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Series: How to set up your ESG data, technology, and people for success

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3. How to set and execute your sustainability IT and data strategy

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In the previous article, we discussed the importance of outlining your data and IT requirements for short-term compliance and long-term strategy. However, before moving to identify a technology solution enabler, you should consider your existing data and technology landscape. This article discusses how to develop an IT strategy and architecture that can inform how technology supports the wider organisation to meet its sustainability goals.

A strategy for sustainability needs a strategy for IT and data

The ESG arena is huge, and sustainability transformation could involve fundamental changes in how an organisation functions and manages its information and technology. Those changes are unlikely to be quick, and nor should they be. They should be guided by a broad vision for sustainability and – if effective – will make a long-term difference within and beyond the organisation. An IT strategy helps an organisation ensure it has the right technology and data to support its overall strategy. The sustainability strategy should not be treated in isolation, but considered a key part of the business strategy, not an addition or "nice-to-have."

Understand the "as-is" and "to-be" states of your organisation

IT reflects, and is integral to, every facet of the modern business. From logging operational details, enabling day-to-day activities and driving efficiencies, through to delivering high-level management information. As such, it's impossible to think about what technology should do without also considering how the organisation works, and a clear business architecture provides an important starting point.

Typically, we consider both the high-level and functional views on the organisation. The high-level business architecture of the whole organisation (Figure 1) identifies how sustainability impacts every business area. Each area will have activities that drive sustainability-related transformation, and some will also have new and specific sustainability capabilities.
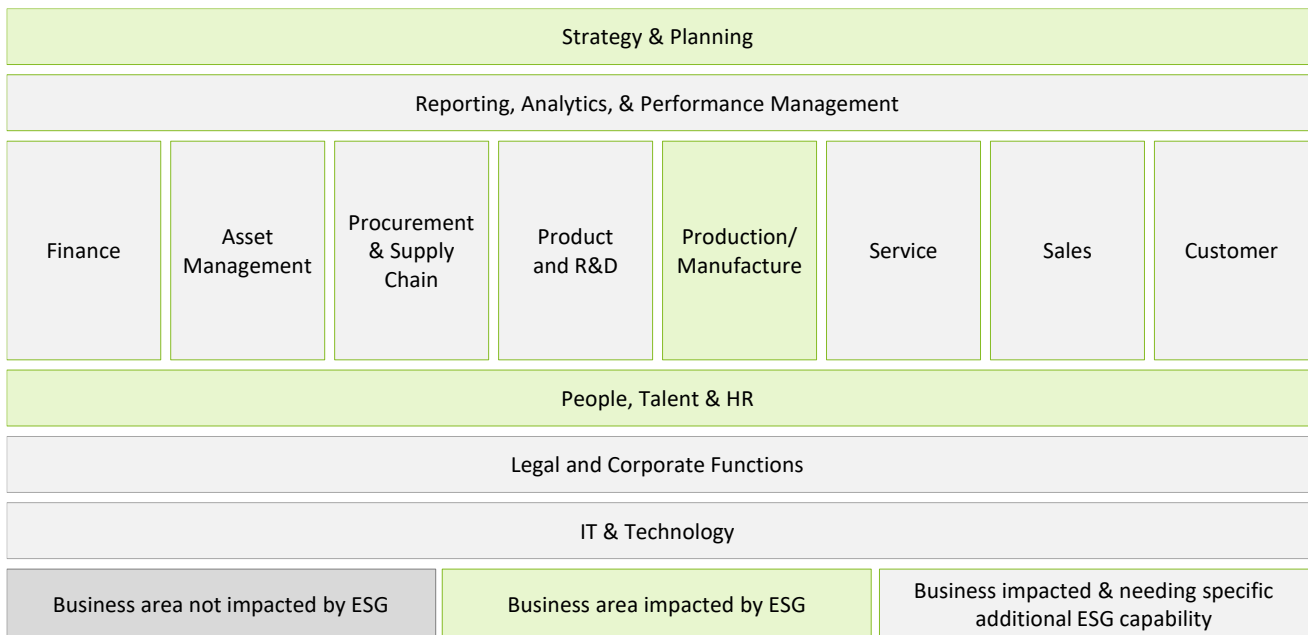

Figure 1 – High-level business architecture (illustrative), *showing business functional areas that will be impacted by ESG and areas that will require additional sustainability and ESG capabilities. This simplified architecture is based on over 80 functional capabilities that were assessed in terms of if they would be impacted by business ESG requirements and if additional/new capabilities would need to be introduced to address those requirements.*

This high-level architecture provides a clear overview of each function's activities, where they sit and how they serve the overall organisation. This is vital for integration, and gives an understanding of the interdependencies and restrictions that might occur in today's increasing desegregated business landscape.

Drilling into the high-level business architecture, a detailed *functional architecture* for each business area (Figure 2) clearly shows what capabilities the technology and data need to enable.
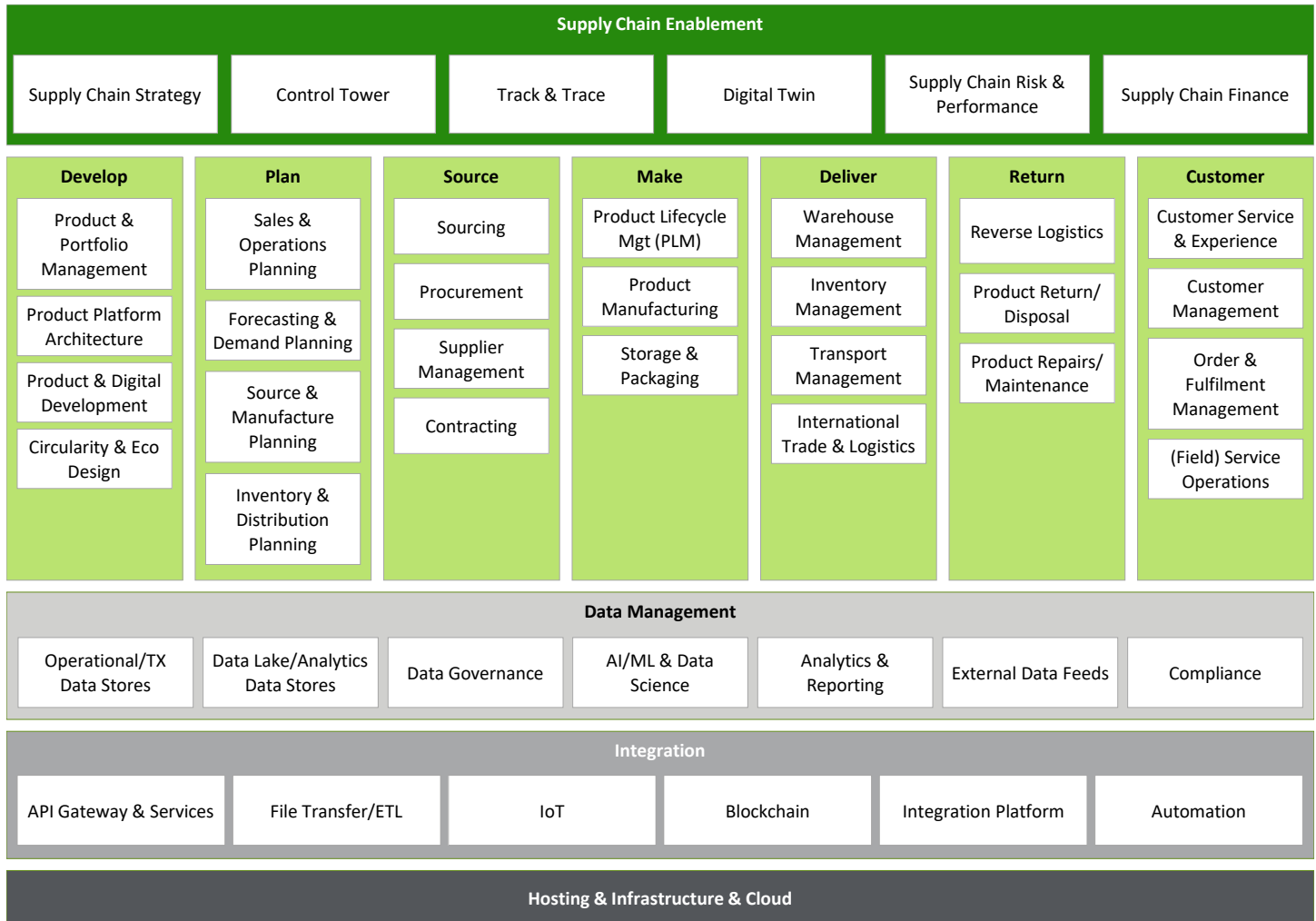
Supply Chain Enablement					
Supply Chain Strategy	Control Tower	Track & Trace	Digital Twin	Supply Chain Risk & Performance	Supply Chain Finance

Develop	Plan	Source	Make	Deliver	Return	Customer
Product & Portfolio Management	Sales & Operations Planning	Sourcing	Product Lifecycle Mgt (PLM)	Warehouse Management	Reverse Logistics	Customer Service & Experience
Product Platform Architecture	Forecasting & Demand Planning	Procurement	Product Manufacturing	Inventory Management	Product Return/ Disposal	Customer Management
Product & Digital Development	Source & Manufacture Planning	Supplier Management	Storage & Packaging	Transport Management	Product Repairs/ Maintenance	Order & Fulfilment Management
Circularity & Eco Design	Inventory & Distribution Planning	Contracting		International Trade & Logistics		(Field) Service Operations

Data Management						
Operational/TX Data Stores	Data Lake/Analytics Data Stores	Data Governance	AI/ML & Data Science	Analytics & Reporting	External Data Feeds	Compliance

Integration					
API Gateway & Services	File Transfer/ETL	IoT	Blockchain	Integration Platform	Automation

Hosting & Infrastructure & Cloud

Figure 2 – Supply Chain Functional Business Architecture (illustrative) – sample business architecture that can be used by the business to prioritise ESG activities within supply chain

The transformation will be enabled by technology and data, guided by a sustainability transformation framework for each business function (Figure 3). Using this framework alongside functional (Figure 2) and business (Figure 1) architectures identifies the changed and new capabilities needed to achieve the "to-be" state. Those capabilities are then translated into data and technology requirements, to identify changes to the IT architecture.
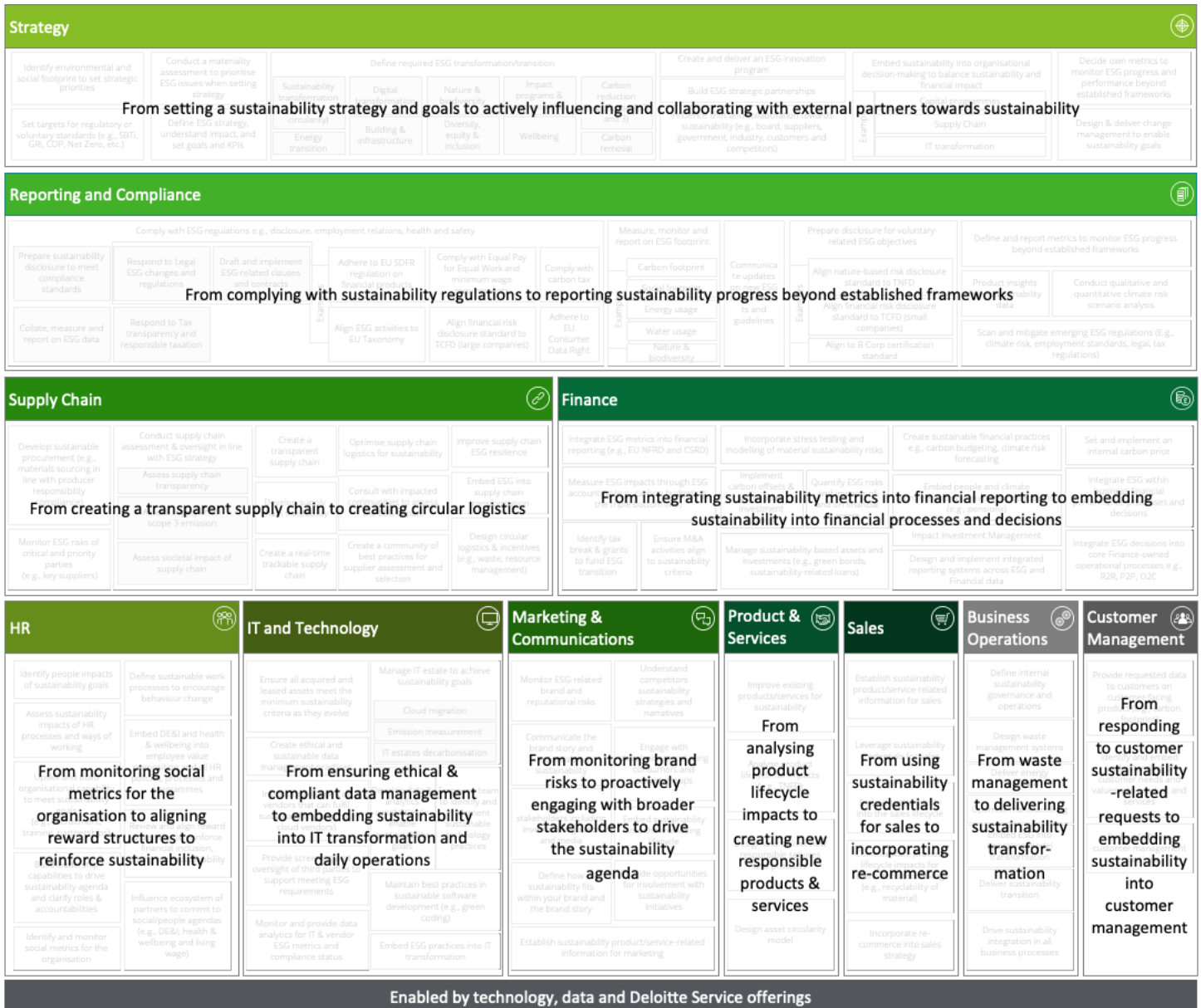
Figure 3 – Sustainability Transformation Framework – *Sustainability Transformation framework; a snapshot of sustainability activities organised per business function that addresses the question of 'What are the recommended activities to become a sustainable business?'. This snapshot is based on an illustrative summary of the 100+ activities identified to achieve sustainability transformation across an organisation.*

Our IT architecture model (Figure 4) adopts a layered approach, to codify all aspects of a system, such as hosting platform, business functionality and human interaction, and is complemented – where applicable – by sector-specific views. While this model represents each function separately, enterprise-wide layers – such as integration, data and security – provide the backbone that connects individual business functions. Mapping onto this model the existing IT architecture, and then the expected transformational changes, creates a blueprint for the change, from which a phased delivery roadmap can be created. Such transformational architectures are no small feat to develop, but are vital for an enterprise-led transformation. They reduce duplication of work between business functions, drive intra- and inter-operability for business functions (both during and after transformation), and help improve consistency and overall quality.

Illustrative example

Potential Architecture Layers

Security
Security by design – including cyber, privacy, security and compliance controls throughout

Optimise

Embedding ESG into core functions, processes and operational decision making

| Strategy & Planning | Customer Management | Product | Operations | Supply Chain |

Integration *connecting ESG data into operational systems and processes*

Measure

Acquisition, consolidation, calculation and reporting of carbon emissions & other externalities

Manage

Decision making systems enabling management/ mitigation of carbon, climate and ESG risk

Data

Identification and sourcing of internal and external data to support ESG performance measurement and optimisation

Green Infrastructure and Technology

Carbon efficient management of technology, its design and underlying infrastructure

Figure 4 – IT architecture (illustrative) – *Illustrative view of holistic enterprise technology and data ecosystem. Representing key technology architecture layers, data, and IT elements.*

Have an integrated strategy and approach

These ways of looking at an organisation and its technology make it easier to identify how functions are affected by sustainability and other transformational changes. The sustainability transformation framework provides a methodical approach to the complex range of practical actions needed to develop sustainability capabilities and make the greatest organisation-wide impact. It helps identify changes to existing business capabilities, and new functional capabilities. That knowledge then provides a sound basis for translating the capabilities needed into technology requirements, then deciding whether to meet the requirements by buying, developing, or enhancing existing systems in the IT architecture.

Each organisation's architecture, and the impact of changes is different. However, the enterprise layers – such as integration, technology and data – are crucial. Partly, in practical terms, because they must support the cross-functional KPIs that new regulations will require. However, such compliance does not automatically create business value, and the organisations that will truly benefit are those that go beyond compliance, by integrating sustainability into a holistic business strategy. Functions that were traditionally siloed (e.g., finance, operations) must work together in that strategy, and integrated systems (*i.e.,* the enterprise layer) will play a major role in the transformation. Furthermore, some regulations now go beyond box-ticking and require evidence of strategic thinking: for instance, the EU's Task Force on Climate-related Disclosures (TCFD) requires organisations to state their targets, opportunities and risks, and the UK's FCA has announced [rules for organisations to disclose their transition plans](.).[1]

Move from averages and assumptions to real data

A significant impact of sustainability is in the IT architecture's *data layer*, because the data required does not yet exist for most organisations, or is not collected operationally. For each new business metric, the underlying data must be identified and defined, and new processes and technology established to measure, transmit, collect, store and use it. This often requires physical changes, such as installing sensors and communication technology in factories, vehicles and other assets around the world. Even if such changes might take time to implement, consider using interim sources for comparable proxy data: for instance, one client faced difficulties obtaining data about farms in remote locations, and we found geospatial data that provided some initial insights, which could be refined as time progressed.[2] A useful principle is to start early with data, even if it's less than ideal: measure first, then optimise.

Another challenge is where the source data lies outside the organisation. For instance, businesses must account for their third-party (Scope 3) greenhouse gas emissions, which requires data collection across the supply chain. However, suppliers might be poorly-equipped to provide environmental data, while data for social impact is even less well-developed. Obtaining such data therefore requires agreements with suppliers, and might require collaboration to solve practical issues. Such arrangements or partnerships could reflect the power balance between each supplier and customer: for instance, a powerful customer might incentivise a supplier by making its contract or licence to operate conditional on implementing a roadmap to supply sustainability data. Alternatively, a large customer could remove obstacles for a small supplier by, for instance, providing data processing support, thus helping the supplier to meet its own reporting requirements and reducing its need for technology investment. Further complexities exist where different customers or stakeholders require seemingly different information. However, many such requests can often be satisfied from the same underlying data, while tailoring the analysis or presentation to suit each recipient's need.

Enable your organisation to transform

An often-overlooked aspect of IT strategy is the importance of aligning technology across the organisation, not purely in technical terms *(e.g., hardware and data compatibility)*: it's also important that technology aligns with how the business, processes and people work in reality, with both hearts and minds. Many organisations continue to focus on *implementing* technology solutions, while a strategy for sustainability relies on *aligning* technology, as one key part of a broader transformation that takes effect across the organisation and its whole supply chain.

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[1] Transition Plan Taskforce. [Background information regarding the Transition Plan Taskforce](.).
[2] Deloitte client engagement.

While the value of strategic transformation is now becoming recognised at a functional level, such as Finance or ERP, most organisations have not yet embraced enterprise-wide sustainability transformation, although many of our clients have instead sought to include a sustainability aspect as part of another functional transformation. Sometimes it may seem easier to get investment for other (functional) activities and then "bolt on" a sustainability element. However, slipping in sustainability piecemeal, by stealth, misses the strategic advantages of taking a holistic approach and engaging in sustainability transformation across the organisation. In technology terms, although siloed functional investments can help to move the needle incrementally, that approach risks losing interoperability or creating duplication, as each function implements the "same, but different" solutions.

However, an incremental approach is feasible, given the right strategic preparation. A clear aim and roadmap, driven by a sustainability transformation plan, can help you implement gradually (e.g., in steps by function), stay flexible and avoid the risks of adding sustainability elements into isolated functional projects. With the right overview and planning in place, a "bolt-on" approach can sometimes be a feasible option.

We'll develop this idea further in the next article, which considers how transformation can be instrumental in creating value as a responsible and sustainable organisation.

Contact us

Peter Vickers
Partner Consulting
pgvickers@deloitte.ch

Carlo Giardinetti
Director Consulting
carlogiardinetti@deloitte.ch

Meg Alderman
Senior Manager Consulting
maalderman@deloitte.ch

Deloitte.