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Media Release

## **Precision Engineering Industry Transformation Map to Pave the Way for Digital Manufacturing**

*3,000 PMET jobs to be created under EDB-led roadmap*

1. Mr. S Iswaran, Minister for Trade & Industry (Industry) launched the Precision Engineering Industry Transformation Map (ITM) today at Meiban, a local Precision Engineering company. Led by the Singapore Economic Development Board (EDB), the ITM is the first industry-specific roadmap to be rolled out for the manufacturing sectors. The PE ITM has identified new growth areas that will take Singapore into the future era of manufacturing and create 3,000 PMET jobs by 2020. Through the strategies outlined in the PE ITM, the industry's Value Added is envisaged to grow from S\$8.8 billion in 2014 to S\$14 billion by 2020.

### **New Growth Areas**

2. A major pillar of our manufacturing base in Singapore, the Precision Engineering industry employed 94,000 workers and contributed S\$8.8 billion in VA in 2014, which is nearly 15% of Singapore's manufacturing VA.

3. A key strategy of the ITM aims to shift the industry mix of PE towards higher value-added activities that would form the foundation for the next era of manufacturing. This will be done by growing complementary sectors such as robotics, additive manufacturing, sensors, advanced materials and lasers & optics. Under the Research, Innovation and Enterprise (RIE) 2020 plan,

Singapore has set aside S\$3.2 billion for R&D in Advanced Manufacturing and Engineering.

4. The groundwork has been laid for some of these new growth areas. At Budget 2016, the \$450 million National Robotics Programme (NRP) led by the EDB and the Agency for Science, Technology and Research (A\*STAR) was launched to develop an innovative robotics industry and to drive local lead demand and adoption of robotics. Similarly, the National Additive Manufacturing Innovation Cluster (NAMIC) housed at the Nanyang Technological University has a dual mandate to support R&D in additive manufacturing and adoption of the technology in SMEs.

### **Innovation as a Key Driver for Digital Manufacturing**

5. To ensure that Singapore is prepared for the technology-intensive digital manufacturing era, the Government will invest in new infrastructure to build up new technical capabilities of local companies. The PE ITM will implement two key initiatives to encourage innovation:

i. 'Model Digital Factories'

Digital manufacturing platforms will be set up in A\*STAR's Singapore Institute of Manufacturing Technology (SIMTech) and Advanced Remanufacturing & Technology Centre (ARTC) to develop digital technologies and solutions for MNCs and SMEs. The first phases are expected to be ready by 2017. These 'model factories' will showcase interoperability solutions and allow companies to testbed and co-develop digital solutions. In this learning environment, companies can train and upgrade their workforce in digital manufacturing processes.

ii. Digital Champions e.g. Meiban

EDB will groom PE companies ready to embark on transformative projects to digitalise their factory operations as 'digital champions'. Homegrown Precision Engineering company Meiban is the first of such companies to embrace this

vision. Under its iSmart Factory project, Meiban will co-develop solutions with technology solution partners like PBA, Arcstone, Kuka and RansNet. These solutions in robotics, automation and smart factory software will be test-bedded and adopted in Meiban factories, and commercialized for both local and global markets by Meiban's partners. International Enterprise Singapore will be supporting companies that are tapping into new markets by equipping them with market insights, connections to global business partners, and grant support.

### **New Jobs & Skills Upgrading for Singaporeans**

6. The move towards digital manufacturing in the PE industry would see the creation of 3,000 PMET jobs by 2020, in areas related to digital manufacturing, such as robot coordinators and industrial data scientists. Together with broad-based upgrading of jobs for digital manufacturing, the PE workforce profile will shift significantly, with PMETs expected to account for more than half of the industry workforce by 2020, from 48% to 58%.

7. The workforce can expect strong support from the Government to acquire new capabilities for these new roles. Under the new Skills Framework for Precision Engineering launched by the SkillsFuture Singapore (SSG), employers and workers will be equipped with insights on career pathways for 13 occupations, job roles, and training programmes. As part of the Adapt & Grow initiative under Workforce Singapore (WSG), Professional Conversion Programmes (PCPs) are being developed to support reskilling of mid-careerists keen to embark on new careers. WSG has also launched a series of advanced manufacturing masterclasses covering topics such as additive manufacturing and advanced robotics. Since February this year, more than 300 PMETs have attended the masterclasses.

### **Tripartite Collaboration and Consultation for Implementation**

8. To implement these new initiatives, the EDB will work hand in hand with the industry, associations, unions and other Government agencies. The ITM includes a plan to strengthen the membership of the Singapore Precision

Engineering and Technology Association (SPETA), which will manage a pool of industry veterans to help SMEs chart their own growth paths.

9. The scope of the Precision Engineering Sectorial Tripartite Committee will be expanded to provide inputs on the progress of ITM objectives. Comprising representatives from government agencies, unions and industries, this Committee will be a key channel for engaging companies, industry associations, schools and the workforce in the implementation of the ITM.

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## **ABOUT THE EDB**

The Singapore Economic Development Board (EDB) is the lead government agency for planning and executing strategies to enhance Singapore's position as a global business centre. EDB dreams, designs and delivers solutions that create value for investors and companies in Singapore. Our mission is to create for Singapore, sustainable economic growth with vibrant business and good job opportunities.

EDB's Home strategy articulates how we are positioning Singapore for the future. It is about extending Singapore's value proposition to businesses not just to help them improve their bottom line, but also to help them grow their top line through establishing and deepening strategic activities in Singapore to drive their business, innovation and talent objectives in Asia and globally.

For more information on EDB, please visit [www.sedb.com](http://www.sedb.com)

*For media enquiries, please contact:*

Ms. Qinyan Yu / Ms. Leow Si Wan

Tel: (65) 6832-6427 / 6832-6546

Mobile: (65) 9733-9437 / 8722-6965

Email: [yu\\_qinyan@edb.gov.sg](mailto:yu_qinyan@edb.gov.sg) / [leow\\_si\\_wan@edb.gov.sg](mailto:leow_si_wan@edb.gov.sg)

## **Annex: Meiban's iSmart Factory**

The Precision Engineering (PE) Industry Transformation Map (ITM) aims to drive adoption of digital manufacturing technologies within the PE industry to help companies create new competitive advantages and enable new products, processes, services and business models.

The MoU signing ceremony between Meiban and her technology partners marks the start of the company's transformative journey to create a smart factory of the future, and prepare Meiban for the next wave of growth enabled by digital manufacturing technologies. The project embodies many of the outcomes that the PE ITM aspires to achieve. These include increasing in productivity through automation, deepening technical capabilities of local companies to create new products and services, creation of good jobs for Singaporeans and continual upgrading of the local workforce.

### **About the MoU**

Under the MoU, the companies will work with Meiban to:

- 1) To co-develop and co-build robotics/automation/smart factory software solutions together for industry 4.0 standards.
- 2) To test bed and implement the solutions in Meiban factories
- 3) Possible future commercialisation and sales of the robotics/automation/smart factory software solutions to other factories locally and globally

### **About the Partners**

The four companies involved in the MoU signing are:

#### **1) Arcstone**

Arcstone seeks to revolutionize the way data is utilized in enterprises. Termed arc.ops™ (Arcstone Operations Platform), Arcstone's in-house IoT/SaaS platform integrates with IoT sensors, machines, ERPs, and workstation tablets for fully automated to fully manual processes in manufacturing, machine maintenance and warehousing.

## **2) PBA**

PBA (Precision Bearings and Automation) started off as a bearings and mechanical components trading company which evolved into a contract manufacturing, aerospace components distributor, spindle repairs, IT services and a robotics & customized solutions company. PBA has a strong focus on industry education as well as the deployment of robotics and automation integrated with system solutions to meet industry demands.

## **3) Kuka**

As a pioneer in robotics and automation technology, KUKA Robotics is one of the leading manufacturers of robotic systems worldwide. KUKA offers a unique and wide range of industrial robots and robot systems, covering all common payload categories and robot types.

## **4) RansNET**

RansNet Singapore Pte Ltd is a Singapore-based company started in 2011. RansNet develops cloud management platform (mfusion) and Internet networking solutions (mbox) for enterprises, public venues and hospitalities.

## **Desired Outcomes**

### **1) *Higher level of productivity and efficiency through an Integrated 'smart' factory***

The objective of iSmart Factory is to conceive, test and validate Industry 4.0 solutions within a real manufacturing environment. Focusing on intellectual property development, data analytics and monitoring control platforms, the overall aim is to increase productivity and efficiency in material control, line and equipment smart planning, better resources usage and logistics management. The success of Meiban's digitalization initiative will be replicated in its factories in Malaysia and China, culminating in a manufacturing network coordinated from the control tower in Singapore.

### **2) *Growth opportunities for suppliers and solution providers***

The local digital technology suppliers and solutions providers will also benefit. The four companies – Arcstone, PBA, Kuka and RansNET – will be the

receptacles of the new knowledge and innovations that will be created. Partnering with a Digital Champion like Meiban gives them the opportunity to grow and internationalise as their solutions are scaled up and deployed overseas.

### **3) *Creation, redeployment and redesigning of jobs***

The iSmart Factory, will involve a multidisciplinary core team of software and UX/UI engineers to integrate different advanced technologies across shop floor operations. Instead of production planners, there may be robot coordinators overseeing multiple robotized units to optimize production, and professional systems integrators.