New digital plan to help Marine & Offshore Engineering industry digitalise

*About 1,000 SMEs expected to benefit from the Industry Digital Plan
rolled out by Enterprise Singapore and IMDA*

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1. About 1,000 enterprises and 75,000 employees can take advantage of the **Marine & Offshore Engineering Industry Digital Plan (IDP)** to overcome current industry challenges through digitalisation. Digitalisation would allow M&OE enterprises to mitigate some of the impact brought about by the COVID-19 pandemic. Jointly developed by Enterprise Singapore (ESG) and the Infocomm Media Development Authority (IMDA)[1], the IDP was launched by Ms Low Yen Ling, Minister of State for Trade and Industry, at a virtual engagement session today. The IDP helps Marine & Offshore Engineering (M&OE) enterprises assess their digital readiness and identify ways to go digital.

2. The IDP was developed based on consultations and feedback from industry players in 2020 which showed that SMEs were keen to streamline operations and maximise productivity through digital tools. In line with the needs of the industry, the IDP comprises two roadmaps – the **Digital Roadmap** charts out different digital solutions SMEs can adopt at each stage of their business growth and digital maturity; while the **Digital Training Roadmap** offers a corresponding training roadmap for employees, to equip them with the right skill sets.

3. The IDP includes specially curated solutions such as Workforce Optimiser, Project and Scheduling Management, and Asset Monitoring and Management System. Companies who have adopted such solutions have seen productivity improvements and better time management by employees. For example,

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[1] The IDP was developed in consultation with the Association of Singapore Marine Industries (ASMI) and other industry partners.

- Local SME Masterscan Engineering Pte Ltd recently adopted a Workforce Management solution. Together with their Enterprise Resource Planning (ERP) system, this has enabled them to reduce the time needed for invoicing and payroll by about 50% and 30% respectively.

- Another SME Completion Products Pte Ltd, implemented an ERP solution to streamline their corporate functions. In addition, the company adopted new software and machinery such as Quality Management System (QMS) and semi-automated Screen Wrapping Machine to reduce material waste and project lead time. This helped lower their operating expenditure by 10%.

A step-by-step guide on digital adoption for M&OE SMEs

4. As part of the SMEs Go Digital Programme[2], the IDP also provides a step-by-step guide on the digital solutions that SMEs can adopt at three stages of growth:

- **Stage 1** gets SMEs ready for the digital economy and lists the basic digital solutions that can help them streamline operations to optimise the use of their existing resources. Solutions such as ERP for Sales and Accounting and Project and Scheduling Management, will help automate manual data entry and tracking. These solutions will reduce human errors, and enable employees to focus on higher-value work whilst allowing enterprises to monitor and plan their resources more efficiently.

- **Stage 2** provides digital solutions for SMEs that are ready to scale up. These solutions enable SMEs to integrate their current workflow, machinery and key processes to enhance their front-end sales processes and back-end production capabilities. These include solutions such as a centralised digital platform with data analytics that allows businesses to better monitor and control multiple software applications to optimise processes and make more informed decisions. Others include condition-monitoring tools that anticipate equipment failures by tracking overall equipment performance. Coupled with data analytics and artificial intelligence, better data-driven decisions can be made for process and product improvements.

- **Stage 3** identifies advanced technologies that SMEs can adopt to strengthen their competitive edge. These include autonomous robots and drones to perform tasks such as work site monitoring or inspections. These solutions free up employees from

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[2] SMEs Go Digital, launched in April 2017, is a whole-of-government programme that aims to help SMEs use digital technologies, build strong digital capabilities and participate in the Digital Economy. More information can be found at www.imda.gov.sg/SMEsGoDigital.

repetitive, manual work, and provides them the opportunity to take on higher-value jobs such as drone operations or robotics programming. High-risk tasks will also be reduced, making the work environment safer for the employees.

5. Ms Low Yen Ling, Minister of State for Trade and Industry, said, "Although the Marine and Offshore Engineering industry is facing very challenging times, it can pivot to new adjacent growth areas and scale up through digital transformation. The Government is deeply cognisant of the present challenges faced by this sector and will continue providing utmost support to the ecosystem of SMEs undergirding it. We will keep on fine-tuning efforts to mitigate the pandemic's impact and maintaining the industry's global edge of integrating parts of production from all over the world in Singapore. It is also equally critical for the sector to keep an eye on the future. To ride out the storm together, we will equip and enable our SMEs to leverage technology to upskill their workers' e-capabilities and capture new opportunities. With digitalisation, they can do more with less. Besides gaining higher productivity and better cost savings through digitalisation, SMEs can optimise resources and focus their manpower on achieving higher efficiencies. In addition, companies can leverage technology to improve their product and service offerings. Going digital is essential for surviving disruption and ensuring future relevance."

6. Ms Esther Xu, Director for Marine & Offshore and Engineering Services, ESG said, "Apart from the impact of COVID-19, the Marine & Offshore Engineering industry was already facing major shifts, such as the accelerated global transition towards cleaner energy and rapid advancements in technology such as Industrial Internet of Things (IIoT), cloud computing, robotics and Artificial Intelligence (AI). As an export-oriented sector, SMEs will need to leverage digital technology and solutions to manage current challenges and in the longer run, stay ahead of global competition. This is not just about knowing which digital solutions are available, but understanding how different technologies can be applied to deliver business value and impact. However, the use of technology must be complemented by a workforce that is equipped with the necessary digital skillsets. This IDP provides a framework for M&OE SMEs to start their digital journey."

7. Ms Catherine Chong, Director for the SMEs Go Digital programme, IMDA said, "We encourage more SMEs in the Marine & Offshore Engineering industry to kickstart their digitalisation journey tapping on the Industry Digital Plan (IDP). With increasing shortage in skilled manpower and rising global competition, it is vital for SMEs in the M&OE industry to build greater resilience to adapt and thrive in the digital future. SMEs can seize new

growth opportunities by integrating and investing in relevant digital technologies to enhance their productivity and business performance, such as Project Scheduling and Workforce Management systems, and Predictive Monitoring & Maintenance using AI and IoT technologies. Ultimately, we hope to see these digitalisation efforts boost the industry as a whole."

Online self-assessment tool and training roadmap

8. To embark on their digitalisation journeys, SMEs can make use of an online self-assessment checklist to help them better understand their digital maturity and readiness, as well as identify gaps in their digital capabilities. The checklist takes into consideration factors such as the SME's current business operations, level of digitalisation and business expansion plans. This is accessible at https://go.gov.sg/imda-marineoffshore-idp.

9. Continuous workforce upskilling is vital to ensure employees remain relevant and support the company's digitalisation journey. Under the Digital Training Roadmap, SMEs can tailor their training programmes according to the different needs of workers in various job roles and at each stage of their digital growth. These training programmes are also aligned to the Skills Framework for Marine and Offshore.

10. Key digital solutions in the IDP, such as Workforce Optimiser, Project and Scheduling Management, and Asset Monitoring and Management System, are included as pre-approved solutions supported by the Productivity Solutions Grant (PSG). Apart from digital solutions, companies can also tap PSG to adopt pre-scoped equipment such as semi-mechanised gas cutting machines, welding machines and production tools, to enhance efficiency and optimise their manpower resources. SMEs can visit GoBusiness Gov Assist[3] at https://govassist.gobusiness.gov.sg/productivity-solutions-grant/ for the list of pre-approved solutions supported by PSG.

Annex: **Infographic of the Digital Roadmap for Marine & Offshore Engineering Industry and Digital Training Roadmap**

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[3] GoBusiness Gov Assist is a one-stop, centralised platform aimed at improving SMEs' access to technology and digital solutions.

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About Enterprise Singapore

Enterprise Singapore (ESG) is the government agency championing enterprise development. We work with committed companies to build capabilities, innovate and internationalise.

We also support the growth of Singapore as a hub for global trading and startups, and build trust in Singapore's products and services through quality and standards.

Visit www.enterprisesg.gov.sg for more information.

About the Infocomm Media Development Authority (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.

04 DIGITAL ROADMAP

This digital roadmap serves as a guide for your company as you embark on your digital journey.

STAGE 01
Getting Ready for the Digital Economy

Streamlined Operations, Optimised Resources

M&OE Enterprise Resource Planning (ERP):

- Sales & Accounting Management
- Relationship Management
- Workforce Optimiser
- Project and Scheduling Management
- Asset Monitoring and Management System

- e-Permit to Work
- 3D Scanning & Modelling

STAGE 02
Growing in the Digital Economy

Integration of Assets, Enhanced Production Capabilities

- e-Procurement
- Augmented Reality and Virtual Reality (AR/VR) Simulation
- Predictive Equipment Monitoring & Maintenance
- Centralised Platform with Data Analytics

STAGE 03
Leaping Ahead

Autonomous Operations, Intelligent Business

- Virtual Inspection & Certification
- Autonomous Robots & Drones for Operations
- Automated Warehousing & Robotics Operations
- Digital 3D Twin

BUSINESS CAPABILITIES
Document Management, Fleet Management, Cybersecurity

Note: This roadmap will be updated over time as digitalisation of the industry progresses and new technologies are introduced.

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05 DIGITAL ROADMAP ON TRAINING

This training roadmap serves as a guide to prepare companies and their workforce to adopt digital solutions at each stage of growth.

	STAGE 01	STAGE 02	STAGE 03
	GETTING READY FOR THE DIGITAL ECONOMY	GROWING IN THE DIGITAL ECONOMY	LEAPING AHEAD
"TECH BASICS" All employees	• SkillsFuture for Digital Workplace (SFDW) • Effective Digital Marketing and Sales • Robotic Process Automation • Fundamentals of Data Analytics • Digital Learning Basic Workshop (for employees to learn "how to learn online")	• Introduction to Predictive Analytics for Maintenance • Intermediate Robotic Process Automation • Strategies for Effective Data and Information Management • Internet of Things (IoT) for Engineers	• Fundamentals of Drones/ Unmanned Aerial Vehicle (UAV) • Learn how to implement Internet of Things (IOT) Solutions in a 2-day Bootcamp • Introduction to Artificial Intelligence (AI) and Machine Learning
	Vendor Solution-Specific Training		
"TECH ADVANCED" Employees that use or are exploring advanced tech in their work /organisation	• Analytics for Enterprises • Data Analytics for Engineers • Project Planning & Scheduling (Microsoft Project 2016) • Data Storytelling (TeSA) • Tableau Desktop I and Desktop II (TeSA)	• Appreciation of IoT and Data Management • Industrial Robotised Polishing • DS101: Introduction to Python Programming (TeSA) • DS102: Data Analytics with Python (TeSA)	• Introduction to Advanced Robotics • Analytics and Computational Modelling • Collaborative Robots Programming and Applications
	Training programmes are aligned to the **Skills Framework** and emerging areas under the **SkillsFuture Series**		

"Tech Basics" and "Tech Advanced" Courses Directory:
https://www.myskillsfuture.gov.sg/courses

TeSA Courses Directory:
https://www.imda.gov.sg/imtalent/training-and-courses

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