Leveraging Digital Technologies for Sustainability

INFOCOMM MEDIA DEVELOPMENT AUTHORITY

eden strategy institute

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HP Singapore Pte Ltd

Kimly Construction Pte Ltd

PrimusTech Pte Ltd

Spin Fans Pte Ltd

Superstructure SG Pte Ltd

SWAT Mobility Pte Ltd

Univers Pte Ltd

VFlowTech Pte Ltd

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Introduction

METHODOLOGY

This playbook draws on insights from focus group discussions with digital sustainability solution providers and industry players from a wide range of sectors that have deployed digital technologies to achieve sustainable outcomes. Senior company representatives shared their experiences, including their digital sustainability journeys, the challenges encountered, and the good practices they have uncovered.

In-depth interviews were also conducted with enterprises that had successfully achieved desirable results from Digital for Sustainability solutions. To complement these qualitative insights, IMDA further surveyed 500 local companies to better understand their readiness, barriers they face, and the outcomes of adopting Digital for Sustainability.

SCOPE OF PLAYBOOK

This playbook covers digital technologies such as automation, Internet of Things (IoT), Artificial Intelligence (AI) and Big Data analytics, which contribute to improved environmental sustainability. This includes reducing emissions and resource use.

The Information and Communication Technology sector itself is also actively improving its environmental performance. The scope of this playbook excludes Green ICT, such as energy-efficient data centers or low-carbon cloud computing, which reduce the environmental footprint of ICT use as an end objective.

Introduction

PLAYBOOK OBJECTIVES

This playbook is part of IMDA's efforts to equip enterprise leaders with the knowledge and know-how to lead in the digital age, empower companies to design and deliver impactful projects, and build the capabilities needed to operationalise and sustain digital adoption as part of business as usual.

This playbook is especially curated for companies who have embarked on digitalisation and are now looking to further harness their digital capabilities to accelerate sustainability in their organisation.

This resource will be valuable for the C-suite, particularly the Chief Sustainability Officer or ICT Lead responsible for strategic technology decisions, who might be navigating a growing sustainability mandate.

This playbook will guide companies in integrating digital technologies into their operations, enabling them to implement sustainable processes, practices, and policies that lead to enhanced business outcomes. It is designed to:

- **Introduce** SMEs to the business outcomes that Digital for Sustainability can drive
- **Inform** SMEs about the range of digital technologies that will help them achieve their sustainability and business goals
- **Inspire** SMEs with good practices and key considerations when implementing Digital for Sustainability
- **Invite** SMEs to kickstart their Digital for Sustainability journeys by sharing real-world stories from industry peers

CHAPTER 1:
SUSTAINABILITY AS A COMPETITIVE ADVANTAGE

Build resilience in a rapidly evolving business environment by adopting sustainable processes, practices or policies

COST PRESSURE

The global inflationary environment increases cost for materials, manpower, and utilities

REGULATORY CHANGES

Local and international regulations on sustainability are becoming increasingly stricter

CUSTOMER DEMAND

Customers are increasingly choosing sustainable products and services, and requiring their suppliers to engage in sustainable practices

BUSINESS VOLATILITY

Businesses are more exposed to geopolitical and climate-driven upheavals in a volatile global environment

SUSTAINABLE PROCESSES

Operational workflows or actions which help in reducing environmental impact (e.g., data collection for energy optimisation)

SUSTAINABLE PRACTICES

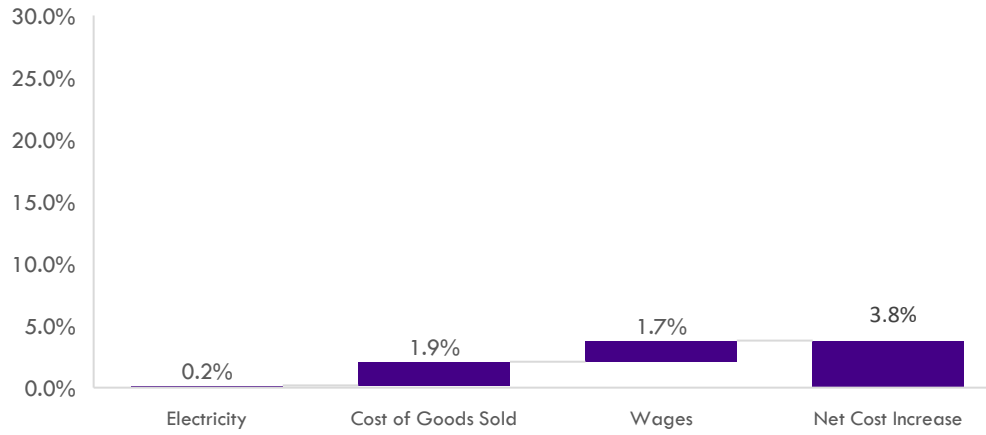
Norms or adopted behaviours that embed sustainability into everyday operations (e.g., circular initiatives)

SUSTAINABLE POLICIES

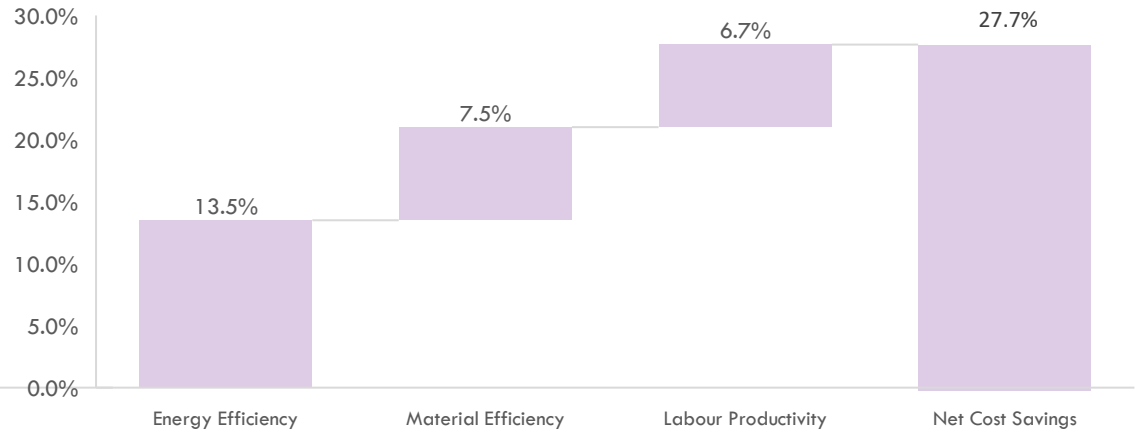
Formalised guidelines that align business goals to sustainability commitments (e.g., sustainable procurement standards)

Inflation necessitates more effective cost-cutting approaches, which sustainability initiatives can support

Annual cost increases from inflation (2024-25)[1-3*]



Potential cost savings from sustainability[4-6*]



Energy Efficiency

Initiatives such as HVAC system optimisation, smart lighting systems, and renewable energy sourcing or optimisation reduce electricity cost

Labour Productivity

Automation or workflow optimisation driven by sustainability considerations reduces labour costs

Material Efficiency

Circularity initiatives, process optimisation, and recycling not only reduces material costs but also waste disposal costs

*Illustrative data is based on various industry studies. Sources: [1]Singstat (2025), [2]Energy and Market Authority (2024), [3]S&P Global Intelligence (2025), [4]DBS Foundation (2023), [5]McKinsey (2014), [6]Almusharraf (2025)

Reduce compliance costs by preparing for sustainability regulations early

FUTURE-PROOF AGAINST REGULATORY CHANGES

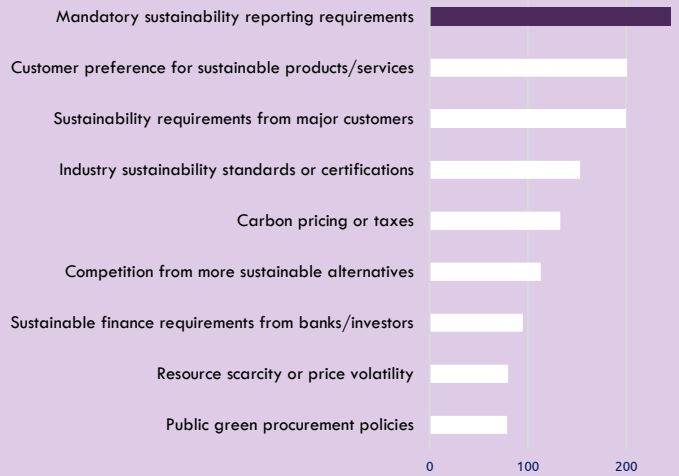
Singapore's sustainability reporting regulations are expanding to more businesses, which means that you or your customers will be affected in the coming years. It is important to get started early, to ensure sufficient time to prepare all the required data beforehand and minimise the risk of missing important details at the last minute. Working with tighter deadlines will also increase your costs when engaging third parties like consultants or auditors.

You can reduce duplication of effort by aligning your sustainability reporting with other compliance initiatives such as pursuing BizSAFE Mark or ISO certifications. Many of the systems, processes, and data tracking mechanisms required for these certifications overlap with those needed for sustainability reporting. Streamlining these early on can help you reduce the administrative burden and time spent on compliance.

Timeline for Sustainability Reporting in Singapore[1]

	FY2025	FY2029	FY2030	FY2032
All Listed Issuers	Report Scope 1 & 2 GHG emissions	Obtain external limited assurance for Scope 1 & 2 emissions		
Large Non-listed Companies			Report Scope 1 & 2 GHG emissions	Obtain external limited assurance for Scope 1 & 2 emissions

Market trends that companies expect will impact their decision to kickstart sustainability efforts in the next three years



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Source: IMDA Digital for Sustainability Survey (2025)

Source: [1]SGX (2025)

Customers overseas are increasingly rolling out sustainability requirements

GLOBAL CUSTOMERS PUSH DOWN SCOPE 3 REQUIREMENTS

Globally, many countries are in the midst of implementing mandated Scope 3 reporting for businesses. Apart from listed Straits Times Index (STI) constituent companies in Singapore, customers from these countries will put pressure on your company to submit sustainability data, in order to comply with regulations in their home country.

Implemented: Singapore, Most EU countries (CSRD[1])

Upcoming: Both Australia (AASB[2]) and New Zealand (NZCS[3]) will implement mandatory Scope 3 reporting in 2026, Japan (SSBJ[4]) in 2027, and Canada (CSSB[5]) in 2028.

MEET REQUIREMENTS TO ACCESS NEW MARKETS

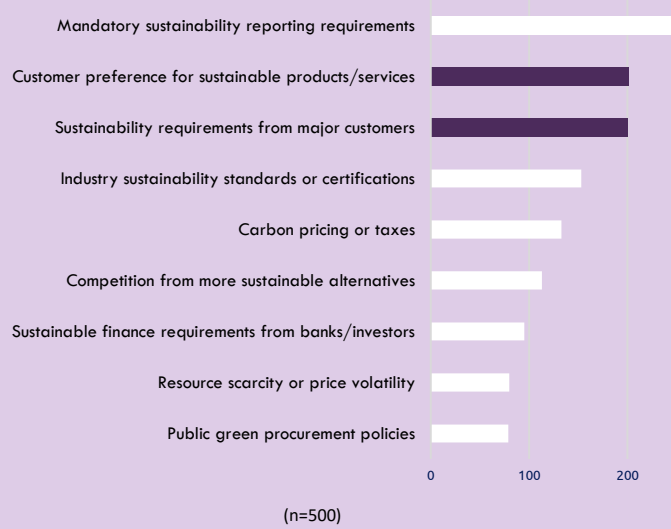
International regulations are making sustainability a prerequisite for entering developed markets overseas. For instance, the European Union's Ecodesign for Sustainable Products Regulation (ESPR[6]) mandate product lifecycle transparency through a digital product passport, and the Carbon Border Adjustment Mechanism (CBAM[7]) requires importers to report embedded greenhouse gas emissions in their imports and pay a tax based on those emissions.

If your company has significant presence in the EU, you are also required to report your sustainability impacts under the EU Corporate Sustainability Reporting Directive.

7.8%

Singapore exports potentially affected by ESPR mandates[8]

Market trends that companies expect will impact their decision to kickstart sustainability efforts in the next three years



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Source: IMDA Digital for Sustainability Survey (2025)

Sources: [1]Corporate Sustainability Reporting Directive (2022), [2]Australia Accounting Standards Board (2024), [3]New Zealand Climate Standards (2024), [4]Sustainability Standards Board of Japan (2025), [5]Canadian Sustainability Standards Board (2025), [6]ESPR (2024), [7]CBAM (2025), [8]Ministry of Trade and Industry (2025)

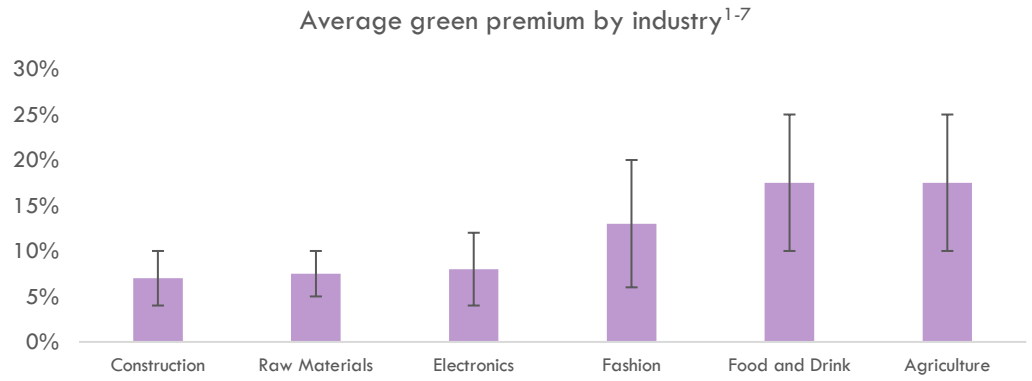
Capture green demand with sustainable practices

IMPROVE TENDER COMPETITIVENESS

An increasing number of tenders, especially in the public sector, are including a sustainability weightage of up to five percent[6] in their award criteria. Increase your tender win rates with sustainable practices, supported by digital adoption to address criteria such as sustainability reporting or sustainable business innovation.

TAP DEMAND FOR SUSTAINABLE PRODUCTS AND SERVICES

Consumers, who are increasingly well-informed and eco-conscious, are driving a shift in demand towards sustainable products and services. Products which minimise environmental impact throughout their lifecycle, ranging from sustainable furniture to ultra-low carbon cement, often command a green premium.



9.7%
Average green premium consumers are willing to pay[7]

Superstructure is a design to fabrication consultancy with a focus on computational design for manufacturing and assembly (DfMA). It produces sustainable, custom furniture through computer-aided design and digital fabrication techniques, keeping material wastage below five percent.

Digital for Sustainability helps brands differentiate and creates compelling product narratives, commanding green premiums of up to ten percent for corporate clients who commission front-of-house display pieces.

Sources: [1]YouGov (2024), [2]Nitzko et al. (2024), [3]Ullah et al. (2025), [4]YouGov (2024), [5]Zhan et al. (2024), [6]JLL APAC (2023), [7] PWC (2024)

CASE STUDY 1: KIMLY CONSTRUCTION
Differentiating as a sustainable contractor with Digital for Sustainability

Background:

Kimly Construction faces challenges typical of the construction industry:

- Capital-intensive operations with low margins
- High competition which makes differentiation challenging
- Difficultly attracting talent as work is still perceived as highly manual

Solution:

Kimly engages in sustainability reporting voluntarily even though its customers and the government have not required it to do so. To automate the traditionally time-consuming and labour-intensive sustainability reporting process, Kimly uses an **ESG reporting platform.**

Kimly is also tapping into sustainability-linked loans (SLL) which are tied to decarbonisation targets. It has hence replaced diesel generators with **battery energy storage systems (BESS) with digital monitoring** to monitor and reduce emissions as well as fuel costs.

To enhance operational safety while reducing emissions, Kimly engages **AI-enabled drone inspection services** which detect defects in inaccessible areas without requiring manual inspection with boom lifts or cranes. The drone automatically generates reports compliant with BCA requirements, boosting productivity, and saving up to 80 percent of inspection time.

Outcomes:

- Emission reductions allow Kimly to achieve lower interest rates
- Sustainability initiatives enable Kimly to score higher than its competitors for the sustainability component in public tenders, which makes up at least five percent of the tender criteria
- Sustainability and propose-driven branding helps to attract and retain young talent

92%

Emissions savings from replacing diesel gensets with BESS

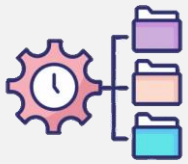
19%

Cost savings annually from using BESS

Grow revenue through sustainable innovation and product design

IMPROVE CONVENTIONAL APPROACHES TO INNOVATION

Less than 10 percent of organisations[1] globally are satisfied with existing innovation approaches, in the face of rising costs and intensifying competition. Sustainability can add new value to various types of innovations, which can drive business growth by creating new revenue streams.



PROCESS

BUSINESS MODEL

PRODUCT

Type of Innovation	Example
Incremental: *Continuous improvement of existing products or processes*	Lighter packaging can cut transport costs by 12 percent[3]
Radical: *Breakthrough, transformative technology which disrupts markets*	Sustainable innovation drives 31 percent of active patents worldwide[2]
Architectural: *Reconfiguring technologies or systems to create new markets*	New circular models which repurpose waste can lead to margins above 30 percent i.e. in battery recycling[4]

Sources: [1]McKinsey (2022), [2]World Intellectual Property Organisation (2023), [3]Hekkert (2001), [4] McKinsey (2025)

CASE STUDY 2: VFLOWTECH

Transforming the business model to unlock new revenue streams

Background:

VFlowTech manufactures vanadium redox flow batteries, which are sustainably designed to be recycled infinitely. As battery manufacturing is asset-heavy and centred around batteries and storage systems as products, growth is capital-intensive. The company is instead seeking growth by transitioning to an Energy-as-a-Service model.

Part of its existing operations consists a one megawatt-hour energy storage system at Pulau Ubin which stores solar energy generated in the day to power the island. Its contract requires the system's reliability to be maintained at 95 percent, and failure to meet this will result in liquidated damages. However, sending engineers to Pulau Ubin regularly for inspections is also costly.

Solution:

VFlowTech is currently co-developing **a cloud energy management platform** with a software vendor. This new cloud platform will amplify the utility of its batteries and pave the way for a renewable energy transition.

With multiple pilots island wide, its batteries, together with the energy management platform, are expected to facilitate the following functionalities in a future where energy is digitalised:

- Peer-to-peer automated energy transactions where people will be able to sell unused energy to their neighbours, generating revenue
- Virtual Power Plants which are able to link together solar panels, batteries and EV chargers and optimise energy flows between these energy assets to enable a more efficient electricity grid
- Smart optimisation of battery charging when solar energy is available at zero cost and discharging during the night when grid electricity costs are high

VFlowTech is currently using the platform internally for real-time remote monitoring of assets deployed on Pulau Ubin, including battery health tracking and detecting anomalies to predict asset failures.

Outcomes:

Increasing the use cases of their products through the energy management platform will lead to new revenue streams in future. Meanwhile, internal adoption reduces travel emissions from manual inspections and enables preventive maintenance, improving reliability and reducing downtime.

30%

Avoided costs from liquidated damages due to greater reliability

Reducing costly disruptions and losses often require sustainable practices

WHAT DOES VOLATILITY MEAN FOR YOUR BUSINESS?

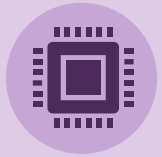
Supply chain disruptions increased 38 percent year-on-year in 2024[1], driven by both climate-induced shocks and trade interventions.

Drought-induced food system shocks

Cocoa production fell by 14 percent in the 2023 to 2024 season[2] due to dry weather in the Ivory Coast and Ghana, nearly tripling the prices of cocoa futures.

Trade barriers

Increasing protectionism and geopolitical conflicts has caused trade restrictions to rise from 600 in 2017 to over 3,000 in 2024[3]. The highly dynamic tariff situation globally directly affects the cost of goods.



Pandemic-induced semiconductor crisis

Factory shutdowns, trade tensions and surging demand from the tech sector extended wait times for advanced chips up to 52 weeks[4], stalling production and delaying revenue.

DIVERSIFYING WITH SUSTAINABLE PROCUREMENT PRACTICES

You can build supply chain resilience by broadening your supplier network. Select environmentally and ethically responsible suppliers to supplement your supplier base, in order to minimise reliance on high-risk vendors. This fosters supply chain stability and mitigates disruption risks.

23%

Increase in brand value from sustainable supply chain practices[5]

Sustainable procurement also reduces exposure to sudden changes in customer demand, such as with the rising scrutiny on sustainable product origins. There has already been a backlash against sources perceived as unsustainable, such as palm oil grown on peatland or cotton from Xinjiang.

78%

Businesses that experienced demand surge for sustainable goods and services[6]

GREATER AGILITY THROUGH RISK MONITORING

Visibility of potential risks is required to drive proactive response, especially when climate impacts are escalating and geopolitical situations remain unpredictable. Risk monitoring as part of a broader sustainability strategy, using digital tools, can reduce response time by 50 percent, and logistics costs by 15 percent[7].

Sources: [1]Resilinc (2024), [2]World Bank (2024), [3]World Economic Forum (2025), [4]Jabil (2024), [5]World Economic Forum (2015), [6]Veridion (2023), [7]Risk Management Association (2025)

Stand out from your competitors by incorporating sustainable processes, practices, and policies

COST PRESSURE

The global inflationary environment increases cost for materials, manpower, and utilities

REGULATORY CHANGES

Local and international regulations on sustainability are becoming increasingly stricter

CUSTOMER DEMAND

Customers are increasingly choosing sustainable products and services, and requiring their suppliers to engage in sustainable practices

BUSINESS VOLATILITY

Businesses are more exposed to geopolitical and climate-driven upheavals in a volatile global environment

SAVE COST AND RESOURCES

How can you adopt efficient **processes** and source cost-saving solutions?

ACHIEVE COMPLIANCE

How can you establish internal **processes** to fulfil changing regulatory and customer demands?

GROW REVENUE

How can you drive revenue growth with sustainable innovation **practices**?

MITIGATE RISKS

How can you mitigate supply chain shocks through sustainable procurement **policies**?

CASE STUDY 3: GHIM LI GROUP

Transforming the customer experience, responding to stakeholder demands and reducing costs through Digital for Sustainability

DIGITALISING SALES ENGAGEMENTS TO INCREASE REVENUE

Background: Ghim Li Group is a textile manufacturer with a global customer base. Previously, sales engagements were resource-intensive, requiring employees to order and bring over 100 physical samples to (mostly US) customers on long-haul flights.

Solution: By using a **3D design software** that renders digital life-like samples using Gen AI, as well as a **virtual showroom**, Ghim Li eliminated at least two rounds of in-person sample viewing and modifications.

Outcomes: Employees now only travel to meet customers for the final approval. This shift has reduced both sample waste and the emissions associated with travel and logistics. Customers have embraced this new hybrid model, and actively request for such virtual services, as the design software allows them to participate actively in every stage of the design process.

20%

Waste and cost savings from sample fabrication, courier and travel by replacing early stages of the sales cycle with a virtual showroom

COLLECTING SUSTAINABILITY DATA FOR COMPLIANCE

Background: Ghim Li has been facing intensifying demands for sustainability disclosures from customers. It is also tapping into sustainability-linked loans (SLLs) to drive business growth, where preferential interest rates are tied to emissions reduction targets of 30 percent by 2030.

Solution: Ghim Li is utilising an **ESG reporting platform** to calculate its Scope 1 and 2 emissions. To ensure its emissions data meets the bank's strict financial-grade requirements, Ghim Li manually verifies the accuracy of data submitted by its manufacturers and obtains external third-party verification.

Outcomes: By automatically sourcing country-specific emission factors, the platform eliminates time-consuming manual research. It also provides an auditable digital trail for assurance.

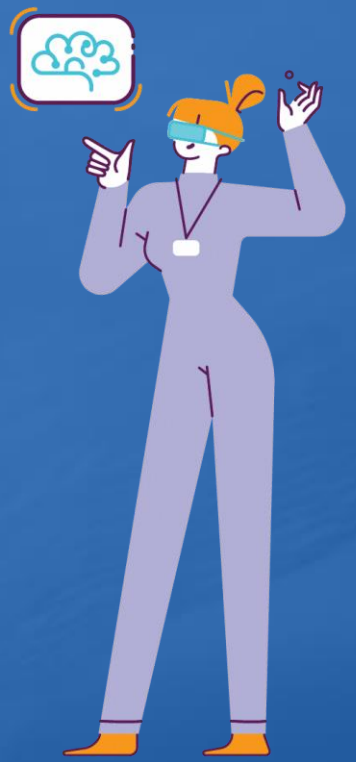
PINPOINTING WASTE HOTSPOTS TO REDUCE COST

Background: In the manufacturing facilities, fabric wastage is generated in huge amounts.

Solution: Ghim Li created a **BI dashboard** to visualise waste hotspots, which allowed it to identify root causes for intervention.

Outcomes: It achieved cost and waste savings of five to six percent, which was re-invested into more capital-intensive sustainability solutions such as solar panels and an integrated ERP platform to digitalise factory data capture.

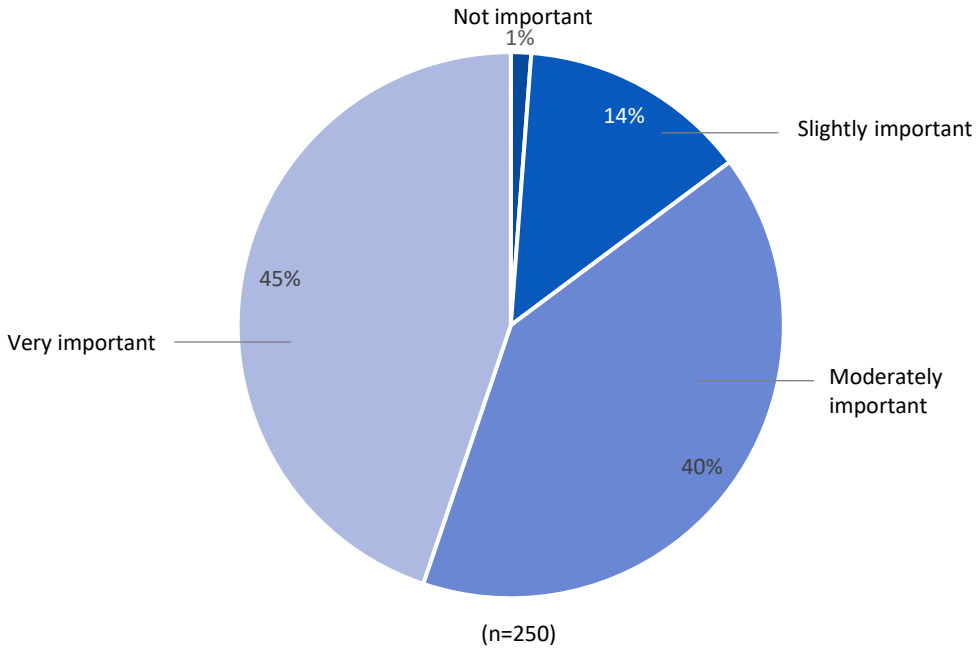
CHAPTER 2:
DIGITAL AS AN ENABLER FOR SUSTAINABILITY



Digitalisation is essential to address companies' sustainability needs and achieve business outcomes

Among those surveyed which have embarked on sustainability, **45 percent** expressed that technology was "very important" to fulfilling their sustainability goals.

Importance of technology in meeting organization's sustainability needs



(n=250)

Source: IMDA Digital for Sustainability Survey (2025)

99 percent of companies which implemented Digital for Sustainability have reaped benefits to their business, especially in operational efficiency and manpower productivity.

Business benefits organisations have achieved from implementing Digital for Sustainability

(n=128)

Source: IMDA Digital for Sustainability Survey (2025)

Digital tools can help with your Materiality Assessment, to focus efforts on the most pertinent sustainability risks and opportunities

HOW DIGITAL TOOLS CAN SUPPORT MATERIALITY ASSESSMENT

To get a gauge of stakeholder concerns, sentiment analysis can be conducted with **GenAI search engines** or customised **webscraping apps** on social media, press releases, analyst reports, and emails

Digital survey platforms enable efficient collection of input from various stakeholders; many feature pre-built survey templates

ESG software or Materiality Assessment software automates the process and guides users step by step, including suggesting possible ESG topics based on various disclosure standards

SAVE COST AND RESOURCES

How can you use digital to facilitate efficient **processes** and source cost-saving solutions?

ACHIEVE COMPLIANCE

How can you use digital to establish internal **processes** for fulfilling regulatory and customer demands?

GROW REVENUE

How can you use digital to drive sustainable innovation **practices** for revenue growth?

MITIGATE RISKS

How can you use digital to support sustainable procurement **policies** for mitigating supply chain shocks?

SAVE COSTS | ACHIEVE COMPLIANCE | GROW REVENUE | MITIGATE RISKS

Digital technologies can improve operational efficiency to reduce costs and resources

REAL-TIME TRACKING

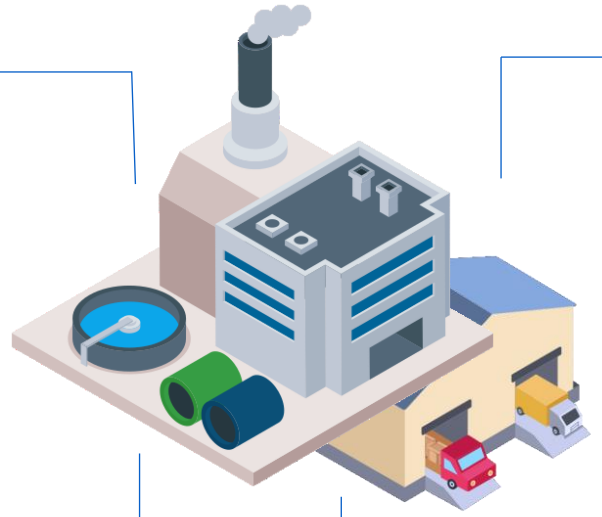
Continuously track **real-time** activity and resource usage at a **granular** level to allow **remote monitoring** and uncover inefficiencies quickly

- Smart energy meters
- Smart bin sensors
- Smart water flow meters
- Telematics systems

DATA-DRIVEN OPTIMISATION

Process large volumes of data and analyse trends/patterns using predictive analytics in order to **recommend targeted reduction actions**

- Cloud energy management system
- Route optimisation system
- Leak detection system
- Demand forecasting system



OPTIMISATION SCENARIO VISUALISATION

Enables modelling and **visualisation of various optimisation scenarios** to support more effective evaluation of reduction options

- Building performance Digital Twins
- Digital Process Twins
- Material flow planning software

AUTOMATED ACTUATION

Automatic adjustment of operating conditions, taking into account multiple real-time environmental factors, to perform tasks **autonomously and more precisely without human intervention**

- Automated energy optimisation system
- Computer Numerical Control (CNC) machines
- Computer vision and robotic sorting

Click to explore more digital technologies which helps in optimising resources

CLICK

Image source: Freepik

CASE STUDY 4: EXCELTEC PROPERTY MANAGEMENT
Increasing productivity through operating model transformation

EXCELTEC
Enabling Your Potential

Background:

Facilities management has long been labour-intensive, with staff spending significant time on routine inspections and manual reporting. As the industry moved towards outcome-based integrated FM (IFM) contracts, public sector tenders began emphasising service standards such as timeliness, responsiveness, and user satisfaction. In parallel, sustainability requirements became embedded into contract performance.

Against this backdrop, Exceltec saw a clear need to rethink traditional operating models. Rising energy costs, manpower constraints and the push for measurable sustainability outcomes highlighted the urgency for digital solutions that could drive both efficiency and accountability.

Solution:

Exceltec set up its own in-house digital R&D team to develop a holistic suite of digital solutions that are offered to its clients, including **smart bin sensors, soil sensors, energy management dashboards with energy meters, water flow meters, water level sensors, footfall and ammonia sensors**.

Exceltec also co-create solutions with other SMEs, combining its digital capabilities with the unique domain knowledge of their partners. One such project was an AI model for soil sensors to customise irrigation requirements for specific plant species.

With digital technologies, Exceltec is able to gain better visibility of waste, water and energy consumption patterns to implement reduction measures for its clients.

- Water level sensors trigger alerts when levels exceed a set threshold, enabling early intervention to prevent excessive overflow and reducing water consumption from five percent onwards
- Footfall sensors identify lower occupancy areas where temperatures can be increased, reducing energy consumption from HVAC loads

Outcomes:

These digital technologies fundamentally changed the way operations staff worked:

- Cleaners are only deployed when sensors detect that bins are full, rather than patrolling the customer's facilities to check bin waste levels
- Instead of technicians physically checking every water tank, they can now monitor the entire water tank system digitally inside the control room

The saved time was redirected to cross-service training and practice, moving staff up the skill ladder and developing agility across service lines.

20%

Productivity gains from utilising digital facilities management technologies developed in-house

SAVE COSTS | ACHIEVE COMPLIANCE | GROW REVENUE | MITIGATE RISKS

Digital technologies reduces time and resources needed for effective compliance and reporting to external stakeholders

SUSTAINABILITY DATA COLLECTION

Reduce the manual effort, time and resources required to collect and consolidate sustainability data into a **centralised database** from **multiple** internal and external **stakeholders at scale,** across different facilities and geographies.

- Supplier engagement portals
- Supplier tracking modules
- Data collection feature in ESG reporting platform

SUSTAINABILITY DATA VERIFICATION

Flag data anomalies and **prompt accuracy checks,** reducing time wastage downstream due to inaccurate data inputs

- Data validation feature in ESG reporting platform

Click to explore specific features which can help you achieve compliance

CLICK

BASELINE ASSESSMENT

Calculate Scope 1, 2 and 3 emissions **quickly and accurately** with **embedded carbon calculation methodology** and **automated update of emission factors** without the need for expert sustainability knowledge and manual research

- AI-powered Scope 3 estimation function
- Carbon calculator feature

EFFECTIVE STAKEHOLDER COMMUNICATION

Process financial-grade sustainability data in **real-time** into **auditable reports** aligned with sustainability frameworks, to communicate sustainability progress to external stakeholders

- Guided sustainability reporting templates
- ERP-integrated ESG reporting platform

Image source: Freepik

Digital technologies can support sustainable innovation processes to grow revenue

DATA-DRIVEN DESIGN CHOICES

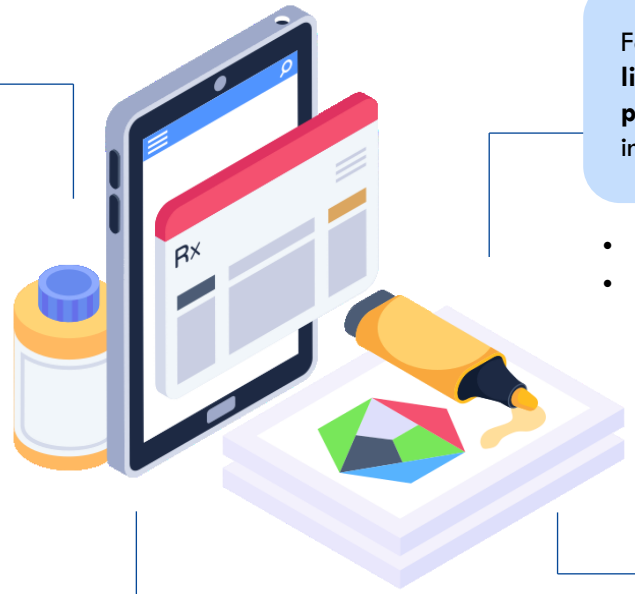
Efficiently compare across different materials to aid selection of materials with low environmental footprint

- Material lifecycle assessment databases
- AI-based material selection software

ESTABLISH GREEN CREDENTIALS

Ensure **traceability and verification** of product carbon footprint as proof of sustainability claims to both B2B and B2C customers

- Blockchain product carbon footprint



REAL-WORLD PERFORMANCE SIMULATIONS

Facilitate evaluation of product designs by **simulating lifecycle environmental impact and product performance** across **different conditions** and integrating **real-time parameters**

- Virtual Twin incorporating Life Cycle Assessment
- Building Information Modelling (BIM) systems with sustainability modules

DE-MATERIALISATION

Create **prototypes digitally** and optimise design features without the need for physical prototypes, thereby reducing material costs and waste

- Generative design tools
- Virtual prototyping tools

Click to explore specific digital technologies that can help you innovate and grow revenue

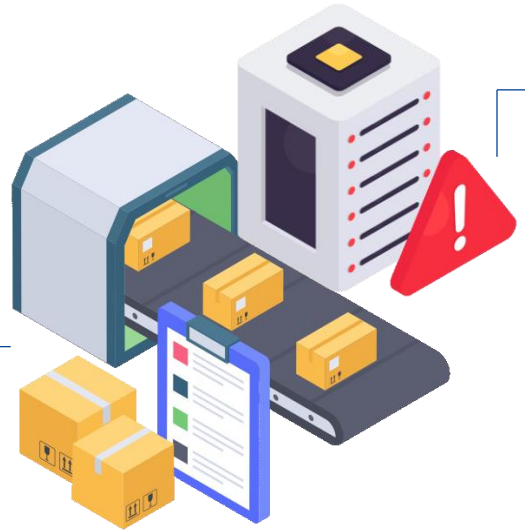
Image source: Freepik

Digital technologies can mitigate risks and insulate your business against volatility

SUPPLY CHAIN MANAGEMENT

Provide **end-to-end visibility and traceability** across complex supply chains and identify ESG risks quickly (e.g. child labour, deforestation, high emissions), building **resilient supply chains** with informed **sustainable procurement decisions**

- Online supplier assessment forms
- AI-powered supplier mapping platform integrated with procurement data



SUSTAINABILITY RISK MONITORING

Monitor **real-time** data from multiple sources, **identify trends** and **forecast risks** for asset management and supply chain planning, to minimise losses

- Climate risk modelling software
- Geospatial and remote sensing tools

Click to explore specific digital technologies that can help you mitigate risks of business volatility

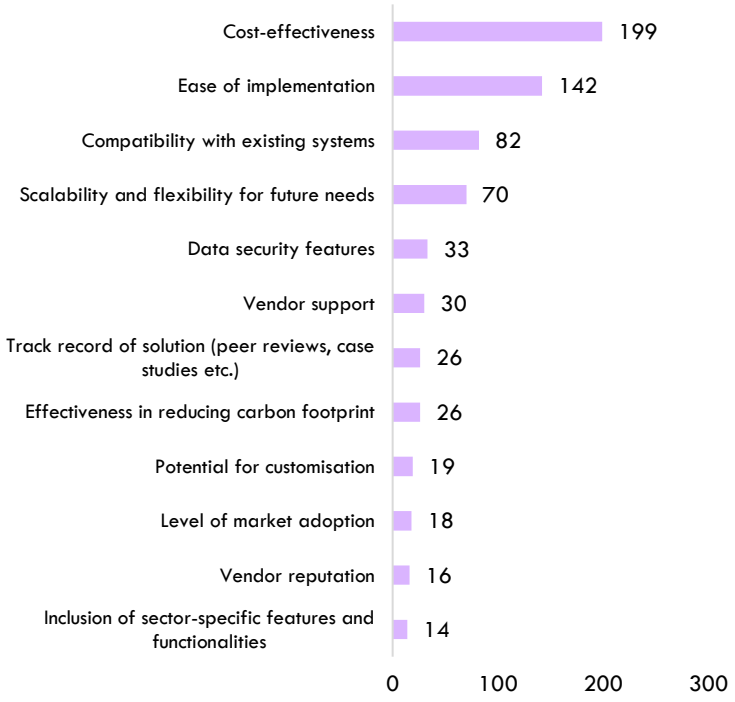
CLICK

Image source: Freepik

CHAPTER 3:
IMPLEMENTING DIGITAL FOR SUSTAINABILITY

While selecting Digital for Sustainability solutions, there are some criteria that you may wish to consider

Criteria organisations prioritise when selecting Digital for Sustainability solutions



Source: IMDA Digital for Sustainability Survey (2025)

Vendor Support

- Be aware of time zone and language differences when selecting overseas providers
- If on-site support is required, selecting vendors with local operations would be useful
- Check for the extent of training provided and availability of support services

Ease of Implementation

- User-friendliness of the solution is important. Obtain user feedback early to better align user needs and expectations
- Work with the vendor to tailor UI/UX according to users' age, digital literacy, and business functions
- Prioritise simplicity as much as possible during selection of solutions to drive user adoption

BNL is a leading integrated environmental service provider, focusing on waste management and facilities management services.

When designing an application for internal use, BNL customised the UI/UX of the system interface for its different user segments. The touchpoints and the way that users interact with the digital tool varies depending on their business function and age demographic. For a fleet manager, the app would show a dashboard with vehicle utilisation graphs, but for a driver, the app would show the next destination that he/she needs to drive to.

Phase implementation to help with budget constraints

Why is this important?

It is worthwhile to invest in Digital for Sustainability technologies for long-term returns. For instance, organisations using digital twin technologies have reported a 22 percent annual Return on Investment (ROI)[1], while AI-powered sustainability initiatives have resulted in a cumulative ROI of 3.4 percent[2] over five years. However, with limited financial resources, SMES might struggle with the upfront costs of such solutions.

How to address this?

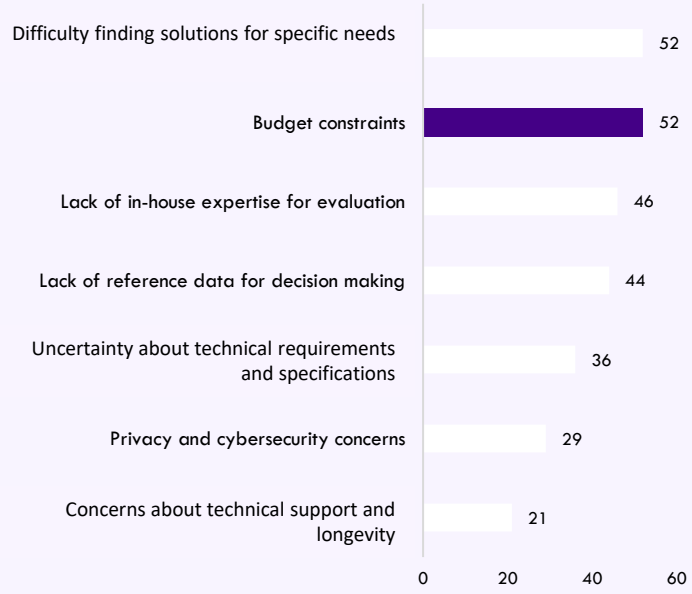
Ask vendors for a trial if possible, or conduct small-scale pilots over a fixed duration. This enables more informed decisions on whether to proceed with full-scale deployment.

Cost savings from the pilot can also be reinvested into scaling the initiative.

Phase the implementation of solutions:

- Check the breakeven period before purchase
- Implement solutions with a shorter breakeven period before implementing solutions with a longer breakeven period, so that cost savings from the first solution can defray some of the costs of the second

Digital-related challenges organisations have encountered when selecting Digital for Sustainability solutions



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Source: IMDA Digital for Sustainability Survey (2025)

Sources: Eden Strategy Institute's analysis based on primary research insights, [1]Hexagon (2024), [2] Valeriya *et al.*, (2024)

During implementation, proper change management is important to achieve desired outcomes

Why is this important?

Employee buy-in is critical for effective implementation of Digital for Sustainability. The incorporation of digital tools often result in significant changes to employees' operational workflows, which might be met with resistance as employees transit to a new way of working.

How to address this?

- Develop shared KPIs across business departments in using digital technologies to achieve sustainability outcomes
- Showcase and celebrate the efforts of teams or individuals effectively using Digital for Sustainability
- Appeal to employees' internal motivations by communicating how digital enablers can help them better achieve work KPIs
- Re-design employee job roles and upskill them appropriately as the company evolves its operating model

DP Architects is a multi-disciplinary design consultancy firm aspiring towards better-than-sustainable project outcomes. To drive innovation and the creation of sustainable solutions through digital means, the Smart Sustainability unit was set up. The CEO took personal interest and invested resources in a pilot with a unit that stood to benefit the most from the implementation. The efforts proved highly impactful and successfully showcased how digital technologies can drive innovation and deliver sustainability results.

Source: Eden Strategy Institute's analysis based on primary research insights

CHAPTER 4:
DATA MANAGEMENT FOR SUSTAINABILITY

Sustainability data management comprises of four phases

Managing sustainability data includes systematically collecting, organising, and utilising sustainability data, from sustainable procurement to tracking emissions. Understanding how data flows is important to ensure its quality, accessibility, and security so that it can be used for downstream purposes of sustainability reporting, analytics to optimise operational efficiency, and to design sustainable operating models and products.

Firstly, data on environmental parameters needs to be collected

Why is this important?

- Required for a sustainability report to comply to regulatory and investor demands
- Provide a baseline to benchmark your company's future sustainability efforts
- Identify areas of inefficiency and inform strategic decisions to improve sustainability and operational performance
- Monitor and report progress towards sustainability targets or certifications

What types of data is required for reporting?

Conduct a **Materiality Assessment** to determine which sustainability topics to measure, for example:

CLICK

- Water consumption (L)
- Waste disposed (kg)
- Scope 1 emissions (t), Scope 2 emissions (t), Scope 3 emissions (t)

KIMLY: TRAINING EMPLOYEES IN SUSTAINABILITY

Kimly integrates sustainability into its existing learning infrastructure through the Kimly Academy, providing regular training to help employees understand the importance of sustainability and how the data collected will be used. Leveraging on its network of partners including consultants and bankers, Kimly is able to impart the most updated, on the ground insights to its employees.

Proper data collection is essential to ensure high integrity sustainability data

Sustainability data for reporting needs to be high quality

Employees across multiple departments and even external stakeholders such as suppliers often need to be involved in a company's sustainability reporting process. As a result, data quality from different stakeholders will be varied.

Yet, sustainability data should be of financial grade, particularly if your organisation has applied for a green loan or sustainability-linked loan. It is therefore important to ensure that data is **high quality,** defined by ISO 8000[1] as accurate, complete, and consistent to a degree that meets the specific thresholds required for reliable sustainability reporting and decarbonisation efforts.

Good practices for sustainability data collection

For companies which are manually inputting data:

- Conduct bite-sized, hands-on training sessions on accurate data upload and how data will be used for sustainability
- Appoint a person in each department to validate the accuracy of all department data before it is entered into the system
- Properly explain to relevant teams the importance of data collection by highlighting how it impacts stakeholders and business processes

For companies looking to digitalise data collection:

- Use Robotic Process Automation (RPA) to automatically log into utility provider portals to download electricity/water invoices
- Optical Character Recognition (OCR) can be used to scan hardcopy fuel or electricity invoices to automatically extract relevant data

Source: [1]ISO (2025)

Proper data collection is essential to ensure accuracy of sustainability data

Sustainability data for certification needs to be accurate

IoT sensors are being used to collect granular data to identify consumption hotspots, enable targeted action, and measure sustainability progress. If your company has committed to sustainability targets such as SBTi or certification schemes such as Green Mark, and needs to report on the emissions/energy reductions achieved, it is essential for the collected data to be **accurate**.

Good practices for sustainability data collection

When selecting hardware, ask vendors to check for the accuracy and precision level of the sensors

Check that sensors are properly calibrated on a regular basis, to ensure the quality of data inputs

Inspect installation sites physically with vendors to ensure that sensors are installed on the right circuits, especially in zones where there is limited connectivity

Secondly, collected data should be mapped and categorised for use

Why is this important?

Ensure consistency of data across different sources and granularity

Ensure usability of data for emission calculations

Close data gaps so that data is complete

What is it?

Data mapping is the systematic conversion and organisation of data collected from multiple sources into usable formats, by addressing gaps and inconsistencies.

For accurate emissions calculations, sustainability data needs to be categorised into appropriate data fields to facilitate matching to emission factors. For example, if the emission factor available in an emissions reporting software is 0.027[1] kg CO2e per tonne of cargo per km travelled by a 26-32t diesel truck, delivery data must be categorised by truck type, weight class, tonnes of cargo and distance travelled. This facilitates mapping of the delivery data to a specific emissions factor. Absent categories or data fields might result in a more generic and less accurate emissions factor being used by the software.

When precise data is unavailable, data mapping relies on rules of thumb or estimations. For example, a general rule estimates that cold storage adds 30 percent[2] energy consumption per km travelled in a tropical climate.

Sources: [1]Climatiq (2025), [2]Karacan et al. (2023)

Mapping and processing data ensures completeness for regulators and customers

Sustainability data must be complete

Completeness is one of eight core principles under Global Reporting Initiative (GRI) standards and is critical for sustainability reporting. To ensure completeness, you will need to provide sufficient information to enable an assessment of your company's environmental impacts. There should be **no data gaps** in sustainability information presented.

For example, lifecycle assessments must cover every stage of a product's emissions from cradle to grave, from the point of manufacturing, through sales and use, to the point of disposal.

Good practices for data mapping

To close data gaps, use specific categories to tag data. For example, to calculate the product emissions of Nescafé coffee:

Categorise coffee components (e.g., milk, sugar, coffee powder, palm oil, packaging) by quantity, supplier and origin for matching to emission factors

If these data are scattered across multiple datasets, a data warehousing tool can be used to pull information together and organise them into new attributes required by emission factors

For data that is not currently collected, create internal templates to collect these attributes in future

As a last resort, apply other estimation methods when primary emissions data from manufacturers or service providers are not available:

Use spend-based proxies to convert spending on fuel or electricity into emissions by applying price averages

Validate estimation methods by testing methodology on small data samples and comparing estimations to primary data collected

Sources: [1]UN Food and Agriculture Organisation (2019), [2]AgriFutures Australia (2023), [3]Building and Construction Authority (2021)

CASE STUDY 5: SALADSTOP

Rigorous sustainability data collection and mapping for carbon labelling

Background:

Since inception, SaladStop has made sustainability part of its core brand. Beyond ensuring its new outlets are net-zero, SaladStop is committed to engaging customers in its broader sustainability mission. It has carbon-labelled its entire menu, empowering customers to make informed choices and giving them the option to purchase carbon offsets as well.

It had dedicated one staff to manually compute the carbon footprint of the menu and ingredient modifier database, but faced challenges due to incomplete supplier data, resulting in inconsistent data quality across the ingredients.

Solution:

Saladstop decided to onboard a **digital emissions reporting platform**, as well as a **data warehousing tool**.

Data Warehousing Tool	Emissions Reporting Platform
Build internal CSV templates for employees to upload data from operations (i.e. fuel, electricity) and procurement (ie. ingredients)	Automate the matching of logistics activities and ingredients to emissions factors within 30 seconds
Stitch different data silos together such as country or ingredient weight to match data fields required by emissions reporting platform	Tested methodology prioritises highest accuracy data inputs, then fill data gaps with spend-based estimates or regional averages

To validate the platform's methodology, it conducted small-scale tests by manually calculating emissions from mapped sample routes and comparing the results with the platform's outputs.

It also embedded SOPs for sustainability data handling and digital platform usage into HR onboarding and training, safeguarding the quality and consistency of sustainability data.

Outcomes:

These digital platforms enhanced the reliability of emission calculations and reduced the time taken to search and compile emission factors. The emissions reporting platform also helped SaladStop monitor and reduce their operational emissions.

With sustainable processes in place, it managed to obtain BCorp certification in six months instead of the typical two years. This certification, along with concerted sustainability efforts, further cemented its branding as a sustainable business, enhancing their appeal to eco-conscious consumers.

SaladStop's net-zero outlet is made from upcycled plastic and wood, with screens promoting sustainability campaigns

Mapping and processing data improves consistency of fragmented, wide-ranging data

Sustainability data is likely to be scattered

Sustainability data spans all business functions, from operational metrics such as electricity consumption to procurement-related calculations like travel emissions based on fuel spend.

It can also come in all formats, such as pictures of electricity meter readings, printed fuel receipts, or WhatsApp messages of warehouse inventories.

Data from multiple sources is often **fragmented and inconsistent.**

Good practices for data mapping

Automate the processing and standardisation of sustainability data before downstream processing, to minimise wasted time and resources:

Use low-code or no-code Extract-Transform-Load (ETL) tools to standardize data (e.g., waste records in tonnes, kilogrammes, or bin counts) to kg CO2e

Automate early to compound savings as operations scale

Next, necessary data needs to be stored for further analysis and future use

Why is this important?

Keep required data for future reference and benchmarking for internal prioritisation

Comply to future reporting needs

What is it?

Storing sustainability data for easy and secure access through a cloud service provider or customised data lake/warehouse.

Data storage includes governance protocols such as periodic backups to prevent data loss.

VFlowTech: Good practice in data storage

Large volumes of data are required for decision support in the earlier stages of cloud platform development, increasing storage costs and limiting scalability. VFlowTech invests in Artificial Intelligence and Machine Learning to train models to make accurate decisions with less data, reducing long term costs.

Exceltec: Good practice in data storage

Large volumes of sensor data need to be stored for historical benchmarking. Additionally, the Energy Management Authority's minimum 15-minute cadence for energy readings compound storage needs and costs. Archiving is thus important, and has helped Exceltec to reduce costs by 20-30 percent.

Storing data efficiently ensures scalability of your sustainability initiatives

Sustainability data increases as operations scale

Sustainability data has to be timely, to effectively inform decision making. However, with the increasing volume of data being generated over time, storage costs can rise significantly. It is therefore important to only retain essential data and archive or delete the rest.

In the absence of data standards that define the period of retention for different types of sustainability data in different sectors, companies must decide based on their needs and resources.

Good practices for data storage

Decide with domain experts such as operations/fleet managers who are most familiar with what data needs to be stored:

What data is relevant to the material factors from my materiality assessment?

What is the level of detail required? For example, are monthly electricity readings sufficient, or do anomalies need to be captured with more frequent readings?

How long is this data needed for? This can vary according to business needs but if your company is reporting against GRI standards, data has to be kept for the current reporting period and at least two previous periods for comparability[1]

After restricting storage to critical data, archiving helps to further reduce storage bloat by moving less frequently used or historical data into a separate, long- erm storage system:

Implement auto-archiving after a set period which will reduce storage costs by up to 90 percent. Take note that retrieval fees of up to SGD 0.05/GB[3] are charged after archiving, depending on speed

Sources: [1]GRI (2021), [2]Microsoft (2025), [3]Google Cloud Platforms (2025)

Data security prevents data loss and retains stakeholder trust

Sustainability data requires governance

Sustainability data can be **commercially sensitive**, such as supplier pricing which informs spend-based emissions estimations. Data security is paramount because stakeholders are less likely to submit their data if they have any reasons to believe it will be unsecure or shared unintentionally without their consent.

Good practices for data storage

Safeguard the security of stored data:

- Verify vendor certifications e.g. ISO 27001, or set internal security controls and risk assessments to protect sensitive sustainability data
- Prohibit vendor use of stored data for AI model training
- Assess whether the sustainability data includes information that can be used to identify an individual, if so, refer to data protection obligations under the Personal Data Protection Act
- Ascertain vendor security history to prevent data leaks
- Implement access controls on a need-to-know basis based on staff roles. For more good practices, refer to the Data Protection Practices for ICT Systems
- Encrypt data accordingly based on sensitivity and risk, such as field or attribute-level encryption of client/supplier transactions, personal data from surveys

Lastly, sustainability data needs to be integrated for further analytical purposes

Why is this important?

Helps you identify anomalies indicative of water or refrigerant leaks, and take early action

Assist in prioritising efforts which are the most impactful, for instance, when a company is deciding between retrofitting and equipment upgrades

Visualise and simulate impact of sustainability actions or different eco-design forms

What is it?

Data integration is the process of merging data from diverse sources, such as IoT sensors, RPA, and spreadsheets, into a unified and consistent format, which can be used for further data analytics. Data analytics is then conducted to uncover trends and patterns so as to provide actionable insights to drive sustainability efforts.

Full integration and centralisation of data contributes to synergies across departments utilising sustainability data

Sustainability cuts across all business functions

Sustainability data silos within an organisation arise when departments collect data which are specific to their respective functions without any systematic method of sharing this data across the organisation, hindering effective sustainability management.

Due to the **cross-cutting nature of sustainability**, employees in various departments will need multiple sources of data in order to take action effectively. For instance, the logistics department might be monitoring fleet utilisation data while the marketing and sales department might be analysing customer demand data independently.

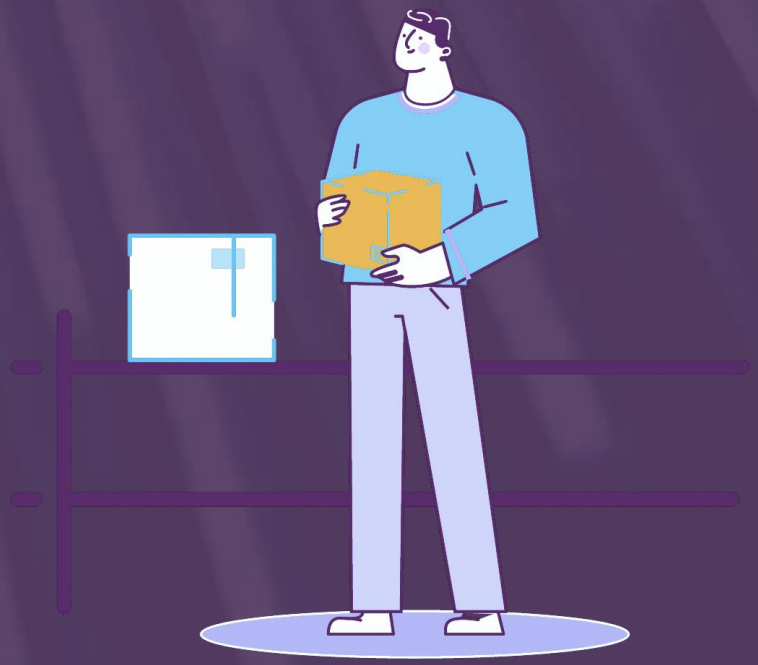
If the logistics department can access demand forecasting data from the marketing and sales department, they will be able to plan their vehicle allocation and routes better, **amplifying the impact of sustainability**.

Good practices for data integration

Ensure that any new digital platform is integrated into existing business systems through APIs, Open Standards, or customised middleware, so that synergies can be reaped. If your company has no in-house expertise, you may choose to hire third-party systems integrators

Document the process flows within your organisation through interviews with each business unit. Then, develop a centralised data warehouse or platform to ensure accessibility of sustainability data and function specific data across all departments

CHAPTER 5:
READINESS CHECKLIST



Are you ready to leverage Digital for Sustainability to bring your organisation to greater heights?

Step	Possible Options			
1. Identify the specific **business pressures** or pain points that your organisation is facing	• Increasing costs	• Upcoming compliance requirements	• Slow growth, poor demand	• Supply chain disruptions
2. Decide on the **business strategy** that you want to pursue	• Cut costs	• Prepare for compliance	• Access new markets • Increase tender win rate • Innovate new products	• Mitigate risks
3. Diagnose how **sustainability** can **support** your business strategy	• Resource efficiency • Renewable energy projects	• Sustainability disclosures	• Eco-design • Green branding for customer recognition	• Sustainable procurement • Sustainability risk monitoring
4. Identify the **business functions** which will need to lead the implementation of Digital for Sustainability	• Procurement	• Legal • Compliance	• R&D • Design	• Operations • Manufacturing

*Options are illustrative only

Are you ready to leverage Digital for Sustainability to bring your organisation to greater heights?

Step	Possible Options
5. Narrow down on the **type of technology** to implement, depending on your sustainability needs and cost-benefit analysis.	Explore use cases of different technologies to drive sustainability across your business CLICK
6. Follow **good practices** for sustainability data management, including collection, processing, storage, and integration.	Explore good practices in managing sustainability data CLICK

*Options are illustrative only

CHAPTER 6:
HELPFUL RESOURCES

SGX regulatory timeline for sustainability reporting depends on your company size

Which timeline applies to my company?

SGX segregates listed companies by their inclusion in the Straits Times Index (STI) and market capitaliation, while listed companies are segregated by revenue and assets.

	Listed Companies			Non-listed Companies	
Mandatory Requirements	**STI Constituents**	**Non-STI constituents with >$1B market cap**	**Non-STI constituents with <$1B market cap**	**Large companies with >$1B annual revenue and assets >$0.5B**	**All other companies**
Scope 1 and 2 GHG emissions	FY2025			FY2030	Voluntary
Other ISSB-based CRD	FY2025	FY2028	FY2030		
Scope 3 GHG emissions	FY2026	Voluntary	Voluntary	Voluntary	
External limited assurance for Scope 1 and 2 GHG emissions	FY2029	FY2029	FY2029	FY2032	

Source: [1]SGX (2025)

Start with a Materiality Assessment, aided by digital tools, to focus your efforts on the most pertinent sustainability topics

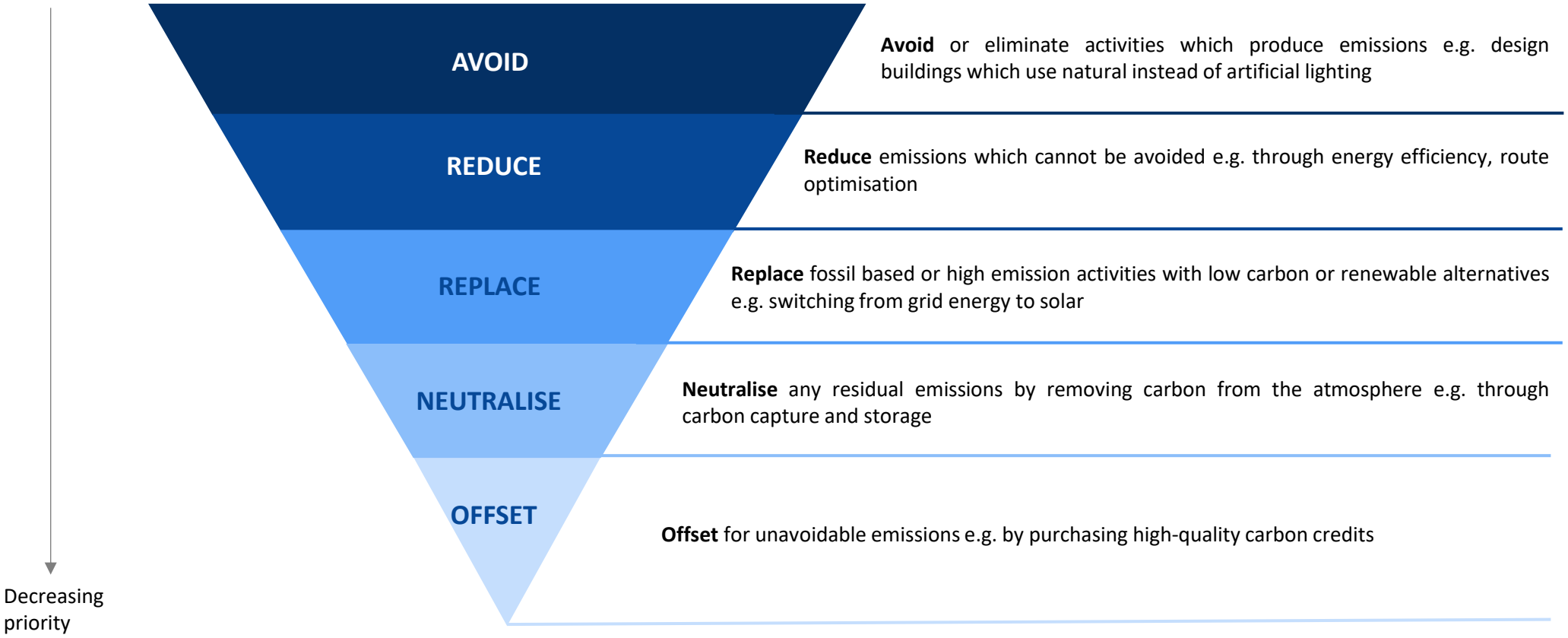
Why is this and why is it important?

Gather data from stakeholders to identify the sustainability topics that will impact your business the most. This will allow you to narrow your focus and prioritise limited resources towards the most substantial sustainability issues.

How to conduct a Materiality Assessment?

1. Identify relevant internal and external stakeholders including your customers, existing and prospective employees, supply chain partners, investors, financial institutions and even non-profit organisations.
2. Engage with stakeholders to understand their issues of concern through surveys, focus groups, or interviews.
3. Prioritise the issues distilled with the senior management team, based on the importance of each issue to key stakeholders, and the importance to your business.

Prioritise emission reduction actions using the Carbon Mitigation Hierarchy



Avoid or eliminate activities which produce emissions e.g. design buildings which use natural instead of artificial lighting

Reduce emissions which cannot be avoided e.g. through energy efficiency, route optimisation

Replace fossil based or high emission activities with low carbon or renewable alternatives e.g. switching from grid energy to solar

Neutralise any residual emissions by removing carbon from the atmosphere e.g. through carbon capture and storage

Offset for unavoidable emissions e.g. by purchasing high-quality carbon credits

Sources: SGX (2021)

Use digital technologies to improve operational efficiency (1/4)

CLICK Back to Menu

Click here to learn more about the Carbon Mitigation Hierarchy

Sustainability Initiatives	Reduction Priority	Business Function	Use Case	Feature/Technology	Applicable Company Profile
Energy Management	Tier 1: Avoid / Reduce	Facilities Management, Manufacturing	Gather more granular and real-time energy data	Smart energy meters	Companies which only have one consolidated bill per building
		Facilities Management	Reduce lighting or air-conditioning use depending on real-timeoccupancy	Occupancy sensors	Facilities which have large areas with intermittent usage
		Facilities Management, Manufacturing, Operations	Gain visibility on high consumption assets for optimisation, identify seasonality in energy usage, and enable benchmarking to pinpoint root causes of energy inefficiency	Energy analytics platform	Companies with multiple sites or distributed assets
		Facilities Management	Simulate building energy performance with scenarios modelling various energy conservation measures or retrofit options for easier evaluation	Building performance digital twin	Companies planning energy conservation measures or retrofits
		Facilities Management, Operations	Automatically adjust HVAC and lighting levels based on historical trends from real-time data on multiple environmental factors such as occupancy and weather	AI/ML powered automated energy optimisation system	Companies with energy intensive assets such as chillers, and where conditions are highly dynamic
		Facilities Management, Manufacturing, Operations	Monitor overall equipment efficiency (OEE) and predict failures for pre-emptive intervention or maintenance to reduce energy wastage from underperforming units	Predictive maintenance dashboard integrated with machine sensors and OEE monitoring	Companies with high-value, energy-intensive equipment such as industrial HVAC, large injection moulds

Use digital technologies to improve operational efficiency (2/4)

CLICK Back to Menu

Click here to learn more about the Carbon Mitigation Hierarchy

Sustainability Initiatives	Reduction Priority	Business Function	Use Case	Feature/Technology	Applicable Company Profile
Energy Management	Tier 2: Replace	Facilities Management, Operations	Gain real time information on solar panel efficacy	Smart sensors for solar panel monitoring	Companies with significant solar panel coverage
		Facilities Management, Operations	Store solar energy during peak production for use during high demand periods, and buy and sell electricity at optimal times for greater cost savings	Solar energy management with battery storage systems	Companies generating excess solar energy in the daytime
Fleet Management	Tier 1: Avoid/ Reduce	Logistics, Operations	Monitor driver behaviour to identify idling or harsh braking area for corrective action	Telematics	All transport companies
		Logistics, Operations	Optimise routes and allocate vehicles dynamically based on real-time traffic and loads	Route optimisation platform with predictive analytics	Companies with larger fleets and delivering to multiple destinations
		Operations, QA/QC	Reduce usage of cranes, trucks, gondolas for defect inspection	Drone inspection platform	Companies with visual inspection needs for defect checks
Water Management	Tier 1: Avoid/ Reduce	Facilities Management, Operations	Gather more granular and real-time data on water usage	Smart water flow meters	Companies with high water use across large network of water points
		Facilities Management, Operations	Monitor water loss through leaks to enable early intervention and reduce water wastage	Leak detection system	Companies with older infrastructure prone to leaks

Use digital technologies to improve operational efficiency (3/4)

CLICK Back to Menu

Click here to learn more about the Carbon Mitigation Hierarchy

Sustainability Initiatives	Reduction Priority	Business Function	Use Case	Feature/Technology	Applicable Company Profile
Waste Management	Tier 1: Reduce	Design	Design products digitally and test their performance before physical prototypes are produced to reduce waste	Virtual prototyping tools	Companies with rapid design cycles or frequently changing product lines
		Facilities Management	Simulate and run different optimisation scenarios to reduce waste and defective outputs	Digital process twins	Companies with complex manufacturing lines
		Manufacturing	High-accuracy cutting, shaping and forming	Automated machines (e.g. CNC machines)	Companies producing high volume and complex components
		Manufacturing, Operations	Directly optimise manufacturing lines to reduce waste and improve yields	Digital lean tools for line balancing and yield management	Companies with complex manufacturing lines
		Design, Manufacturing	Reduce material wastage from conventional subtractive manufacturing and shorten design iterations	Additive manufacturing for rapid prototyping	Companies which require physical prototypes despite short design cycles
		Sales	Forecast demand accurately to eliminate surplus supply that is wasted	Demand forecasting systems	Companies with existing historical sales data, selling perishable products

Use digital technologies to improve operational efficiency (4/4)

CLICK Back to Menu

Click here to learn more about the Carbon Mitigation Hierarchy

Sustainability Initiatives	Reduction Priority	Business Function	Use Case	Feature/Technology	Applicable Company Profile
Waste Management	Tier 2: Reuse	Operations, Facilities Management	Instantaneously match companies which are finding off-takers for their reusable waste	Online upcycling marketplace	All
	Tier 3: Recycle	Operations, Facilities Management	Track and quantify waste generation on a more granular level to identify reduction opportunities	Smart bin sensors	Companies with significant waste streams
		Operations, Facilities Management	Improve accuracy of material segregation to increase recycling rates or reduce scrap rate	Computer vision and robotic sorting	Companies with significant waste streams

Use digital technologies for more efficient compliance

CLICK Back to Menu

Sustainability Initiatives	Business Function	Use Case	Feature/Technology	Applicable Company Profile
Sustainability Reporting	Procurement	Reduce time and labour to collect, consolidate and calculate primary Scope 3 emission data from multiple suppliers	Supplier engagement portal / supplier tracking within emissions calculation platform	Companies with significant Scope 3 emissions arising from transportation and waste
	Procurement	Calculate Scope 3 emissions easily, even without primary data, with verified and embedded methodology	AI-powered Scope 3 estimation tools matching data source to specific emission factors	Companies with significant Scope 3 emissions arising from purchased goods and services or capital goods
	Procurement, Finance	Compile financial-grade sustainability data that is auditable, with real-time data	ERP-integrated emission reporting platforms	Companies which are reporting to investors or financial institutions
	Compliance, Legal	Collect and calculate Scope 1 and 2 emissions quickly and accurately, without the need for expert sustainability knowledge	Carbon calculator with footprinting methodology and automated update of emission factors	Companies facing customer or regulatory demand
	Compliance, Legal	Generate sustainability report efficiently	Guided templates according to sustainability framework	Listed company or large non-listed company affected by ACRA and SGX regulations

Use digital technologies to drive sustainable innovation

CLICK Back to Menu

Sustainability Initiatives	Business Function	Use Case	Feature/Technology	Applicable Company Profile
Sustainable Product Design	Design, R&D	Direct comparison of material emissions to select those that are less emissions-intensive	Material lifecycle assessment database	Companies producing material-intensive products with significant Scope 3 emissions
	Design, R&D	Facilitates evaluation of various product designs by integrating multiple parameters such as weight, material choice, recyclability etc. to simulate the product lifecycle footprint and product performance	Virtual twin for generative design and virtual prototyping with embedded sustainability metrics	Companies with R&D-driven product innovation i.e. consumer goods
	Design, R&D	Simulate the environmental footprint of different building designs by integrating multiple parameters such as airflow, light, building materials, plug loads etc.	Building information modelling systems with sustainability modules	Architecture, engineering, construction firms, real estate developers pursuing green certifications
Customer-facing Branding and Disclosure	Sales and Marketing	Trace and present verifiable and auditable product carbon footprint	Blockchain product carbon footprint	Companies with sustainable products which command a green premium and/or serve B2B clients with ESG targets
	Sales and Marketing	Digitally showcase products to reduce sales cycle emissions from travel, courier and sample fabrication	Virtual showrooms	Companies which acquire customers by showcasing products, such as in fashion or textiles

Use digital technologies for more robust risk planning

CLICK Back to Menu

Sustainability Initiatives	Business Function	Use Case	Feature/Technology	Applicable Company Profile
Sustainable Sourcing	Procurement	Assess and track supplier sustainability	Online supplier assessment forms	Companies with large and complex, multinational supply chains
	Procurement	Enables visibility and traceability of product origin and environmental or social footprint when evaluating suppliers (e.g. labour practices, land use change)	AI-powered supplier mapping platform integrated with procurement data	Companies with significant Scope 3 emissions and disclosed ESG commitments
Climate Risk Assessment	Strategy, Risk Management, Compliance	Monitor and identify trends, and forecast risks for asset management and supply chain planning	Climate risk monitoring dashboards with scenario modelling	Companies with geographically diverse operations or physical assets in climate-vulnerable areas
	Strategy, Risk Management, Compliance	Identify, assess and visualise environmental risks to assets and supply chains with location-based insights	Geospatial and remote sensing platforms	Companies with extensive infrastructure, land-based operations or supply chains reliant on climate-sensitive resources

Invest in Digital for Sustainability by tapping on government support

Programme Name	Loan/Grant Amount	Criteria/Requirements
Enterprise Development Grant (EDG) by Enterprise Singapore	• Up to 70 percent of eligible costs for sustainability-related projects (until March 31st, 2026)	• Registered and operating in Singapore • Have a minimum of 30 percent local shareholding • In a financially viable position to start and complete the project
Enterprise Financing Scheme (EFS) – Green by Enterprise Singapore	• Up to SGD 50 mn (across all EFS loans) • Up to SGD 3 mn for Green Development Capital • Up to SGD 30 mn for Green Fixed Assets • Up to SGD 50 mn for Green Project Loans • Up to SGD 10 mn for Green Trade Loans	• Registered and operating in Singapore • Have a minimum of 30 percent local shareholding • Group Annual Sales Turnover not exceeding SGD 500 mn • Project must meet criteria under EFS-Green's Qualifying Green Sectors & Activities and Qualifying Borrower Types (often aligned with MAS' Singapore-Asia Taxonomy)
Productivity Solutions Grant (PSG) by Enterprise Singapore (e.g Carbon Management Solutions)	• Up to 50% of eligible costs for local SMEs • Up to SGD 30,000 and improve the business productivity	• Registered and operating in Singapore • Purchase/lease/subscription of the IT solutions or equipment is used in Singapore • Have a minimum of 30 percent local shareholding; with Company's Group annual sales turnover less than SGD 100 mn, OR less than 200 employees (for selected solutions only)

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Sustainable Bond Grant Scheme (SBGS) by MAS	• Up to SGD 125,000 if the issuer complies with any internationally-recognised disclosure standards • Up to SGD 100,000 if they do not	Bond can be applied by any issuer (first time or repeat) with any type of currency for the bond that is issued and listed in Singapore. • Minimum size of SGD200 mn bond programme with initial issuance of at least SGD 20 mn • Minimum tenure of 1-year • Sustainability-linked bonds require annual post-issuance review for up to 3 years or bond tenure
Sustainable Loan Grant Scheme (SLGS) by MAS	• Up to SGD 100,000 per loan over a 3-year period • Up to SGD 125,000 if the issuer has complied with any internationally-recognised disclosure standards	• Companies or financial institutions based onshore or offshore. • Loan size of at least SGD 20 mn with minimum loan tenure of 3 years • More than 50 percent of gross revenue from the loan is attributable to a licensed financial instution in Singapore • Assessment work of the green or sustainability link aspects of the loan to be performed in Singapore

Discover financial pathways to a sustainable future using green finance

Programme Name	Loan/Grant Amount	Criteria/Requirements
HSBC Green Loan for SMEs	At least USD 350,000 (≈ SGD 472,000)	Must have received sustainability award/certifications such as: • Singapore Environmental Council: Singapore Green Labelling Scheme • Building and Construction Authority: Green & Gracious Builder Award • Singapore Green Building Council: BCA Green Mark Scheme • Green-e: Renewable Energy Certification
OCBC SME Sustainable Financing	Up to SGD 20,000,000	• Only Singapore SMEs (but the projects is not limited to Singapore) • SMEs with sustainable projects or business purely in the sustainability sector

Empower your team with Digital for Sustainability skills and solutions

Programme Name	Subsidy amount	Description
Digital Leaders Programme **by IMDA**	Case-by-case basis, potentially salary support for CTO-equivalent and up to five digital team members	Businesses with digital ambitions mapped to business growth can enjoy salary support, masterclasses and networking opportunities with peers or potential tech partners.
Digital Transformation and Innovation Programme **by SkillsFuture Singapore**	SME-sponsored trainees and Singapore Citizens aged 40+ can receive up to 90 percent course fee grants under the ETSS and MCES schemes, respectively, subject to eligibility	Aims to train key personnel to become "Digital Transformers" to leverage on digital technologies to accelerate business model changes and achieve meaningful digital transformation.
Enterprise Sustainability Program (ESP) – Sustainability Courses by Enterprise Singapore	Each eligible company will be supported for up to a maximum of three participants for each type of course	It covers the following: Foundational course – covering key sustainability topics in decarbonisation, circular economy, sustainability reporting, and waste management Decarbonisation course – covering topics such as carbon accounting, setting of targets and plans, means of decarbonisation, and identification of key decarbonisation pathways Sustainable Finance course – covering topics such as the background of sustainable finance and its instruments, and how enterprises can secure sustainable finance

Empower your team with Digital for Sustainability skills and solutions

Programme Name	Subsidy amount	Description
SPEED Programme **by Singtel and Enterprise Singapore**	Enterprise Singapore will support up to 70 percent of eligible costs for each participating SME	Through education, technology deployment and continuous improvement strategies, the 15-month Singtel SPEED Programme is designed to enable a digital transformation for SMEs that is both impactful and sustainable. It consists of three stages: Onboarding and advisory, implementation of decarbonisation efforts and review improvements

Contact IMDA

To find out more about how IMDA can help your company in leveraging emerging technologies to support your digital transformation journey and achieve sustainability outcomes, please scan the QR code to connect with us.

https://go.gov.sg/dtc-inquiry-form

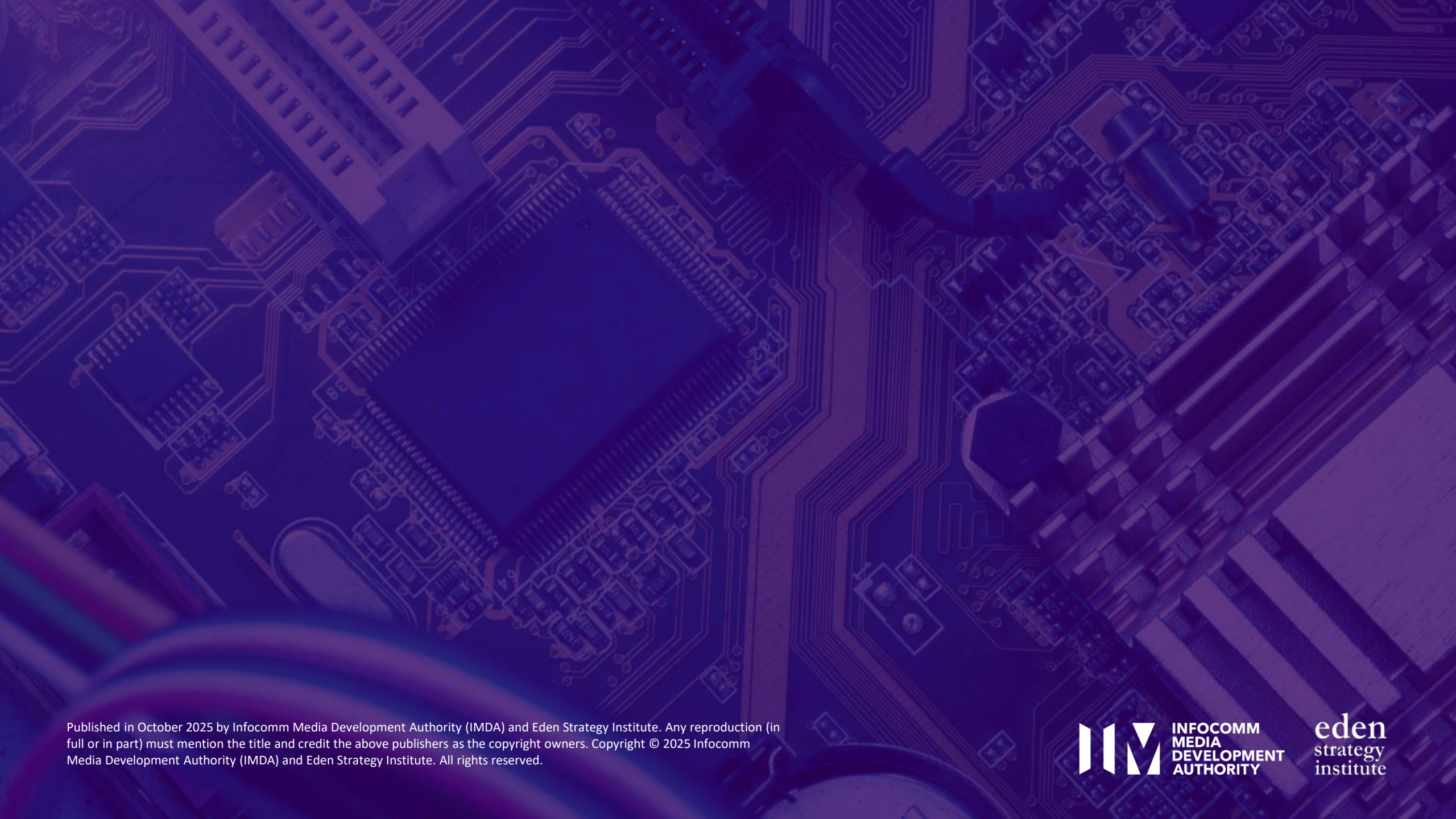
About IMDA

The Infocomm Media Development Authority (IMDA) leads Singapore's digital transformation with infocomm media. To do this, IMDA will develop a dynamic digital economy and a cohesive digital society, driven by an exceptional infocomm media (ICM) ecosystem – by developing talent, strengthening business capabilities, and enhancing Singapore's ICM infrastructure. IMDA also regulates the telecommunications and media sectors to safeguard consumer interests while fostering a pro-business environment and enhances Singapore's data protection regime through the Personal Data Protection Commission.

For more news and information, visit www.imda.gov.sg or follow IMDA on Facebook IMDAsg and Twitter @IMDAsg.

About Eden Strategy Institute

Eden Strategy Institute is a strategy advisory firm that helps organisations achieve sustainable impact through social innovation, by aligning their growth platforms, operations, products, and services with market forces and developmental opportunities.



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