WHITE PAPER

QUANTIFYING SUSTAINABILITY IMPACTS AND SUCCESSFUL GOAL SETTING

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In the midst of an increasing trend toward setting and meeting aggressive sustainability targets, organizations and municipalities are scrambling to navigate the complex challenge of quantifying their impacts, and meeting their customer and investor demands.

Only a few years ago, the term sustainability was often synonymous with reducing greenhouse gas emissions—a well-understood concept with an accepted framework for measurement. That is no longer the case. Dozens of social, environmental and economic indicators are now considered staples under the massive sustainability umbrella, ranging from issues such as water consumption to child labor.

For example, the Sustainability Consortium, whose tools are used by over 2,000 consumer products companies representing over $200 billion in sales, includes 30 sustainability issues with dozens of key performance indicators (KPIs) in their product sustainability toolkits.[1] Additionally, the Environmental Sustainability Index (ESI), which assesses 146 countries on their sustainability progress, highlights 21 indicators in its scoring methodology.[2]

In short, organizations are now expected to take responsibility for several social, environmental and economic indicators, showcase their mitigation strategies and reduction efforts, and report on their progress. Their customers and investors demand it. Approximately 90 percent of consumers are likely to switch to more sustainable brands given comparable price and quality, and more than one out of every five dollars under professional management in the United States was invested in sustainable strategies in 2016 (an increase of 33 percent from 2014).[3,4]

The question remains: **What is the best method for quantifying and reporting sustainability impacts?**

With so many sustainability concerns to consider, this is not an easy question to answer, either within an organization's four walls or throughout its supply chain. However, to ensure meaningful and quantifiable sustainability impacts are effectively measured and reported, the following framework and subsequent descriptions can serve as a useful guide:

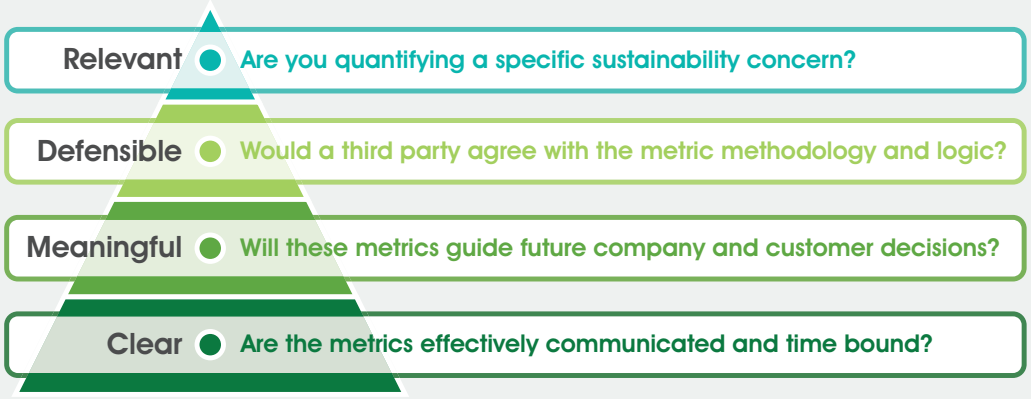


FIGURE 1: FRAMEWORK FOR DEVELOPING AND REPORTING SUSTAINABILITY METRICS.

1 https://www.sustainabilityconsortium.org/impact/impact-report/
2 http://sedac.ciesin.columbia.edu/data/set/esi-environmental-sustainability-index-2005
3 *Ecovadis*. Building the Business Case for Sustainable Procurement: A 5-Step Guide. 2015
4 https://www.ussif.org/files/Trends/US%20SIF%202016%20Trends%20Overview.pdf

RELEVANT:

Do these metrics quantify a specific sustainability concern?

When deciding on which sustainability metrics to prioritize, it is important to align with relevant global and local sustainability issues. For example, take the following fictional corporate goal:

> *By 2020, we will increase supply chain efficiency by 20 percent.*

The wording of this goal makes it difficult to determine if the company is referring to energy efficiency, transportation efficiency or assembly line efficiency—or all or none of them—and there is no mention of what specific metrics are used to measure progress, nor is there an explicit link to sustainability concerns. The relevancy of this target is unclear, and therefore its potential for impact in the eyes of investors and consumers is unclear.

One way to ensure relevancy of sustainability metrics is to align corporate objectives with other well-established global and local initiatives.

In terms of global sustainability initiatives, the UN Sustainable Development Goals (UN SDGs) are particularly useful in developing relevant corporate sustainability objectives. The UN SDGs provide 17 diversified and comprehensive, target- and time-driven goals that offer a solid foundation for companies of all types and sizes to adopt and adapt. The UN SDGs were the product of the largest UN consultation program in its history, with 193 countries signing the document, further cementing their acceptance and relevancy.[5] By developing sustainability goals that mimic the UN SDGs, companies can feel reassured that their customers and investors will be on board.

In addition to ensuring that metrics align with global sustainability goals, it is also important to focus on initiatives in local communities. For example, if a company is largely based in a water-stressed region, corporate sustainability initiatives should focus on water consumption and preservation, not only in terms of its direct operations, but also on a community level. Accurately and transparently reporting on water metrics and participating in local water conservation initiatives will show the community that the company is an ally, and the successes from those endeavors will address global concerns about water availability.

Applying the principle of relevancy, the aforementioned fictional corporate goal can be modified to:

> *By 2020, we will increase energy efficiency by 20 percent in all of our North American-based production facilities.*

5 https://www.theguardian.com/global-development/2015/jan/19/sustainable-development-goals-united-nations

FIGURE 2: VISUAL REPRESENTATION OF THE 17 UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS (UN SDGS).

DEFENSIBLE:

Would a third party agree with the metric's methodology and logic?

When defining a sustainability metric or goal, it is important that the rationale be defensible. For example, take the following fictional corporate goal:

> *By 2025, we will improve our community involvement.*

Although this goal is admirable, customers and investors are left with several unanswered questions: How is the term "community improvement" defined? Which communities will be "improved"? How will the company quantify a goal that is overly subjective? How will they (and their stakeholders) know when the goal is achieved? If the metric is defined, would others agree with the definition?

Developing metrics that are tied to a defensible and repeatable methodology is difficult. There are many questions associated with this step, and the answers are often elusive without making significant assumptions in knowledge gaps, harnessing field-specific expertise, undergoing rigorous data-mining, or conducting in-depth analyses. The key is to be transparent about what is included in each metric, and to seek advice on which methodology makes sense given an organization's unique landscape.

There is a wide array of existing frameworks, standards and certifications that companies can leverage to determine which methodologies and frameworks are most appropriate for the sustainability indicators they choose to measure, and that are specific to their respective industries. These resources are developed by a board of subject-matter experts, and should be referenced prior to creating a new methodology altogether.

Although sustainability indicators differ greatly, the following four pathways (or a combination) may be useful in thinking about how to calculate impacts.

PATHWAY	DESCRIPTION
Sampling	Rather than performing an in-depth analysis of hundreds or thousands of facilities and/or suppliers, consider analyzing impacts from a select sample using a statistically valid sampling strategy, allowing generalizations about broader impacts to be made.
Questionnaries	Supplier and/or facility questionnaires are a useful tool in determining sustainability-related strengths and weaknesses, and for attaining raw data for various sustainability indicators. Within these questionnaires, it is also important to assess and—where possible—validate the quality of the data being collected.
Existing Databases and Tools	Since many organizations struggle with quantifying sustainability impacts, several NGOs, government agencies and academic institutions have developed databases and tools to assist them. While numerous tools exist, it is important to only use reputable sources before making broader generalizations about impacts.
Existing Literature	Occasionally, studies on a product or process may already be published and publicly available to companies. For example, if a life cycle analysis (LCA) has been published assessing the environmental impacts of milk from farm to glass, a dairy company may be able to use the study's findings for its own calculations. Prior to using the data, however, it is very important to read the study's assumptions and limitations thoroughly. Slight differences in scope or locations can significantly change the impacts.

MEANINGFUL:

Will these metrics guide future company and customer decisions?

Once relevant global and local sustainability issues have been identified and defensible metrics have been established, it is important that the information be used to drive meaningful action.

Generally speaking, these actions are communicated through corporate sustainability targets, and are the impetus for turning sustainability metrics into forward-thinking objectives.

While the corporate sustainability goal-setting phase has traditionally relied on assumptions based on bottom-up calculations and/or financial feasibility simulations, a growing and important trend in sustainability-related target-setting is to devise goals using scientific data.

In his book "The Big Pivot," Andrew Winston emphasizes the importance of setting scientific targets, and eloquently analogizes their necessity by alluding to earth's atmosphere through the lens of a sinking ship:

> *"Imagine a ship filling up with water. Time is running short, and everyone needs to help bail. But how fast should we work? We could ask people in the boat how much they think they can scoop out in the next hour, and then suggest they stretch a bit. But shouldn't we first calculate how much water we must bail to keep afloat, and then divvy up the task? It's the only practical path, right? Anything short of that would be suicide."*[6]

In this analogy, Winston makes a very simple, but crucial point: we need to plan for the desired end result.

In terms of greenhouse gas emissions reductions, generally speaking, the desired end result is to prevent temperatures from rising more than 2 degrees Celsius by 2100. In order to accomplish this, Winston points to recent analyses indicating that carbon needs to be reduced by 3 percent per year on an absolute basis, which suggests reduction targets of 20-30 percent by 2020, 50 percent by 2030 and 80-100 percent by 2050.[7] According to this logic, many companies'

emission reduction targets are not nearly aggressive enough.

In an effort to close this knowledge gap, organizations like the Science Based Targets initiative (SBTi) help companies make more informed carbon reduction decisions for their specific sector. Currently, over 300 companies have committed to the initiative, and have had their emissions reduction targets approved by the SBTi's validation process.[8] According to the CDP (formerly Carbon Disclosure Project), of the more than 1,000 companies sampled, only 85 submitted targets for validation and only 15 were approved by SBTi, further illustrating the gap in understanding how to set science-based targets.[9]

Although resources are limited for setting science-based goals outside of greenhouse gas emissions reductions, new tools are expected to emerge. For example, the World Resource Institute is currently working with companies to develop a uniform approach for setting water targets in the private sector.[10]

Regardless, a lack of existing science-based frameworks should not prevent companies from identifying their "desired end result" for a particular sustainability indicator, nor should it prevent them from creating targets towards reaching the desired result.

6 https://www.environmentalleader.com/2014/05/set-big-science-based-goals/
7 http://www.pivotgoals.com/

8 http://sciencebasedtargets.org/about-the-science-based-targets-initiative/
9 CDP's 2016 Climate Change Report
10 http://www.triplepundit.com/2016/04/business-case-science-based-water-targets/

CLEAR:

Are these metrics effectively communicated and with a timeline?

Numbers, more than words, make sustainability impacts clear and tangible for investors and consumers. Too often, rather than providing measurable metrics for sustainability impacts, companies rely on snapshots and anecdotes to communicate with the public. Although these stories are compelling, and have a place in sharing an organization's priorities, they should not be presented in isolation.

For example, take the following fictional corporate goal:

> *We pledge to give back to our local communities by providing educational programs in developing areas within our supply chain.*

This goal is noble, but there is nothing to indicate a measurement of progress or a timeline, so the goal is therefore not sufficiently clear to stakeholders.

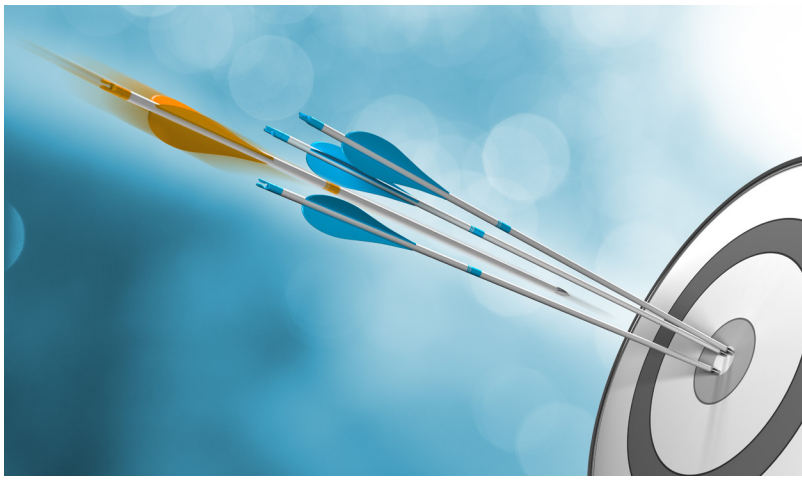
Although there are several goal-setting frameworks available, one of the most commonly referenced is SMART (specific, measurable, action-oriented, realistic and time-bound) goals. Using the SMART framework, altering the previously stated goal can be revised into the following:

> *By 2025, we pledge to give back to our local communities by providing 100 educational programs focused on college preparation and STEAM (science, technology, engineering, art and mathematics) to 5 percent of the communities within our supply chain, with 85 percent of our focus in developing areas.*

By adjusting this goal slightly, stakeholders can clearly see who will benefit, in which locations and specific subjects, and by when. In future sustainability reports, the company is then expected to report their progress on reaching those numbers (100 programs; 5 percent; 80 percent), and will ideally be able to celebrate its accomplishment of that goal by 2025 or earlier.

When the time comes to report on corporate metrics, companies should ensure that their customers and investors can relate to the impact. In this instance, for example, communicating the number of children benefiting from the company's educational programs, or providing a percentage of children impacted using a city reference (ex: impacting the equivalent of 100 percent of k-12 students in the Detroit Public School system) helps add clarity. This is also a great example of where an anecdote or snapshot could be incorporated to humanize the numbers.

Contextualizing sustainability metrics is especially important for goals that are not easily understood by a broader audience. For example, Walmart initiated a very lofty campaign in 2016 called Project Gigaton, where it committed to reducing emissions in its supply chain by 1 gigaton (1 billion metric tons) by 2030.[11] The goal sounds impressive, but its magnitude is not necessarily clear to all stakeholders. However, by also communicating that global greenhouse gas emissions increased by 1 gigaton from 2000 to 2010, it is now easy to understand the magnitude of Walmart's goal: it's equivalent to eliminating the amount of global emissions that increased over the course of a decade.[12] Context is powerful.



11 http://www.walmartsustainabilityhub.com/project-gigaton
12 http://css.umich.edu/sites/default/files/Greenhouse_Gases_Factsheet_CSS05-21_0.pdf

CONCLUSIONS

Ultimately, quantifying sustainability impacts and setting and meeting scientific goals and targets is a difficult, but crucial task. The framework outlined in this paper can be a useful guide for companies as they begin or expand upon their sustainability journey.

Regardless of where companies are in this journey, it is important to remember the broader purpose of measuring and setting sustainability goals. Customers, investors and regulating bodies are demanding data-driven metrics for a reason, and it is the company's responsibility to respond to those demands with aggressive and scientific time-bound goals.

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Brittany Szczepanik is a Senior Project Manager for NSF's Sustainability Consulting program, focusing on helping clients identify environmental risks and opportunities for their products, processes, facilities and supply chains in the areas of energy, water, materials and land. She graduated from the University of Michigan with dual Master's degrees in Energy Systems Engineering and Sustainable Systems.

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