

November 2, 2017

## Fujitsu Signs MoU with ARTC to jointly develop smart manufacturing solutions for future factories

### News facts:

- Memorandum of Understanding between Fujitsu and ARTC to realise the Factory of the Future Vision
- The partnership supports Singapore's push towards advanced manufacturing and commitment to sharpen Singapore's competitive edge to be a leading manufacturing hub
- Areas of collaboration from integrated design environment for product development, AI to robotics, with focus on digitalising the manufacturing process for businesses of all sizes, and improving cybersecurity and workplace safety

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**Singapore, November 2, 2017** – Fujitsu and the Advanced Remanufacturing and Technology Centre (ARTC) announced a strategic partnership to accelerate the pace of digital transformation for the Factory of the Future. The collaboration seeks to allow businesses of all sizes to tap the potential of smart manufacturing solutions. A Memorandum of Understanding (MoU) signing ceremony between Fujitsu and the ARTC was held at the Fujitsu World Tour – Asia Conference Singapore event today.

ARTC is a public-private collaboration between A\*STAR, NTU and over 50 industry partners working together to bridge technological gaps in the adoption of advanced manufacturing and remanufacturing capabilities. The three-year partnership will leverage the expertise of Fujitsu, and ARTC's research and development expertise and state-of-the-art facilities to develop strategic capabilities that address key challenges faced by the manufacturing sector, and prepare for a future ecosystem of intelligent manufacturing. Through the partnership, Fujitsu and ARTC will jointly identify and develop solutions to comprehensively realise the digital transformation of a wide range of enterprises involved in the manufacturing supply chain, including small and medium companies (SMEs), offering potential productivity and efficiency gains, minimise security risks and enhance workplace safety.

Fujitsu and ARTC will collaborate to apply technologies in the areas of artificial intelligence (AI) and robotics, Head Mounted Display and Industrial Augmented Reality, Cybersecurity, Wearable technology, Human and Robotics Harmonization to the manufacturing industry. In light of Fujitsu's initial experience in Japan, the partnership will see the roll-out of Fujitsu's integrated design environment for product development to businesses to better integrate processes such as design development within the manufacturing environment.

## Key Areas of Collaboration

### *Industrial IoT*

To help the manufacturing sector achieve productivity and efficiency gains, Fujitsu and ARTC will work together to overcome a key challenge of Industrial IoT (IIoT) - open interoperability and development of common architecture. They will look into the design of standard reference architecture, where the design of all elements - sensors, network, data systems, security and applications, are well integrated.

### *Fujitsu integrated design environment for product development*

Fujitsu and ARTC seek to help the manufacturing sector, including multinational corporations (MNCs) and SMEs, digitally transform their operations through Fujitsu's integrated design environment for product development. Fujitsu will work with experts in ARTC and partners to explore how it can achieve closer integration of value chains in the product development stage.

With six years of experience in implementing its integrated design environment for product development in Japan, Fujitsu developed this platform to support a seamless and agile end-to-end process for product design and manufacturing. More details on the concept are available in **Annex 1**.

### *Wearables for Manufacturing*

Fujitsu and ARTC will explore the use of wearable technology to track workers' vital signs, activities, and location to enhance safety at the workplace.

### *Cybersecurity in Smart Factories*

Under this collaboration, Fujitsu and ARTC will address cybersecurity requirements of Smart Factories, to identify and recommend best practices and solutions. They will jointly identify suitable security solutions and processes to minimise risks to operations and data loss in the manufacturing process.

### *Head Mounted Display and Industrial Augmented Reality applications*

Fujitsu and ARTC will explore the use of Head Mounted Displays and Augmented Reality applications aimed at raising productivity levels through enhanced information sharing. This will help to promote remote assistance for workers in hard-to-access areas and large factories.

### *Artificial Intelligence in Manufacturing*

Artificial Intelligence, such as deep learning, machine learning and genetic algorithm, could potentially help improve efficiencies in manufacturing and reduce costs. Fujitsu and ARTC will explore the use of such techniques through prototypes and proof of concepts, with the aim of developing them into applications for real-world deployments.

### *Human and Robotics Harmonisation*

To enable Humans and Robots to co-work in future factories, new tools in robotics programming and simulation are required to establish harmonised work between human and robots. Fujitsu and ARTC will explore the use of such harmonisation tools through building test beds for manufacturing.

## *Machine Learning solutions*

Machine learning has become the latest algorithms in analysing data, solving challenges in anomaly detection and predictive maintenance. Fujitsu and ARTC will explore use of machine learning solutions and promote its use in various manufacturing scenarios.

## Company quotes

### Fujitsu

"It is an exciting time for manufacturers globally, who understand that technology and innovation hold the keys to success but may find it hard to keep up with the rapidly evolving digital landscape. Fujitsu aims to support Singapore's push for advanced manufacturing, by offering insights and curating relevant solutions that bring the Digital Transformation journey to life. Through our partnership with ARTC, we hope to enable businesses of any size to gain access to data-driven innovation, and integrate the technologies into their processes. By offering greater access and helping businesses distill and identify relevant solutions, we hope to help the industry as a whole level up in terms of productivity and cost-efficiencies. Only then can the full potential of digital engineering be realised as we develop Factories of the Future."

*Fujitsu Singapore, Country President, Wong Heng Chew*

"The increasing pace of digitalisation and the advancement of disruptive technologies are fundamentally changing industrial production. It is therefore absolutely necessary for companies across the value chain to embrace the digitalisation journey to remain competitive. ARTC provides an industry-led open innovation platform that will enable our partners to test, fail, learn and apply technology solutions quickly. Through our partnership with Fujitsu, we will help the manufacturing industry, especially our local enterprises innovate more rapidly, and achieve greater productivity and revenue gains."

*ARTC, Chief Executive Officer, Dr David Low*

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### **About Fujitsu**

Fujitsu is the leading Japanese information and communication technology (ICT) company, offering a full range of technology products, solutions, and services. Approximately 155,000 Fujitsu people support customers in more than 100 countries. We use our experience and the power of ICT to shape the future of society with our customers. Fujitsu Limited (TSE: 6702) reported consolidated revenues of 4.5 trillion yen (US \$40 billion) for the fiscal year ended March 31, 2017. For more information, please see <http://www.fujitsu.com> .

### **About Fujitsu Asia**

Fujitsu Asia was established in Singapore in 1997 to provide leadership in business development, technology innovation and customer support as regional headquarters for the Fujitsu group of companies in ASEAN and was subsequently established as the Asia region headquarters in 2014. Building on Fujitsu's three decades of experience in the region and with a pool of highly skilled engineering talent, Fujitsu Asia is dedicated to providing comprehensive integrated IT-based business solutions that deliver tangible business value and enable customers to meet the challenges of the new global economy. Fujitsu Asia is a wholly owned subsidiary of Tokyo-based Fujitsu Limited (TSE:6702), a leading provider of IT-based business solutions for the global marketplace. For details, please visit:<http://www.fujitsu.com/sg/>

**About ARTC**

A\*STAR's Advanced Remanufacturing and Technology Centre (ARTC) is the first centre in Asia, within the network of Advanced Research Centres (known as AxRCs). It is a platform built upon strong partnerships across the supply chain, complemented by technical support from research institutes and academia. With a purpose built facility, underpinned by world-class research expertise at A\*STAR and the Nanyang Technological University (NTU), ARTC aims to rapidly create solutions and bring these technologies into industrial production capabilities to the benefit of all its stakeholders. For more information on ARTC, please visit <https://www.a-star.edu.sg/artc>

**Annex 1 – Fujitsu integrated design environment for product development**

**The Platform aims to:**

- Share product design data among parts suppliers(SMEs) and finished product customers(MNCs)
- Verify design quality and optimise manufacturing efficiency, at the product development stage,
- Finally, deliver products to market, while shortening the product development cycle.

**Concept**



**Connected**

- Design/simulation tools and databases are connected in a sophisticated way for electrical/ mechanical product design verification
- Physical phenomena can be more accurately captured by simulations for electrical/mechanical designs using billions of meshes



**Consolidated**

- Computing resources/ design/simulation licenses are consolidated to reduce CAPEX/ OPEX
- Flexible design tool license availability for seasonal market demand products



**Cloud Focused**

- Not limiting to design/ business locations and meets the requirements of a variety of work styles
- Design data management uses high-level security (trusted DC or on premise DC)



**Cumulated**

- Optimises product design using artificial intelligence or machine learning based on centralised data management
- Cumulated design data analysis creates new business model opportunities