

A data-driven approach to sustainability



Abstract

Sustainability is on the agenda of every organization. Often, this is driven by requirements from regulators, investors, or the need to demonstrate to employees and customers alike that theirs is a responsible brand. However, in most advanced companies, this reactive, compliance-driven approach has been replaced with the recognition that commercial sustainability and environmental sustainability are interdependent.

Defining a concise problem statement around the issue of managing corporate sustainability, however, remains a challenge. It involves many stakeholders' perspectives and causes of environmental impact vary across industries and geographies. What we need is a solution framework which can be leveraged to enable analytical interventions to deliver end-to-end sustainability capabilities 'as a service', in order to transform enterprises into sustainable businesses across a broad range of performance KPIs.

The problem of enterprise ESG

Climate change, damaged ecosystems, and depleted natural resources have made existing value chains and business models risky and unpredictable. A transition to a less damaging and more resilient and resource-efficient approach is vital for the future of every industry vertical. That is why all organizations must not only produce ESG (environmental, social, and corporate governance) reports but show exactly how they are making the transition.

However, defining a concise problem statement on managing corporate sustainability is a challenge. The issue is complex, it encompasses many stakeholder perspectives and their needs. There is no single cause of environmental impact, and factors vary from market to market, both vertical and geographic.

Currently, enterprise sustainability investments are often tactical, and in response to specific issues such as concerns about marine plastic. Many organizations have made advances in reducing the environmental impact of their operations, but this reactive approach can only achieve so much. The need of the hour is to make systemic improvements across value chains. Does the current approach enable corporates to balance the strategic triple bottom line of profit, planet, and people? Certainly, there is room for improvement. Hence, the need to step back from a reactive approach to consider the overarching market requirements.

Reports from industry associations and consultancies as well as global standards define key sustainability topics, for organizations in specific verticals, which are material to their business and

stakeholders. Although the verticals appear very different, there are lots of commonality around the sustainability problems addressed by enterprises with some industry-specific characteristics. The narrative on sustainability for them primarily revolves around the following themes:

- Responding to evolving climate risks
- Investing in new plant, infrastructure and business models
- Operationalizing sustainability approaches
- Handling supply chain impacts and the disruption of supply chains due to climate change
- Managing scarcity of materials
- Adapting to increasingly complex reporting and regulation

Current challenges to driving sustainability

At a strategic level, these sustainability factors translate into addressing four issues:

- **Vision and execution:** There is a lack of a strategic management approach that systematically identifies environmental risks and opportunities, and enables the process of sustainable execution. The common assumption is that this familiar 'gap analysis' approach cannot be managed in the same way as other more familiar operational challenges since many of the factors involved are assumed to be unquantifiable.
- **Risks and mitigation:** Organizations struggle to identify and quantify what constitutes a material risk associated with climate change. This acts as a barrier to action as it means they cannot prioritize risk mitigation strategies. Moreover, their industry-specific needs must be factored in. Financial services providers, for instance, define their exposure to climate change in terms of 'physical risk' (to assets from extreme weather, etc.) and 'transition risks' (the investments that need to be made in new low-carbon business models). For example, a bank would want to understand the risk to their mortgage portfolio due to the flooding from extreme weather conditions and the resultant stranded assets. For a consumer goods company, the key risk is supply chain disruption caused by extreme weather and from the growing scarcity of some critical materials.
- **Data capture and analysis:** The commonly used technology solutions used in sustainability management are designed for specialist users within functional silos for specific management tasks such as carbon accounting, supplier audit, or life-cycle assessment. As such, they are not enterprise-level solutions. They are not scalable or interoperable, and they are inaccessible to most of the organization.
- **Communication and compliance:** Many are bewildered and concerned by the number and diversity of ESG reporting, certification, and disclosure standards. The efficient and effective process of managing these requirements is a major concern, so much so that it often distracts us from the real objective.

To draw an analogy, an essential task of a finance department is to publish accurate, audited management accounts. However, if those perfectly presented accounts tell a story of uncontrolled costs and poor investments then that department is not considered successful.

A holistic services delivery model for enterprise sustainability

We believe that living sustainably is essential for both individuals and corporates. Sustainability must be an intrinsic part of business strategy and culture. So, we want to transform the way in which enterprise sustainability is understood.

The current perception of sustainability management as a series of initiatives to achieve tactical goals such as eliminating single-use plastics can detract from understanding the fundamental reality – all enterprises are directly or indirectly dependent on natural resources. A finite pool of materials, resources and energy, which is the ‘natural capital’.

Just like financial capital, it needs to be invested carefully. Environmental impact can be measured just as monetary cost can be. Impact and cost also behave in the same manner in value chains:

- Cost (and impact) cannot be eliminated, only reduced
- Every activity incurs cost (and impact)
- Costs (and impacts) are passed down the value chain, increasing as they go
- Waste increases cost (and impact)

Every company activity in terms of balancing environmental impact against benefit should be assessed in the same instinctive and routine way that they examine the cost-benefit ratio.

To enable this, the following characteristics need to be made a part of the solution:

- Focus on data and analytics as a key sustainability enabler
- Move from managing environmental impact in terms of a company’s own operations to the whole value chain and total impact perspective
- Integrate sustainability process and data management to provide the organization a control and foresight on the overall impact of its activities

Sustainability as a service

These requirements are best served through a service delivery paradigm that can enable service providers to deliver sustainability analytics as a service. They provide analytical insights that can enable choices of interventions to deliver the best outcomes for the sustainability performance of an enterprise.

A central component of the service paradigm is an over-arching solutions framework for measuring, monitoring, and disclosing a holistic enterprise sustainability data and performance (see Figure 1). The framework can be realized by loosely aggregating a set of point solutions and accelerators that are integrated in an underlying common data and process model that will enable a set of specific services targeted to address the sustainability needs of the enterprise. This in turn ensures uniformity of service outcomes and complete traceability of the reported KPIs. The framework can be extended to incrementally add newer capabilities as more sustainability components in the target enterprise are automated.

The proposed sustainability as a service framework is aimed to be applicable in principle across all vertical markets. This is a service delivery methodology for enterprise sustainability. Pre-built

accelerators can fast-track the implementation of some of these service framework components. In essence, the services framework is conceived to cover major areas of enterprise sustainability, such that it can enable organizations to monitor the sustainability risks and opportunities for their organizations by simulating various operational scenarios for decision-making, measuring results and creating relevant, standards-compliant reports for various stakeholder groups.

For this model to work well, however, it is essential that an enterprise has a clear strategic direction and aspirations. It will need to identify and monitor key insights, translate them into strategic risks and opportunities, and execute operational rigor around them to be successful from a business perspective. However, in order to do that, the services and the underlying solution framework should enable the user to navigate the landscape of methodologies, jargon and unfamiliar data that currently prevent progress. This will result in even a non-practitioner of sustainability to use and leverage the services and still derive business outcomes.

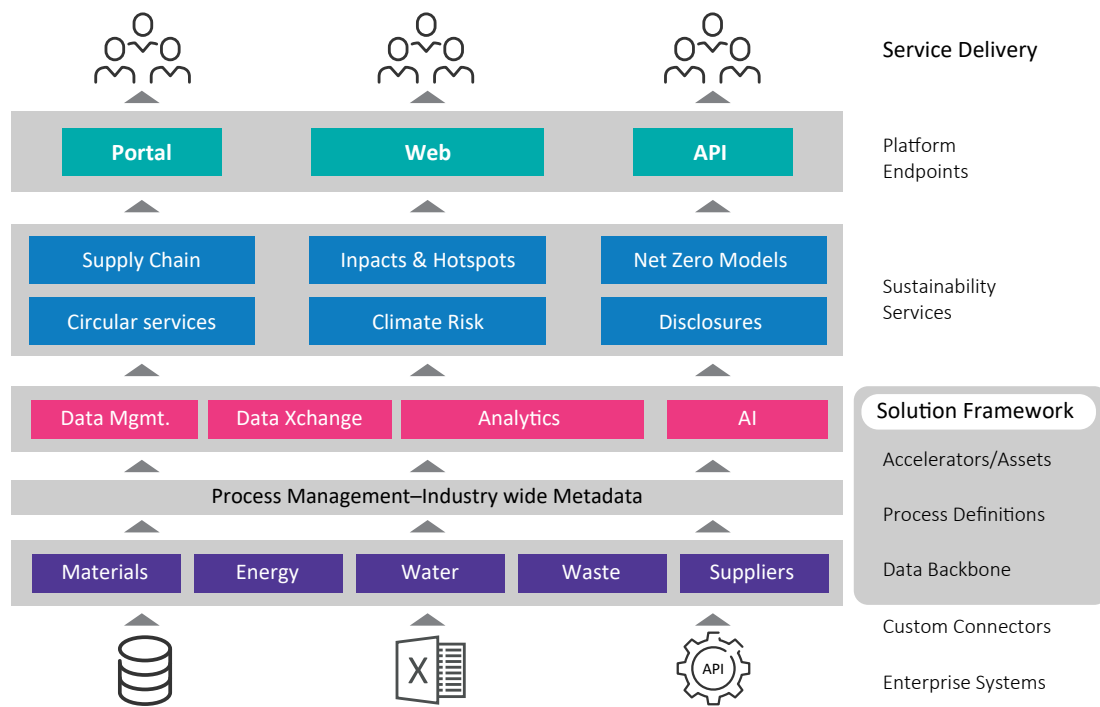


Figure 1: How sustainability analytics as a service works

The data backbone aggregates the sustainability data sets into a virtual layer. The data and process models then feed into a set of platform services, which may be built either by leveraging existing enterprise assets and intellectual properties, or a set of custom tools that fit into the overall framework. The sustainability services are realized by orchestrating these tech and platform services into a host of platform end points from where they are either consumed directly in a machine-first mode or via FTE or full-time equivalent-based manual interventions for delivery of accelerated business outcomes.

Key USPs of service delivery approach

Using a service delivery approach would provide the enterprise with several advantages. It would:

- Ensure consistency in sustainability reporting
- Enable complete traceability of sustainability outcomes to enterprise actions through its underlying data universe and process model
- Allow the organization to have a control on not just one or two tactical areas but a view of the holistic impact
- Permit incremental deployments of services based on enterprise budgetary priorities thereby accelerating the desired outcomes within the available constraints
- Provide the subject matter expertise so that the users need not be sustainability practitioners

These benefits that an enterprise gains out of a service delivery approach can lead to better environmental compliance and transparent disclosures, better visibility and control on sustainability performance data and KPIs. This can enable an organization to minimize supply chain risks, source responsibly, generate new opportunities with greener products and services and perform on commitments around climate change and environmental impacts.

The TCS A&I Sustainability Analytics services backed by its solution accelerator framework ensures a road to a sustainable business operation.

About the authors



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Santanu leads the sustainability ecosystem practice for Analytics and Insights at TCS, and is a sustainability evangelist. He brings to the table more than 27 years of industry experience and is responsible for exploring and launching data and analytics-driven sustainability offerings for environment, climate, health and biodiversity, and around ecosystems created for sustainable businesses and the resultant monetization opportunities that come with it.



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Adrian is dedicated to finding innovative methods and technologies to enable businesses to operate more sustainably. He has worked with fast-growing tech companies to address global issues such supply chain visibility, the transition to a circular economy and placemaking, and has been the involved in some of the most innovative sustainability programs of recent times. He is a passionate advocate of lifecycle thinking and whole value chain approach to achieve sustainable business models. As a TCS associate and advisor he works with companies to gain deep insights into their environmental impacts and create a viable transition to sustainable business.

Awards and accolades



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