adapted from previous sustainability tools	'Sustainable value exchange matrix' by Morioka et al.
		None found to be SDG-specific	None found

* For a complete list of examples, as well as full bibliographic details, see the Supplementary Materials.

These types were then subsequently categorised into 'SDG specific' and 'adapted' tools/frameworks, with SDG-specific ones originally being developed for the SDGs, and the adapted ones originally being developed for broader sustainability use and then subsequently adapted for SDG use in recent years. The rest of this section will elaborate on the typologies.

4.1. Mapping Tools—SDG-Specific

The SDGs are inherently complex, with an ambitious, societal scope that is rather daunting, particularly with the hefty array of sub-indicators present. This complexity is addressed by a type of tool/framework which enables organisations to understand which goals are directly relevant to them and their pre-existing outreach/social programs [14]. This is often called 'mapping', in which organisations can map their existing activities against the SDGs, and indicate which SDGs they are addressing as part of their operations.

Typically produced by UN-related institutions or consultancy firms, these frameworks/tools are often visual representations of the goals, with criteria to progressively eliminate irrelevant indicators for the organisation or program [14,49]. Depending on the type of institution, this form of SDG mapping can be of varying quality and complexity. Frameworks produced by UN-related institutions—such as the 'SDG Compass'—are often focussed on providing a prescriptive process to align value chain goals to the SDGs, an inevitably complex task due to the scale of the goals and the potential diversity in different organisational value chains [14]. Conversely, consultancy-based tools/frameworks—such as the 'SDG Selector' produced by PWC—offer a broader-based approach of visualising which SDGs are relevant to the value chains of particular industries, and the subsequent activities thereof [49]. The Selector is a visualisation tool that allows organisations to identify which goals are related to a number of thematic categories. These categories include: 'industry impact', 'industry opportunity', 'territory' and 'theme'. The Selector provides a rapid, initial engagement with the SDGs for organisations to explore which goals may relate to their operation.

The 'SDG compass' is a substantial resource that demonstrates a comprehensive approach to SDG-specific program mapping. It aims to align the operation and strategy elements of an organisation to the goals. Practically, this is achieved through a five-step process: 'understand the SDGs', 'define organisational priorities', 'setting goals', 'integrate SDG principles' and 'report/communicate' [14]. The compass is intended explicitly for large organisations with operations which are likely to traverse a number of the SDGs. If the organisation moves through each of the tool's five stages it will be introduced to the SDG agenda, the SDGs will be used to set sustainability targets, and then collaboration and reporting on the goals will be performed. As it was developed by a UN agency, this framework was released soon after the launch of the goals, providing organisations with a tangible method to engage with the SDGs early in the agenda's lifespan. It should be noted that the 'SDG compass' had a variety of contributors, including: the 'Global Reporting Initiative', UN 'Global Compact' and the 'World Business Council for Sustainable Development' [14]. A result of these diverse contributors is a hybrid framework, including elements of organisational goal setting, alignment and SDG objective setting. This variety of contributors is not common across other 'mapping tools/frameworks, but the resulting nuance is common. 'Mapping' an element of an organisation requires a process; moving from understanding the goals to aligning to them and finally reporting on them. If a tool/framework allows for program mapping, then multiple steps of engagement with the SDGs could potentially become present.

4.2. Mapping Tools—Adapted

Alongside SDG-specific mapping techniques is the adaption of more established methods that are used to integrate sustainability considerations into the objectives and operations of organisational value chains. Pre-existing sustainability tools/frameworks are being re-purposed for SDG action. For organisational SDG mapping, the techniques of this nature are primarily being drawn from the private sector, an example being the 'Mapping to the Sustainable Development Goals' (MSDG) framework [50]. This framework aims to re-purpose existing sustainability frameworks—primarily green and social bond guidelines—to understand how the SDGs relate to an organisation's financial activities [50]. More specifically, sustainability bonds use 'project categories' to define the type of project that is eligible to be funded by the bond. These categories are formally measured by using indicators to determine whether the outcome of the project being funded aligns with the intention of the bond.

An example may be the amount of renewable energy that produced by a project funded by a 'green bond'. Using the MSDG framework, these indicators are then mapped against the SDGs, to identify the total SDG impact generated from the financial activity. Whilst frameworks of this nature vary in theoretical approach, the unifying objective is to understand the impact of organisational decisions and investments on social and environmental issues [51]. This impact is then linked to the SDGs, to produce a representation of the effect that organisational programs have on individual goals.

The MSDG framework is a SDG mapping tool which has been re-purposed from the finance sector. Created by the 'International Capital Market Association', the MSDG maps the goals across the pre-existing 'Green Bond Principles' (GBP) and 'Social Bond Principles' (SBP). These principles offer guidelines for projects and programs that promote sustainable outcomes for the former, and positive social impacts for the latter [50]. As has been previously discussed, the sustainable development principles that underpin the SDGs were not conceived in a vacuum, with concerns over worsening sustainability and equality existing for some entities [52]. The GBP and SBP were both precursor frameworks that were used for organisations to engage with some of the topics in the broader sustainable development field. As the SDGs are an amalgamation of a variety of societal concerns, the MSDG also addresses sustainability concerns as a whole, by building upon the mapping tools/frameworks that are already available. In this manner, the MSDG framework—and other adapted mapping frameworks like it—allow organisations to understand how already-established sustainability-focussed actions are related and can be capitalised upon, in relation to the SDGs.

4.3. Reporting Tools—SDG-Specific

The specific integration of the SDGs into organisational reporting is the most common type of tool/framework that is currently available (see the table in the Supplementary Materials). The proliferation of this format is likely a result of a number of factors, including the prevalence of organisational sustainability reporting in organisations [37]. Of the 17 SDGs, there are a further 169 specific targets which are measured by more detailed indicators [53]. The availability of such new and globally endorsed evaluation metrics prompts reporting as a method to engage with the goals, as part of business-as-usual sustainability reporting activities.

A compounding factor for the availability of SDG reporting is the diversity of sectors from which the tools/frameworks originated from (see the Supplementary Materials). Alongside the typical NGO- and UN-related groups, tertiary education institutions and consultancies are also providing a large number of SDG reporting services. The occurrence of university-based reporting is seemingly occurring due to the extensive research guidelines/indicators that are already implemented, providing an easy option for integrating them with SDG reporting. Consultancy-based tools/frameworks are also occurring due to reporting synergies, as these firms typically provide reporting as a core service to organisations. The inherent characteristics of these sectors allowed for organisational SDG reporting tools/frameworks to be conceptualised at a rapid rate within the first three years of the goal's existence.

An example of this is the 'How to report on the SDGs' framework produced by KPMG. It should be noted that KPMG's SDG and broader sustainability reporting services are diverse, with the full range and extent likely to be a purchasable service and therefore non-public, proprietary material. However, the material that is publicly available advocates for a three-stage reporting process: 'understanding the SDGs', 'prioritising relevant goals' and 'setting/reporting on targets for prioritised goals' [15]. This three-stage process is wholly focussed upon introducing the SDGs into the existing organisation's reporting procedure, rather than changing the procedure itself. By passing through these three stages, the way in which the organisation reports on performance should be linked in some way with the SDG indicators. Throughout this process, it is emphasised that direct measurement of SDG progress is required against the 169 individual SDG targets However, the ultimate method, format and goals are left to the organisation to select. This results in a framework which provides some support in navigating the structure of the SDGs without engaging with the granular details of each goal, or relating these goals to the operation or ethos of the organisation. Significantly, consultancy-based

SDG reporting—including an early iteration of the KPMG framework discussed previously—were offered to organisations soon after the launch of the SDG agenda [15,19]. This swiftness was likely a result of the capacity for sustainability reporting within the pre-existing consultancy services. These features of the KPMG framework—and other similar SDG reporting frameworks—provide an initial opportunity for organisations to engage with the goals, but lack a formal process that can be followed and replicated.

4.4. Reporting Tools—Adapted

Occurring alongside the production of new SDG reporting methods is the proliferation of more traditional sustainability reporting methods which have been adapted for SDG purposes. The SDGs inception did not occur in a vacuum, with the consistent adoption of 'sustainable development' principles and theories—both in academia and industry—gaining momentum over the past 20 years [52]. Due to this existing body of knowledge, tools/frameworks for organisational reporting, which integrate social and environmental factors alongside traditional performance indicators, are well-established. The two archetypal—but not exclusive—examples of this are 'Integrated Reporting' and the 'Global Reporting Initiative' [13,54]. These frameworks generally reflect an organisation's value creation process in relation to the external environment, with particular emphasis being placed on the societal impact of the organisation [37]. Both of these tools provide reporting standards that organisations can use to objectively measure sustainability performance. As there is a pre-existing synergy, the core structure of these tools/frameworks has been re-focused, using the SDG indicators to provide a familiar method for organisations to measure performance against the goals.

The 'Global Reporting Initiative' (GRI) is an interesting example of this type of 'adapted organisational reporting'. The GRI is a regularly used set of standards for economic, environmental and social organisational reporting [13]. Launched in 2000, the standards provide a template for 'sustainability reports' or 'corporate responsibility reports', so that the reporting methodology remains consistent [55]. As with other tools/frameworks of this nature, the GRI benefits from the existing foundation that was present before the SDG's introduction. This pre-existing foundation results in a well-rounded framework which was quickly available, due to the possibility of adapting pre-existing material, rather than creating completely new tool/frameworks. As GRI is a reporting-based framework that covers most possible organisational activities, it provides a framework that, at least somewhat, contends with the broad scope of the SDGs. Evidently, the GRI and similar frameworks only allow for a single form of action, but its broad scope—borne from the pre-existence of the framework—allows for reporting that contends with the large scale of the SDGs.

4.5. Aligning Tools—Adapted

The previously discussed areas characterise a reasonably simple approach to organisational SDG action. However, alternative, more holistic techniques have started to emerge. These usually centre upon redefining the organisational practice itself, to act as a vehicle for SDG action. Due to the complexity of this objective, the current tools/frameworks are evolving from academic fields already aligned with organisational operation [56]. An example of this is the use of sustainable business practice as a form of competitive advantage, which in recent years has tried to integrate the SDGs as guiding principles to achieve this advantage [56,57]. Competitive advantage can be generated from a variety of sources for a business. A common theory in business scholarship is that environmental and social responsibility can be an advantage because of improved public perception, subsequent supply chain innovations or the forced shift in internal mind-set, among many other factors [56,57]. The SDGs can be used as a specific reference point with which to pursue such a competitive advantage. This significantly differentiates alignment tools from those previously discussed tools, as alignment tools seek to re-define the organisation as an entity to achieve the goals, rather than simply measuring end-state performance.

Another example, and a closely related approach, is the application of industrial ecology principles to create sustainable industrial systems [43]. Of particular interest, this approach seeks to combine responsible business practice with the industrial model that guides said practice [43]. Effectively, it is exploring the way in which the SDGs can be integrated into industrial processes. Whilst still in its infancy, this approach uses the SM process to progressively change an organisation's industrial activities to be explicitly in alignment with the SDGs and their indicators. This application is the most 'strategic' of SDG tools/frameworks, as it seeks to modify the organisational practice itself, rather than only measuring or mapping the operation with the SDGs.

The application of 'sustainable business models' to the SDGs is a particularly prominent method for adapting pre-existing sustainability alignment tools/frameworks. A specific example of this in the academic literature—although there are similar tools/frameworks from the private sector—is the 'Sustainable Value Exchange Matrix' (SVEM) proposed by Morioka et al. in 2017. This framework seeks to provide a visual tool for organisations to identify how their supply chain/logistics, value proposition and value capture relate to both a competitive advantage and the SDGs [56]. The user works through a number of SDG and sustainability-related questions or propositions. These questions are represented in the tool as 'sustainability challenges', 'value creation & delivery system', 'sustainable value capture' and 'sustainability inspirations'. By progressively working through these topics, the organisation can use the SDGs to improve the performance and sustainability of regular operation. The breadth of this framework is largely a result of the utilisation of existing research, and the organisational elements drawn from the substantial sustainable business literature. The SVEM—and other adapted tools/frameworks that encourage business alignment—offer a substantive resource for organisations, because they act as an extension of previous approaches, using the SDGs to provide a target without attempting to completely re-define an already established field.

5. Discussion

5.1. Positioning of Existing Tools/Frameworks within the Strategic Management Process

The scoping review process uncovered three broad types of SDG tools/frameworks that are available to organisations: mapping tools, reporting tools and aligning tools. These categories were then mapped onto the strategic management process, as depicted in Figure 1, to identify where each category fits within the process. As explained in Section 2.3, the main phases in a generalised model of strategic management involve: Ideation, Development and Implementation. Identifying which phase the existing tools relate to could give us some indication of whether or not the available tools/frameworks would enable strategic actions in the organisations who use them.

5.1.1. Mapping Tools

Mapping tools can be placed in the Implementation phase of the strategic management process. These tools are focussed primarily on identifying the SDGs which align with existing programs and value chains. Mapping tools/frameworks do not explicitly interact with the strategic planning that precedes and underpins the programs/value chains. They neither actively address the defining of new objectives according to the SDGs, nor do they provide an explicit mechanism for developing new programs and actions that implement the SDGs. Mapping tools simply aim to identify the subsequent value that is created by pre-defined programs. This is reasonably comparable to the 'execute' and 'monitor' components of the Implementation phase (see Figure 1), as the aim is to identify the alignment of activities during and after implementation.

5.1.2. Reporting Tools

Tools/frameworks related to SDG reporting can also be placed within the 'monitor' component of the 'Implementation' phase of the strategic management process. Both SDG-specific and adapted tools of this nature explicitly reference the measurement of end-result organisational operation, which

is analogous with end-stage monitoring. As discussed earlier, some adapted reporting frameworks focus on measuring the end-result of an organisations value creation, which may have an association with earlier phases of the strategic management process. However, as the objective of these particular frameworks is the express, end-process measurement of this value process, it shall be considered to be primarily a 'monitoring' activity.

5.1.3. Aligning Tools

The diverse collection of aligning tools/frameworks have a wide scope, and therefore, they engage with different phases of the strategic management process. More specifically, tools of this nature seek to redefine organisational practice, a modification which requires a greater level of strategising and therefore engagement with a greater number of phases in the strategic management process. It should be noted that this type of SDG tool/framework is the most fragmented of those reviewed (see the Supplementary Materials), and as such, placement within the strategic management cannot be generalised to any specific method of this nature.

Aligning tools/frameworks are firstly related to the 'define' component of the Ideation phase, where strategic objectives are framed. Aligning tools can help with aligning an organisation's ideals and socio-economic purpose, in relation to the SDGs [58]. Aligning tools are also related to the 'execute' component of the Implementation phase. This form of tool/framework effectively seeks to imbed industrial systems with the sustainability principles that are outlined in the 'define' component previously discussed. Systems such as this are typically complex, requiring internal and external factors to cooperate, in order to accomplish the required organisational operation [58]. These characteristics share symmetry with the enterprise activity and the customer/client interface of the 'execute' component of the strategy process.

5.2. Can Existing SDG Tools and Frameworks Enable Strategic Actions?

As discussed above, the existing tools that are reviewed in this study primarily focus on two aspects: mapping and reporting. Only a small number of tools attempt to assist organisations with redefining their business models, in alignment with the SDGs. Positioning existing tools within the three phases of the strategic management process (Ideation, Development, Implementation) indicates that most tools are related to the last phase of the process, i.e., the Implementation phase. Some aligning tools relate to the Ideation phase, but there seems to be a lack of tools and frameworks that relate to the Development phase of strategic management, where strategies are devised, evaluated and selected for action. This means that organisations lack sufficient support in shaping strategic actions towards the SDGs. The tendency within the majority of available tools/frameworks to address the later-stages of the strategy process means that organisations engage with the SDGs only after core organisational values and visions have been defined, objectives have been set, strategic decisions have been developed and programs have even implemented. Such late engagement with the SDGs in the strategic management process is not likely to enable meaningful actions for delivering substantial impact on the SDGs, let alone the transformative change that is required.

Mapping and reporting are useful activities as first steps in engaging with the SDGs. What needs to follow is a set of tools and frameworks that can help organisations to embed the SDGs throughout their strategic management process. At its heart, the strategic management process charts the future direction of an organisation. It focuses on the decision making process, developing and executing strategies which define how and why an organisation operates. If SDG action is to occur in organisations, tools/frameworks are needed which integrate the goals throughout the entire process so that the trajectory of the organisation is guided—or at least informed—by the SDGs. The SDG agenda requires wide-ranging transformative action. Organisations can only achieve this if they have similarly wide-ranging tools/frameworks that support this transformation.

5.3. A Research Agenda for New SDG Tools

The prospect of creating new SDG tools that integrate with the entire strategic management process is challenging. As previously discussed, organisational strategy is a heavily contested field that has evolved over many decades [33]. The swift production of related tools/frameworks may be difficult, due to this complex nature. At the same time, the SDGs are a time-bounded agenda with their expiration in 2030 [6]. It should be noted that this 2030 boundary is not an appropriate goal for developing appropriate SDG frameworks/tools; rather, it is the time limit for when SDGs should be achieved by. Organisations will require tools/frameworks that fully engage with the strategic management process well before the agenda expires, in order to take the appropriate action to achieve the goals. To expedite the development of such needed tools, it would be useful to co-opt existing knowledge/expertise from fields that already have a natural synergy with organisational strategy and sustainable development. Examples of this include the activity already occurring within the 'industrial ecology' and 'sustainable business model' fields, as discussed previously [43,56]. The tools/frameworks that have orginated form these fields to date provide a valuable resource for organisational SDG action. In moving forward, however, they need to engage with the entire strategic management process to create the transformative action that is required.

Another consideration in producing the appropriate organsiational SDG tools/frameworks in a speedy manner is co-development with businesses and governments. The 'MSDG' framework is an example of this whereby SDG considerations were built into frameworks already used by organisations, lessening the need for extensive testing and adaption by the busineses in practice [50]. If acdemia and industry could collaborate using acdemic fields that are already pre-disposed to SDG action, tools/frameworks which embed the SDGs throughout the strategic management process could be produced in time for organisations to meaningfully contribute to the achievement of the goals.

6. Conclusions

SDG action is difficult; significant change is required within a short time period [15]. The sheer size and scale of the goals is understandably daunting for organisations who require guidance to achieve the ambitions of the SDGs. The scoping review presented in this study shows that some tools are available to organisations for SDG action, but that there is a significant absence of tools and frameworks for strategic—and therefore transformational—change. The most widely available techniques are primarily focussed on mapping and reporting against the SDGs; beneficial methods that are not radical enough to possibly achieve the goals without further action. More substantial tools/frameworks should focus on re-defining organisational core business, and they are promisingly ambitious, but they are currently unfulfilled with entire strategic elements being left unaddressed.

The above findings need to be considered in the context of the limitations of the study. Developing SDG tools and frameworks is a fast-growing field, and new tools emerge on a frequent basis. While the study tried to cover a comprehensive list of tools that have been developed so far (that is, up until 2019), it is possible that some tools were missed in the review process. Moreover, the review only covered the literature (both academic and grey) in English. There are also limits with regard to the strategic management model against which we compared the review results. The model that we used is a generic model, and although it is underpinned by some of the foundational literature on strategic management, it may not include every single element of the strategy process in organisations.

There is clear opportunity for future research to produce approaches, tools and frameworks that explicitly deal with strategy development for organisational SDG action. The harnessing of the strategy process offers a potential vehicle for transformative change, not only towards the SDGs, but towards a more sustainable and equitable future [43]. If organisations are provided the support to strategically transform towards the SDGs, a bold vision for society may become closer to realisation.

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