

Sector lead

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Retail Industry Digital Plan

A guide for Small and Medium Enterprise (SME) Retailers to identify opportunities for digitalisation and adopt digital solutions to support their business needs.

Landscape of Retail Industry Transformation Map Sector[^] in Singapore

Sector Profile: Diverse trades, relatively small share of GDP* (~1.0%¹), with significant socio-economic impact employing ~3.7%² of the workforce[#]



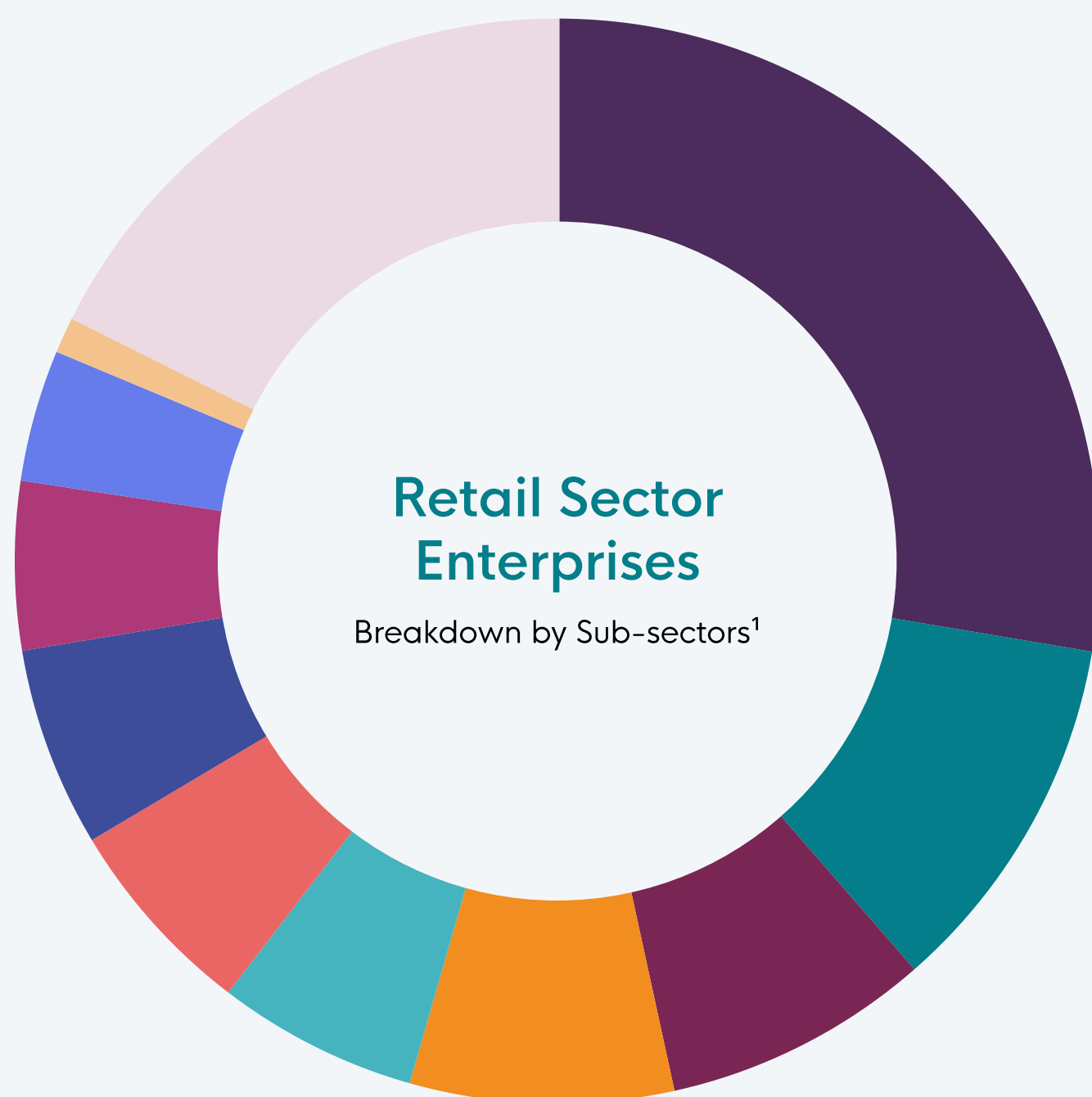
~23,000¹ retail enterprises



Employs ~3.7%² of Singapore's total workforce[#]



Contributed ~1.0%¹ to Singapore's GDP*



- Wearing Apparels & Footwear 28%
- Furniture & Household Equipment 11%
- Supermarkets & Hypermarkets and Mini-marts & Convenience Stores 8%
- Food and Alcohol 8%
- Watches & Jewellery 6%
- Computer & Telecommunication Equipment 6%
- Cosmetics, Toiletries and Medical Goods 6%
- Optical Goods & Books 5%
- Recreational Goods 4%
- Department Stores <1%
- Others 18%

Notes

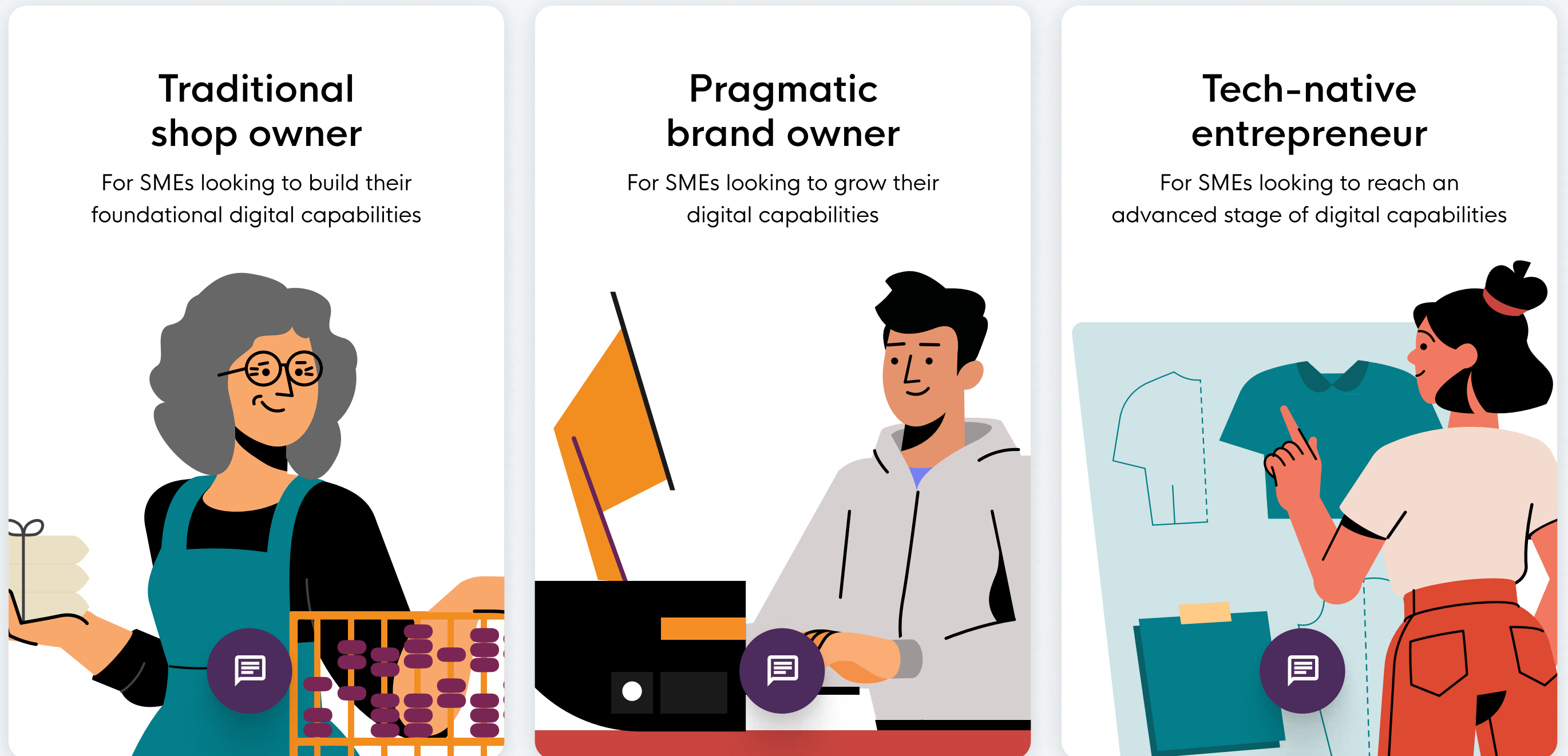
- [^] Retail ITM sector excludes retail sale of motor vehicles (SSIC 473) and retail sale via stalls and markets (SSIC 478).
- * Refers to nominal Gross Value Added (GVA) at basic prices.
- [#] Data are primarily from administrative records, with the self-employed component estimated from Labour Force Survey.

Sources

1. DOS's estimates, 2021.
2. Administrative Records and Labour Force Survey, Manpower Research & Statistics Department, MOM, 2021

The Personas

The profiles of retail sector can be broadly represented by three personas.



Note: The names and SMEs mentioned in these personas are entirely fictitious and have no real-world counterparts.

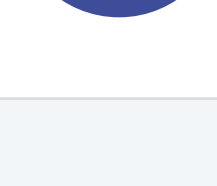
The personas face the same business challenges but in different intensity and scale

Challenges in the different business areas	Traditional shop owner For SMEs looking to build their foundational digital capabilities	Pragmatic brand owner For SMEs looking to grow their digital capabilities	Tech-native entrepreneur For SMEs looking to reach an advanced stage of digital capabilities
Customer Experience Increasing customer demands; Stiff competition for customers	"My staff must be available whenever my customer expects us."	"My customers expects 24/7 service from my staff on and offline."	"My customers should be wowed by how seamless their shopping is on every channel."
Operational Efficiency Manpower crunch, employees resistant to change	"My staff is already doing multiple functions, how to expect any to become IT manager too?"	"It's a culture of change to move from old systems to new, and my staff are still getting used to it."	"Unmanned store has potential, but I need to overcome operational and commercial challenges first."
Business Growth Disjointed operations hinder business expansions because of a. Silo-ed systems; and b. Disparate 3rd party systems	"I try to adopt anything free, or at no-cost, and I end up using many apps that don't talk to each other!"	"I struggle to make decisions fast as our shopper data are spread across different e-commerce platforms, and physical retail outlets!"	"It's challenging to work with multiple solutions; their systems have problems talking to one another."

Digital Solution Roadmap

This digital solution roadmap outlines solution categories for your company to adopt at each stage of growth. Some of the solutions are enabled with data analytics and artificial intelligence (AI) capabilities.

Business Area	Stage 1 Getting ready for the digital economy For SMEs looking to build their foundational digital capabilities	Stage 2 Growing in the digital economy For SMEs looking to grow their digital capabilities	Stage 3 Leaping ahead in the digital economy For SMEs looking to reach an advanced stage of digital capabilities
Customer Experience	Customer Relationship Management (CRM) Tool	In-Store Analytics	Immersive Retail
Operational Efficiency	Integrated POS (with mobile features)	Multichannel e-Commerce Software	Unmanned Store
	ERP (Inventory & Sales Management System)	Self - Checkout Solution	Electronic Shelf Label (ESL)
Business Growth	E-Commerce Solution	Social Commerce Tool	
		Omnichannel Retail Management (OCRM)	



SMEs can also adopt generic solutions such as cybersecurity, accounting management, and human resource management. Newly incorporated businesses can also adopt foundational solutions under Start Digital, covering areas such as cybersecurity, sales generation, and business efficiency.

Note

- * This roadmap shall be updated over time as digitalisation of the industry progresses and new technologies are introduced for the industry.
- ** To facilitate ease of understanding solution categories are assigned to the business area that will impact most.

Stage 1: Getting ready for the digital economy

For SMEs looking to build their foundational digital capabilities



Customer Relationship Management (CRM) Tool

Serves as a centralised database and helps retailers manage relationships and interactions with current and potential customers. Features include tracking of customer interactions and preferences and leads management.

Benefits

Helps retailers to stay connected to customers, streamlines processes and improves profitability

Enables retailers to increase customer satisfaction and loyalty



Integrated POS (with mobile features)

Allows retailers to digitally process transactions using devices such as a Point of Sale (POS) terminal, linking these transactions to backend systems such as CRM and Inventory Management. It has mobile features allowing service staff to complete the sales transactions without being fixed to one static location.

Benefits

Allows payment system to become more efficient and connected

Enables service staff to complete sales transactions from various locations for an enhanced shopping experience



ERP (Inventory & Sales Management System)

Oversees and controls a retailer's inventory or stock of goods from ordering to storing, tracking, and managing the flow of products from suppliers to warehouses or storage facilities, and ultimately to customers.

Benefits

Increases Operational Efficiency by reducing time spent on inventory monitoring

Helps accelerate the analysis of product trends and best-sellers



E-Commerce Solution

Enables retailers to sell products and services online. Features include development of website or online storefront, shopping cart and payment processing modules.

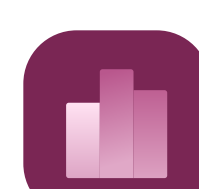
Benefits

Enables retailers to expand customer base and reach out to customers globally

Enables retailers to have faster response to buyer/market demands

Stage 2: Growing in the digital economy

For SMEs looking to grow their digital capabilities



In-Store Analytics

Refers to the use of technology (e.g. in-store video capabilities, IoT sensors, and analytics software) and data analysis techniques to gather insights, measure and generate actionable information about various aspects of the in-store environment.

Benefits

Enables retailers to generate actionable insights to enhance in-store experience

Uncovers peak shopping times and customer traffic patterns for more efficient staff scheduling which can help improve operational efficiency



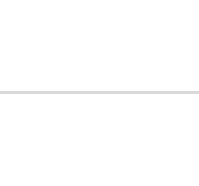
Multichannel e-Commerce Software

Allows merchants to manage sales and inventory across multiple e-commerce channels and e-stores (including marketplaces and webstores) simultaneously in real-time through a single interface.

Benefits

Increases operational efficiency by eliminating duplicate processes and reducing manual work

Ensures enhanced shopping experience with a reduction in inventory management error



Self-Checkout Solution

Allows customers to scan and pay for their purchases via technology-enabled systems in retail stores.

Benefits

Helps reduce labour costs

Improves customer experience by reducing waiting times for cashiers



Electronic Shelf Label (ESL)

Displays product pricing and information electronically on digital price tags or labels which can be updated in real time.

Benefits

Minimises pricing errors and reduce labor costs associated with traditional price tags, enabling staff to focus on customer service and other critical tasks

Increases staff productivity with automatic price and promotion updates



Social Commerce Tool

Enables retailers to simplify:

- Development and deployment of social media content but not limited to auto scripter & scheduler; and
- Management of listings and orders across different social media platforms

Benefits

Helps retailers save time and automates the publishing of social media content and management of listings and orders



Omnichannel Retail Management (OCRM)

Helps retailers integrate their online and offline sales channels orders with backend systems such as CRM, inventory & sales management, and 3rd party systems (e.g. warehouse management, fulfillment) to deliver a unified customer experience.

Benefits

Enables retailers to offer a seamless shopping experience across various customer touchpoints

Ensures real-time product and inventory visibility, reducing stocking issues

Stage 3: Leaping ahead in the digital economy

For SMEs looking to reach an advanced stage of digital capabilities



Immersive Retail

Leverages advanced technologies such as Augmented Reality (AR)/Virtual Reality (VR) – cameras, to create digital twins, virtual rooms, interactive product guides and immersive product replicas for an interactive shopping experience.

Benefits

Helps provide an immersive and personalised customer retail experience

Increases customer interaction with products and lengthens dwell times

Enables retailers to reach to a wider audience beyond the physical store



Unmanned Store

Operates without the need for human intervention. Technologies such as smart cameras, sensors, and artificial intelligence are deployed to track customers' purchases and process payments automatically.

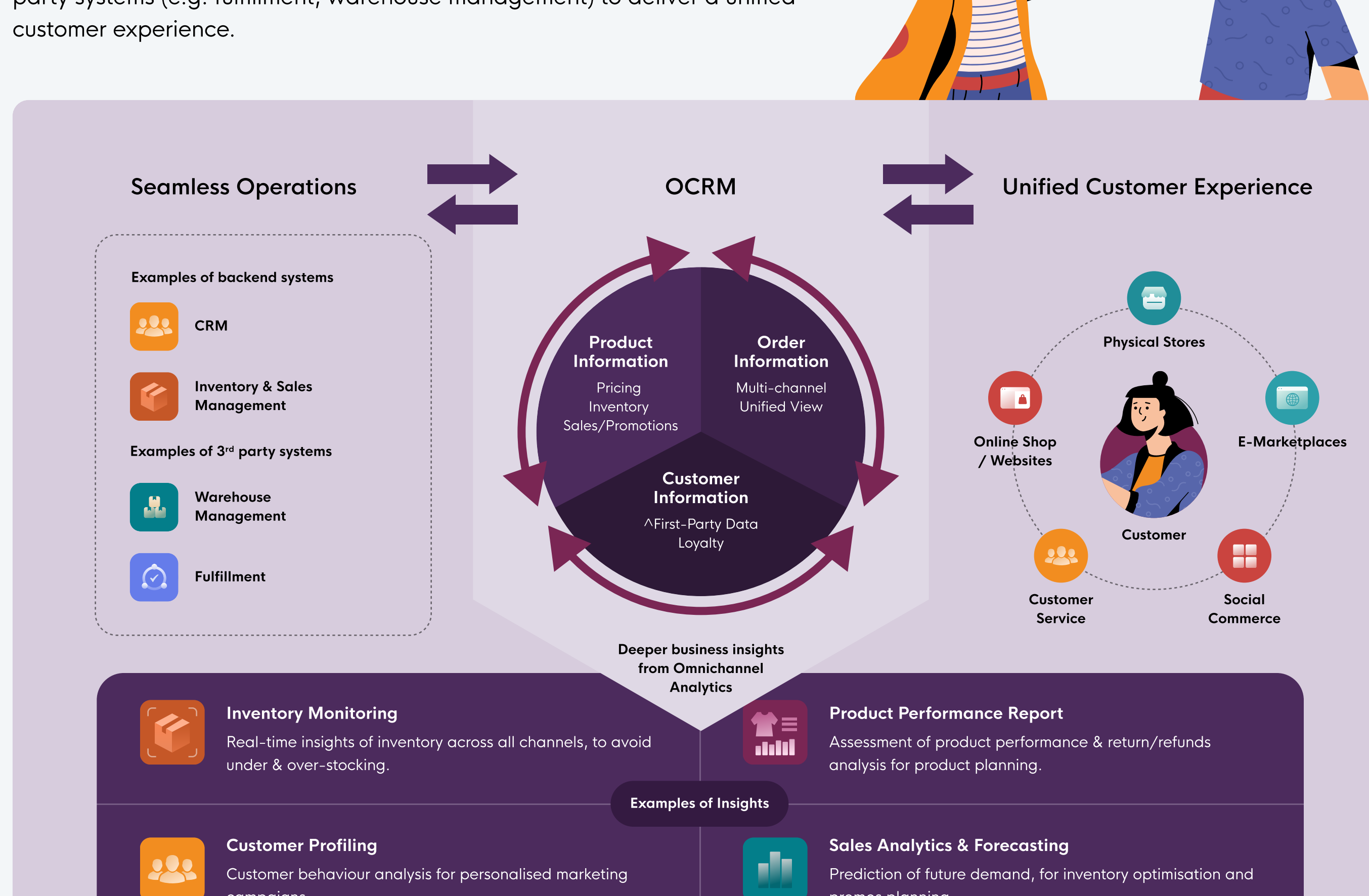
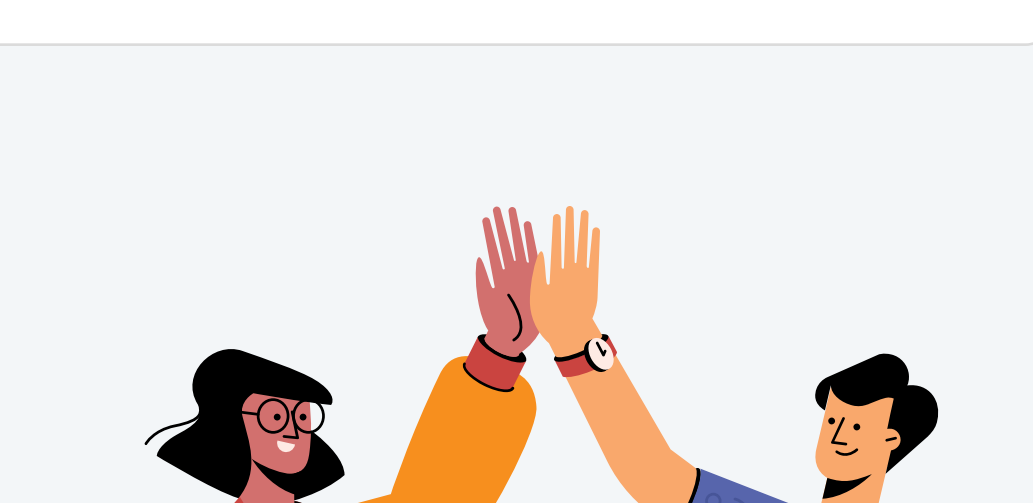
Benefits

Reduces reliance on manpower and cuts labour costs with the ability to operate 24/7 without the need for on-site staff

Increases accuracy of inventory management, reducing the need for frequent stock takes

Omnichannel Retail Management (OCRM)

Helps retailers integrate their online and offline sales channels, orders with backend systems such as CRM, inventory & sales management, and 3rd party systems (e.g. fulfillment, warehouse management) to deliver a unified customer experience.

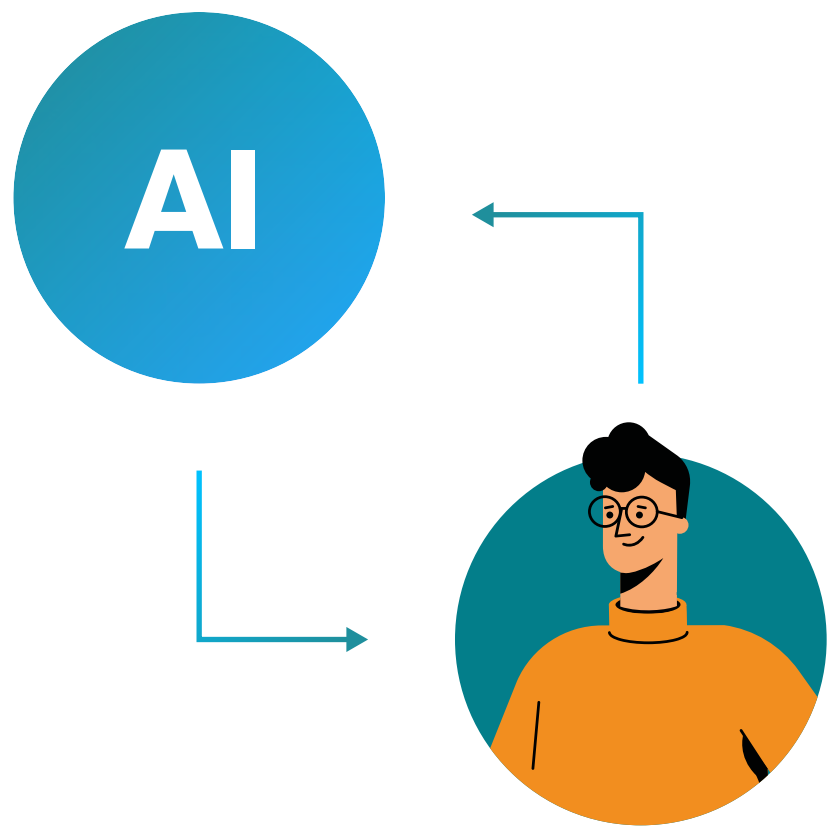


[^]First-Party Data refers to information that retailers collect directly from its customers and prospects (eg. survey and feedback) across various customer touchpoints and CRM systems.

AI in Retail Tech

AI and Generative AI help elevate customer experience, improve operational efficiency and accelerate business growth.

Examples of use of AI in IDP solutions for retail

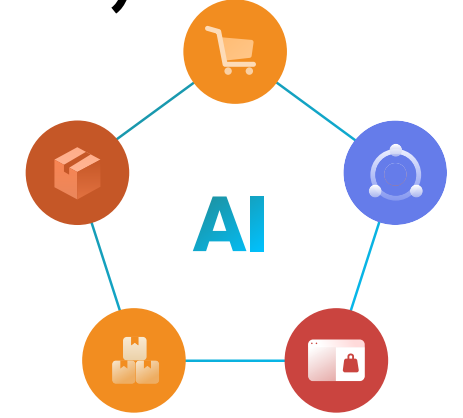


Customer Relationship Management (CRM) Tool

Develop personalised shopping experiences based on individual customer preferences and browsing history, e.g. personalised product recommendations¹, marketing campaigns, and promotions.

ERP (Inventory & Sales Management System)

Forecast demand and optimise inventory to minimise overstock and understock situations, reducing carrying costs and ensuring product availability, and improve customer satisfaction.



Social Commerce Tools

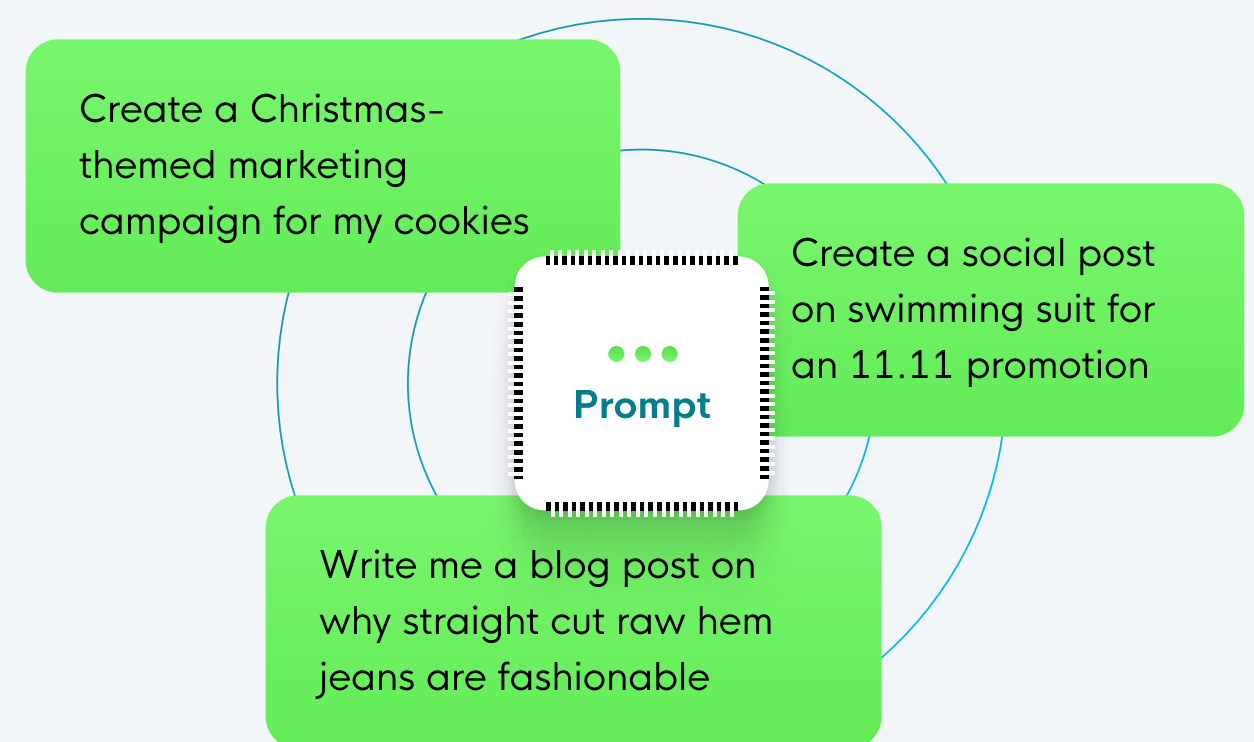
Analyse social media data to understand consumer sentiment, track brand mentions, and identify emerging trends in real-time, enabling planning for business' growth.



1. IMDA has developed a Retail Recommendation Engine (RRE) that helps retailers in Singapore offer personalised product recommendations to increase sales and improve customer satisfaction. The RRE can be trained on vendor-specific data, to find the right products for customers based on preferences, browsing behaviour, and trends.

Generative AI

Generative AI supports the creation of new content, designs, and ideas, which can help retailers to generate creative marketing materials, unique product designs and innovative solutions.



In the area of Generative AI, some retail use cases include:



Customer service support

- ✓ Auto-generation of responses to customers' queries, enabling improved 24/7 Customer Service Support.



E-Commerce product descriptions

- ✓ Creation of product descriptions and promotional content, driving customer engagement via online channels.

In leveraging AI-enabled solutions, retailers should consider the following:

Cost

Retailers need to consider the cost of implementing AI-enabled solutions and ensure the benefits outweigh the cost. Business could start with use cases that offer most value.

Data

Retailers will need access to high quality data necessary to power the AI-enabled solutions. If the collected data contains personal identifiable information, due care needs to be exercised in the collection, processing and storage of these personal data to ensure that they are compliant with Personal Data Protection regulation.

Customer Experience

Retailers need to ensure the AI-enabled solutions provide positive retail experience for their customers and/or increases customer satisfaction.



Cybersecurity and Data Protection Roadmap

This roadmap serves as a guide to introduce SMEs to cyber security and data protection measures at each of the three stages of growth. For more information, please refer to [CSA SG Cyber Safe programme](#), [Data Protection Essentials \(DPE\)](#) and [Data Protection Trustmark \(DPTM\)](#).

Areas	Stage 1 Getting Ready for the Digital Economy	Stage 2 Growing in the Digital Economy	Stage 3 Leaping Ahead in the Digital Economy
Cybersecurity As the company increases its level of digitalisation	<p>Cyber hygiene measures for protection against common attacks</p> <p> Cybersecurity Toolkits</p> <p> For Employees For SMEs</p> <p> CYBER ESSENTIALS</p> <p> Cybersecurity Solution</p>	<p>Risk assessment to assess if cybersecurity measures commensurate with enterprise risk profile</p> <p> CYBER TRUST</p> <p> Cybersecurity Solution</p>	
Data Protection As the company increases its collection and use of personal data	<p>Basic data protection and security practices to protect customers' personal data & recover quickly from a data breach</p> <p> 101 DATA PROTECTION ESSENTIALS</p>	<p>Accountable data protection practices to demonstrate compliance with the PDPA</p> <p> DATA PROTECTION ASSURED</p>	

Digital skills training roadmap

This digital skills training roadmap serves as a guide to equip your company and workers with the necessary skills (including change management) to adopt digital solutions at each stage of growth. Training programmes are aligned to [SkillsFramework](#) and emerging areas under [SkillsFuture Series](#).

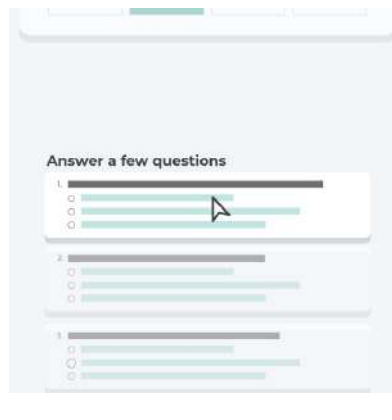
Areas	Stage 1 Getting Ready for the Digital Economy	Stage 2 Growing in the Digital Economy	Stage 3 Leaping Ahead in the Digital Economy
Tech Basics All employees in Industry	<ul style="list-style-type: none"> ✓ Basics in Content Generation ✓ Digital Transformation with a New Mindset ✓ Engage Customers through Social Media ✓ Fundamentals to Starting an Online Business ✓ Improve Customer Engagement with Digital Mindset ✓ Introduction to Data Analytics ✓ Introduction to Digital Marketing ✓ Personal Online Branding ✓ Set Up an Online Business ✓ Thrive in Digital Disruption - Learn, Unlearn and Relearn 	<ul style="list-style-type: none"> ✓ Content Management ✓ Digital Commerce Visual ✓ Digital Strategy and the 101 of Search Engine Optimisation (SEO) ✓ Empower Your Business with Social Commerce and Digital Payment ✓ Insights to Social & Influencer Marketing ✓ Level Up Customer Engagement Through Live Streaming ✓ Leverage Customer Relationship Management to Retain and Grow Your Shopee Customer Base ✓ Omni Commerce Retail ✓ Social Media Marketing ✓ Website Design 	<ul style="list-style-type: none"> ✓ Business Environment Analysis ✓ Digital Marketing to Drive Business Growth and Return on Investment(ROI) ✓ Increase Business Revenue through Search Engine Optimisation (SEO) ✓ Paid Search Engine Marketing (SEM) ✓ Pivoting for Business Growth ✓ Search Engine Optimisation (SEO)
Tech Advanced Employees that explore or use advanced tech in their work	<ul style="list-style-type: none"> ✓ Best Practices of E-commerce Transactions ESG Technical Reference 76 (TR76) ✓ Boost Your Business with Social Commerce ✓ Business Intelligence to Improve Revenue ✓ Junpstart Your Online Business ✓ Marketing Campaign ✓ Merchandise Performance Analysis ✓ Mint your first Non-Fungible Token (NFT) in top Marketplaces ✓ Smart Social Commerce ✓ Start your business at no cost using Affiliate Marketing 	<ul style="list-style-type: none"> ✓ CaseTrust Accreditation Scheme for e-Commerce Business ✓ Demystify Emerging Digital Technologies in the New Retail Revolution ✓ Drive Conversions & Optimise Returns with Social & Influencer Marketing ✓ Generate Leads for Free & Maximise Your Sales Conversions ✓ Responsive Website Design 	<ul style="list-style-type: none"> ✓ Data Studio Masterclasses ✓ Google Analytics 4 (GA4) with Google Tag Manager (GTM) ✓ Google Analytics for E-commerce + Google Analytics Individual Qualification (GAIQ) Certification Workshop ✓ Intelligent Business for Leaders in Cognitive Artificial Intelligence Era ✓ Master Google Ads to Turbo Charge Leads and Sales

For assistance in company led upskilling of existing employees in tech capabilities, including job redesign and redeployment, contact [IMDA's Jobs Transformation Map \(JTM\) Training Partners](#)

Note: Course directory can be found at [MySkillsFuture Course Directory](#)

Get Started Today

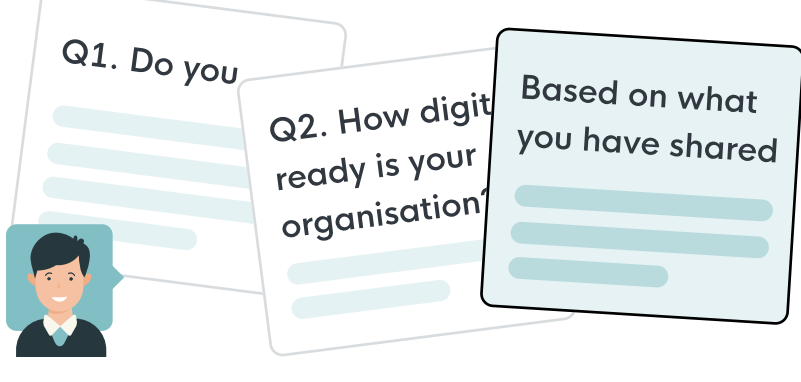
CTO-as-a-Service is a one-stop self-help platform that allows your company to identify digitalisation needs, access market-proven solutions and engage digital consultants for customised advice.



Take a 5-minute Digital Health Check to see if you are digitally-ready

Answer a few simple questions to receive recommendations on the right digital solutions, grants and support based on your business profile.

[Start now](#)



Digital Consultancy

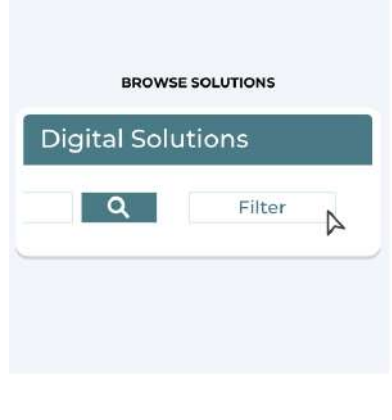
Get complimentary Digital Consultancy and project management support to grow your business.

[Get Started](#)

Get Inspired!

Check out how some SMEs have successfully grown their business through digitalisation and keep up with the latest updates.

[Learn More](#)



Looking for digital solutions with grants or support

Browse over 400 digital solutions and software with grants or support eligible for small and medium enterprises (SMEs).

[Start now](#)

Additional Information

Other references and valuable insights for you to get to know the sector better.

For SME	For ICM Vendors
<p>One-stop self-help platform</p> <ul style="list-style-type: none"> > CTO-as-a-Service <p>Business Advisory and Digital Consultancy</p> <ul style="list-style-type: none"> > SME Centres managed by trade associations <ul style="list-style-type: none"> • SME Centre@ASME • SME Centre@SCCCI • SME Centre@SICCI • SME Centre@SMCCI • SME Centre@SMF 	<p>Digital Skills Training</p> <ul style="list-style-type: none"> > Skills Framework > SkillsFuture for Digital Workplace (SFDW) 2.0 > SkillsFuture Series > MySkillsFuture course directory
	<p>Cybersecurity and Data Protection</p> <ul style="list-style-type: none"> > CSA SG Cyber Safe Programme > Cyber Essentials > Cybersecurity Toolkits > Cyber Trust > Better Data Driven Business > Data Protection Essentials > Data Protection Trustmark

For ICM Vendors
<ul style="list-style-type: none"> > Vendors Self-Assessment Checklist