"A goal without a plan is just a wish."

- The Little Prince

BACUTI

Solutions for a Cleaner Planet

RESPONSIBLE GROWTH

A practical approach to implementing your sustainability strategy

CONTACT
WEBSITE: www.bacuti.com
EMAIL: hello@bacuti.com

A White Paper, May 2023

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"Sustainable development is a fundamental break that's going to reshuffle the entire deck. There are companies today that are going to dominate in the future simply because they understand that." - François-Henri Pinault, CEO, Kering

SUSTAINABILITY INITIATIVES ARE BECOMING A STRATEGIC PRIORITY

Sustainability is a priority driven by market forces

Sustainability is rapidly becoming a critical factor that investors, stakeholders, and consumers use to evaluate the impact of a company's business practices. There are many reasons why this trend is taking place. One, as more consumers become conscious of the impact of their consumption on the environment, they are demanding that the brands they trust and are loyal to become more sustainable. Two, many investors who are looking to achieve financial returns and promote environmental and social value demand transparency and action on sustainability from their portfolio companies. Additionally, as more nations and economic blocs pass regulations and impose penalties, sustainability becomes a business priority with financial implications. Finally, incorporating sustainability into business strategies can help companies manage risks, reduce costs, and increase operational efficiency.[i]

Several companies have taken significant steps to integrate sustainability into their business strategies. For example, Unilever[ii] and Apple[iii] have both declared goals of becoming carbon neutral by 2030. Companies like Cisco, AstraZeneca, Colgate Palmolive, and Sony have gone further and target to be net zero (i.e., reduce all greenhouse gas emissions across their entire supply chain)[iv] by FY2040. In fact, more than 1,600 companies have committed to Net Zero targets, and the list continues to grow[v].

Overall, the increasing importance and relevance of sustainability are driven by a combination of market demand, financial benefits, regulatory pressure, and the need for collective action on global challenges.

The importance of sustainability is cascading through the supply chain

As the leaders in Sustainability set bold Carbon Neutral and Net Zero targets, they include not only the emissions footprint within their four walls (i.e. Scope 1 and Scope 2 emissions), but also the emissions footprint upstream (i.e., their supply chain network) as well as downstream (i.e., the ongoing footprint of their products once the products leave their gate). This is referred to as Scope 3 emissions.

This focus on Scope 3 emissions puts pressure on suppliers at all levels in the supply chain to:

1. Compute emissions for each product they sell and
2. Develop plans to reduce emissions in response to their customers' needs.

"Organizations are no longer seeing sustainability initiatives as optional but a business necessity."

Bottom line: We expect this development to ripple through to tens of thousands of companies worldwide and force them to follow the lead set by large corporations. Our research across

25+ large as well as mid-size companies across US, EU, and Asia revealed this trend as well. Organizations are no longer seeing sustainability initiatives as optional but as a business necessity.

Current approaches are mostly bespoke and have limitations.

Sustainability implementations in most companies follow a 4-step process and is mostly bespoke.

- Baseline current emissions footprint – the "as-is" analysis.
- Set goals – based on industry, customer, and science-based targets – a "to-be" vision.
- Develop plans - to move from the current baseline to the targets in a specific timeframe.
- Monitor and Report - Report metrics and progress to internal stakeholders, regulators, customers, and the investment community.

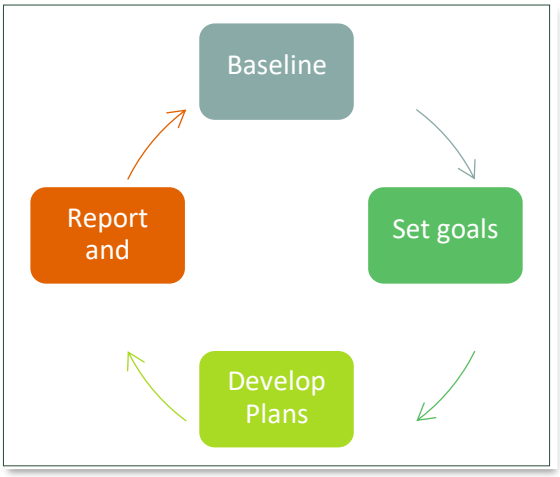

Figure 1 Current Approach

Baseline:

Developing the baseline is identifying the total current emissions footprint for the business. The most common issues with the current approach on baselining are as follows.

- Estimating emissions within the four walls of the organization ("Scope 1") are mostly **estimates** based on industry **averages** or allocations using incorrect proxies such as revenue.
- Energy usage ("Scope 2") is measured in the aggregate and emissions are estimated using averages (e.g., regional), which are vastly different from actuals.
- Many suppliers ("Scope 3 Upstream") are unable to provide emissions data and the few that do rely on industry approximations and best-effort guestimates. Additionally, companies may not have visibility into the use phase and end-of-life phase of their product. As a result, very few companies can perform baseline calculations on scope 3 and so resort to revenue-based approximations of corporate level emissions of their suppliers.

Set Goals:

Corporations have set top-down goals that are 10, 20, and sometimes 30 years in the future. Current operational and organizational targets are directional based on these long-term goals and for many companies, no formal metrics and KPIs are part of near-term operational plans. A few large companies have invested in highly skilled engineering and sustainability teams that understand product design and can set specific targets and develop execution plans to meet them. Even then, a weak baseline is a handicap as it reduces the organization's ability to map out clear plans from the as-is to the to-be state.

Develop Plans:

The most common mitigation approach we found is purchasing carbon offsets. These offsets are

focused on Scope 1 and Scope 2 emissions. Some leading companies are working with their suppliers to set operational targets for them but have not been able to support these goals with suggestions and ideas on how to achieve them.

Monitor and Report:

Current reporting is done annually at the corporate level, with a focus on investors and governance. Our discussions highlighted a disconnect between "bottom-up" product based and "top-down" corporate-level sustainability systems, processes, and metrics. Because of this disconnect, initiatives and improvements do not always reflect in corporate reports.

CURRENT APPROACHES DO NOT WORK FOR A LARGE MAJORITY

A few large corporations have invested in internal systems, processes, and capabilities. Even for those companies, their approaches rely heavily on industry estimates (which are inherently averages and not an accurate reflection of operational reality) or on detailed Life Cycle Assessments (LCA), (which are expensive and don't scale). The rest of the companies realize the need to start on their sustainability journey but are unclear on how to do it. Even for the industry leading companies, their current approaches collectively suffer from the following challenges.

Don't Scale

Current baselining approaches, because they are bespoke, work well for pilot projects focused on one or two plants and 10s of products. But, at scale, they:

Are Expensive

Deploying a team of consultants to perform product-level LCA is expensive. One requires a team of specialists who deeply understand the business.

Take time

Each product level assessment may take 3 to 6 months. For companies that have thousands of products, product-level assessments using bespoke processes are not practical.

Limitations of Current Approaches

1. *Don't Scale*
    a. *Expensive*
    b. *Takes time.*
    c. *Lack capabilities.*
2. *Difficult to Share*
3. *Not Granular*
4. *Not forward looking.*

Are constrained by limited talent

Furthermore, even large Fortune 500 companies have very small teams to perform emissions analyses. Globally distributed mid-sized suppliers rely on consultants who are limited in supply.

Difficult to Share

Calculating product-level emissions requires intimate knowledge of the manufacturing or delivery

process. Suppliers are reluctant to share details of the underlying process (e.g., the temperature and duration of heating a polymer used for a phone case which is their Intellectual property) with their Original Equipment Manufacturers (OEMs). They do not want to expose too many details that will allow a 3rd party to reengineer underlying trade secrets or limit leverage in negotiating with customers. Current systems and workflows do not have the fine-grain access control to ensure secure sharing between suppliers and OEMs. Furthermore, suppliers would prefer to publish their information once and allow all their customers to access it after approval.

Not Granular

One other limitation of current approaches is that these are broad industry estimates and do not reflect operational realities that suppliers have invested in to differentiate themselves in the market. For example, the PEF (Product Emissions Footprint) of a ton of raw steel could be reduced to a standardized value that cuts across suppliers and factories. The use (or not) of scrap metal, the source of scrap metal, the efficiency of the electric arc furnace, source of energy, all impact the PEF of the steel from a specific supplier. Not having that supplier level granularity means not being able to capture the salient drivers that will impact the company's sustainability performance.

Not forward-looking

This lack of granularity makes it difficult to identify the underlying drivers of the footprint and hence doesn't lead to a plan that can drive down emissions in a cost-effective manner. On the other hand, the resources needed for an LCA-based baseline leave little capacity to develop forward-looking plans across the whole company.

A NEW APPROACH IS NEEDED

The ideal solution must integrate with operations.

If corporations want to move from strategy setting to execution of their sustainability goals, they must make the following transitions.

- Companies must move away from baselining using industry averages to assessments using operational data at the product/service level.
- Long term corporate goals must translate to near-term operational targets at the business unit and product levels.
- Furthermore, companies should rely on systematic data-driven methodologies to develop plans and forecasts and move away from ad-hoc heuristic approaches.
- Finally, companies need a single enterprise system of record and not rely on different teams generating reports for the different stakeholders on demand.

	From	To
Baseline	Industry Averages	Operational Assessments
Goals	Futuristic Goal Posts	Operational Targets
Plans	Ad-hoc heuristic approaches	Data-driven methodologies
Metrics	On-demand reports	Enterprise system of record

Operations needs special software to execute

To make this transition, one needs a process mindset as well as an enabling software solution. Specifically, the software solution should

- Automate product-level emissions footprint calculation.
    - Read Enterprise data relevant to the emissions calculations.
    - Source supplier's emissions data through a flexible Supplier Network
    - Provide 3rd party data to augment internal data where relevant.
    - Compute Product or service level emissions footprint based on the data provided.
- Integrate with suppliers' data and workflow through APIs or industry-accepted platforms.
- Provide tools for planning, forecasting, and scenario analyses.
- Be flexible enough to adapt to the industry and the company's unique operational blueprints.

This is exactly the path that we are on at Bacuti.

THE BACUTI APPROACH IS SOFTWARE CENTRIC AND INTEGRATES WITH OPERATIONS

Our approach is to provide a comprehensive, collaborative, and self-service software to plan, execute, and analyze the company's sustainability goals in a closed-loop manner. We deliver a cloud-native SaaS platform that provides the ability to ingest all relevant **data**, provide a **network** for supplier data, and **tools** to review, plan, forecast, and report on the emissions footprint. See Figure 2 for an architectural overview of the Bacuti Platform.

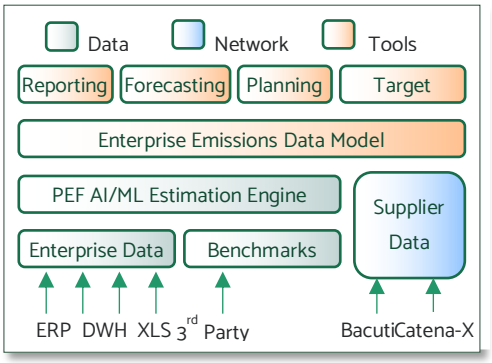

Figure 2 System Overview

Simplifies data collection

Bacuti makes it easy to incorporate already existing enterprise data to calculate product emissions footprint with a guided workflow to identify the data elements and in-built APIs to access the data sources. Data sources can be the ERP system or other process platforms, data warehouses, or plain Excel files. Our proprietary AI/ML engine with self-learning algorithms generates granular product/service level footprints.

Integrates with supplier networks

Bacuti will support a network where suppliers and customers can share product emissions data in a secure and controlled way. Bacuti will use the Product level footprint of one's upstream supplier scaled by the volumes procured from that supplier to develop an accurate Product Emissions Footprint. Bacuti will have safeguards for fine grain control for sharing between supplier and customer. Suppliers need to publish only once to a Bacuti-compatible network (e.g., Catena-X).

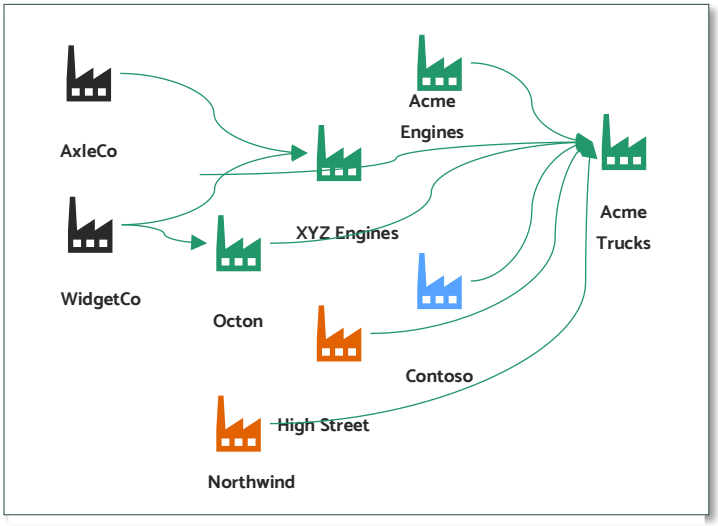

Figure 3 Supplier Network

Provides tools

Bacuti's tools amplify the value of the product-level data. Bacuti's Reporting and Analytics tools provide insights into the emissions footprint and report on it. Forecasting tools evaluate the confidence of plans vs. targets and identify course corrections, if necessary. This entire solution is built on top of a modern, cloud-native, SaaS platform with open APIs and a horizontally scalable architectural design.

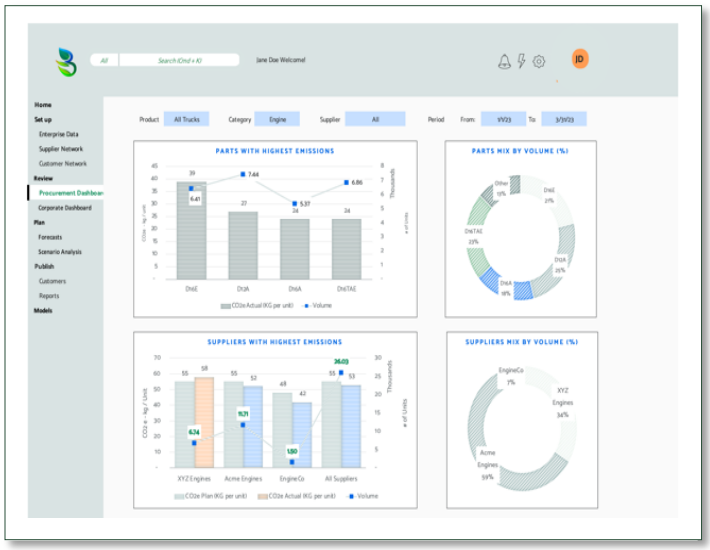

Figure 4 Sample Dashboard

SUMMARY

As enterprises move from setting bold sustainability goals to modifying operations to implement them, they need to start thinking about sustainability at their core product/service level in addition to the corporate level. They need to invest in approaches that scale across thousands of products, hundreds of sites, and evolve rapidly as the market environment changes. Any approach needs to tightly integrate with current operations along multiple dimensions - data, supplier network, and tools. BACUTI takes this approach and would be happy to work with you on the same. Please contact us at hello@bacuti.com.

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