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A\*STAR  
Singapore Management University  
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## Fujitsu, SMU, A\*STAR, and UrbanFox Launch Field Trial to Enhance Crowdsourced Delivery in Singapore

Field trial sets out to improve efficiency of e-commerce deliveries with artificial intelligence

**Tokyo, Japan, and Singapore, September 13, 2018** – Fujitsu Limited, Singapore Management University (SMU), A\*STAR's Institute for Infocomm Research (I<sup>2</sup>R) and UrbanFox Pte. Ltd., a subsidiary of Keppel Logistics, today announced that they have signed an agreement to collaborate on a field trial which leverages leading edge technologies to resolve manpower shortages in the logistics industry in Singapore. The trial will utilise a dedicated smartphone app that offers AI-driven delivery recommendations to crowdsourced delivery personnel (Delivery Partners).

UrbanFox is an end-to-end urban logistics provider whose solutions suite includes dynamic logistics support powered by a unique crowdsourcing model<sup>1</sup> for last-mile deliveries. UrbanFox is committed to developing innovative ways to adapt to Singapore's rapidly changing logistics landscape, characterised by a growing demand for deliveries from e-commerce purchases. At 5.4%, the country has the highest online share of retail sales among Southeast Asia's five top economies<sup>2</sup>. The e-commerce trend shows no signs of abating – UrbanFox currently handles thousands of deliveries per day and the number of deliveries more than double during peak seasons like Singles' Day. As delivery volumes continue to grow in tandem with e-commerce, smarter solutions are needed for its crowdsourced delivery personnel (Delivery Partners) to choose optimal delivery jobs from the huge volume of delivery orders available, taking into consideration such factors as efficient delivery routing.

With the Asian e-commerce market predicted to expand rapidly in the next five years, one potential solution will be to utilise AI to help keep pace with the expected increase in delivery orders. Fujitsu, SMU and A\*STAR's I<sup>2</sup>R will be collaborating closely with UrbanFox on a joint trial that will test and evaluate technologies which are intended to optimise the assignment of delivery jobs to each Delivery Partner.

### ***Summary of the Joint Trial***

In this trial, Fujitsu, SMU and A\*STAR's I<sup>2</sup>R will work together to incorporate AI technology into a system that recommends delivery jobs and delivery routes optimised to Delivery Partners, with the goal of improving the productivity of delivery tasks.

During the test bedding phase, which begins in September 2018, the organisations will analyse order data that is managed by UrbanFox, such as the geolocation data of Delivery Partners as well as their past delivery performance. This data will then be matched with the requirements for delivery, and a recommendation of the most efficient Delivery Partner will be given. Ultimately, about 30 Delivery Partners are expected to participate in real world deliveries over the course of the trial.

<sup>1</sup> Crowdsourcing in this case refers to deliveries by private persons

<sup>2</sup> Maybank Kim Eng Research, February 2018

Delivery Partners can choose whether to accept the recommended delivery assignments, and the organisations will conduct machine learning on those decisions, continually improving the accuracy of recommendations.

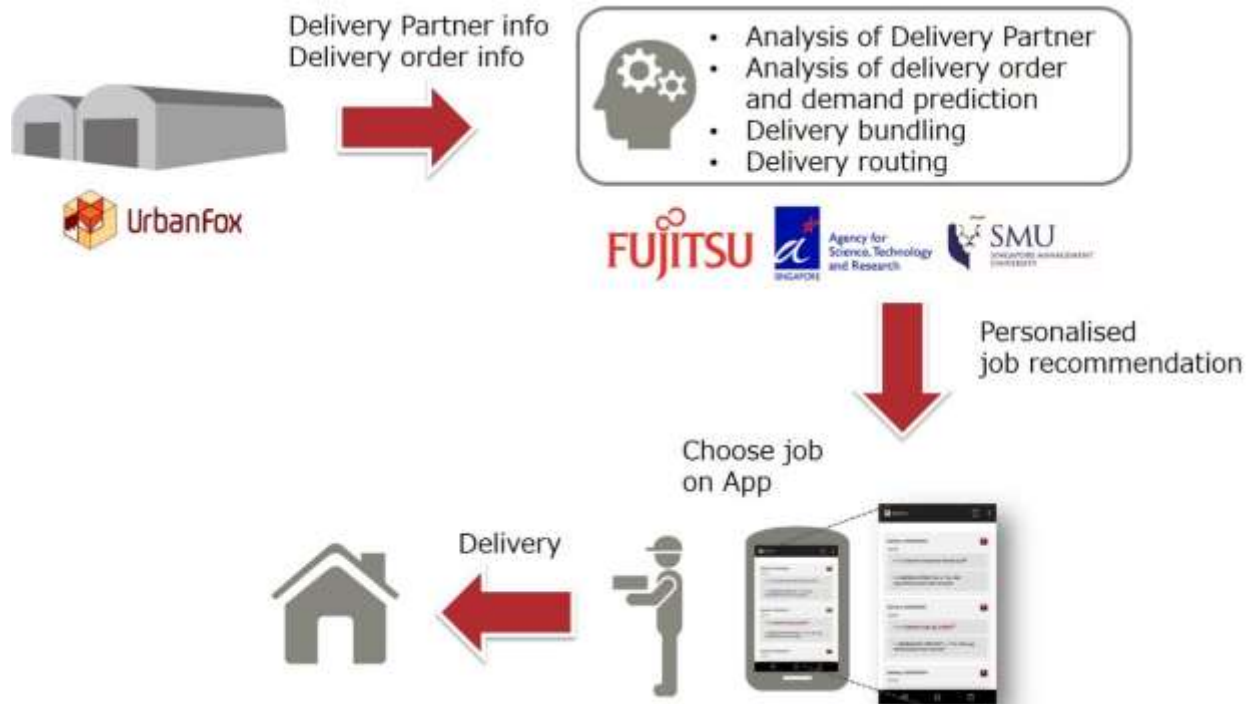


Figure 1: Outline of the Joint Trial

### Utilising AI to enhance productivity

A\*STAR's I<sup>2</sup>R will incorporate its proprietary AI-enabled descriptive and predictive analysis algorithms into the system to optimise the delivery process. By leveraging AI, the system will also be able to provide insights into delivery trends for an area. This results in the system being able to provide predictions on delivery demands for an area based on past deliveries and events such as sales.

When an order is received, the algorithm will first review the delivery requirements, such as size of the item and delivery route. At the same time, a trade-off analysis will also be performed on the data of Delivery Partners with UrbanFox to determine if it is more efficient to use a delivery partner, or the company's own delivery fleet. This will help optimise the delivery process.

SMU will conduct research on an AI-based recommendation approach to automatically suggest bundles of delivery tasks that are most suitable for each Delivery Partner. These recommendations will be personalized and dynamic, reflecting personal preferences and real-time status of both the delivery personnel and the delivery demands.

Dispatch planning technology developed by Fujitsu over many years will be subsequently leveraged to set delivery plans and calculate efficient delivery routes, notifying Delivery Partners of the recommendations through this app.

Integrating the insights and expertise gained through this joint trial, Fujitsu will consider incorporating this job recommendation functionality into a dedicated service for logistics companies in the future.

## ***Future Prospects***

The four organisations will use this joint trial as a model case for future expansion in Singapore, as well as to other countries in Asia.

Depending on the trial results, UrbanFox will be considering a full-scale implementation of this system for all its Delivery Partners.

Fujitsu will develop solutions based on the insights and expertise gained from this trial for use by delivery businesses globally, and will propose those solutions to its customers.

## ***Comments from Partners (Annex):***

“UrbanFox harnesses the power of omnichannel logistics to unlock new capabilities for companies big and small. Whether it is streamlining supply chains to integrate offline and online channels, or opening new revenue streams for traditional B2B customers and allowing them to sell and send directly to consumers, our aim is to deliver a one-stop solution for companies to access the digital economy via e-commerce. UrbanFox’s partnership with Fujitsu, A\*STAR and SMU is in line with this aim. As one of the pioneers of crowdsourcing technology for logistics in Singapore, we are always looking to improve the efficiency of last-mile deliveries for the benefit of customers, end-consumers and our Delivery Partners,” said Mr Joe Choa, Managing Director of UrbanFox.

“At A\*STAR’s I<sup>2</sup>R we believe that Artificial Intelligence is a key enabler that will allow us to reach new levels of productivity. By integrating AI into crowdsourcing, we aim to revolutionise the way we handle logistical challenges in Singapore. I<sup>2</sup>R’s AI algorithms can also be leveraged to address challenges in areas such as crowd analytics and precision engineering. These solutions can then be adopted by local companies and will help to better position Singapore for the future economy. We are proud to work with industry leaders such as Fujitsu, UrbanFox and SMU. This collaboration is a prime example of how we can utilise AI to implement real-world solutions to real-world problems.” Said Professor Dim-Lee Kwong, Executive Director of A\*STAR’s Institute for Infocomm Research.

“Last-mile logistics is the most complex and costly part of the supply chain. Crowdsourcing has become a viable and potentially disruptive model for last-mile parcel deliveries, fuelled by the sharing economy and mobile apps. At SMU, we are interested in research on crowdsourcing and last-mile logistics, particularly in the use of AI for planning and scheduling. By partnering with A\*STAR and Fujitsu, we aim to develop an integrated platform for context-aware crowdsourced logistics that will benefit logistics operators such as UrbanFox to improve their service efficiency.” – Professor Lau Hoong Chuin, Director, Fujitsu-SMU Urban Computing & Engineering Corporate Lab

“In light of the drastic expansion of sharing economy business models and the ongoing growth of e-commerce in recent years, we see crowdsourced delivery as a new business opportunity that will spread all over the world. In this field trial, we are very excited to collaborate with UrbanFox, which is one of the pioneers of crowdsourced delivery, and advanced research & development institute A\*STAR and SMU. We anticipate that in the future Fujitsu will make significant contributions to logistics industry by improving productivity of crowdsourced delivery.” Said Mr Toshiya Sato, VP of Co-Creation Business Group of Fujitsu Limited.

## **About Fujitsu**

Fujitsu is the leading Japanese information and communication technology (ICT) company, offering a full range of technology products, solutions, and services. Approximately 140,000 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 4.1 trillion yen (US \$39 billion) for the fiscal year ended March 31, 2018. For more information, please see [www.fujitsu.com](http://www.fujitsu.com).

### **About UrbanFox**

UrbanFox was founded in 2009 as Courex, a B2C last-mile fulfilment start-up. Following the acquisition of Courex by Keppel Logistics, UrbanFox was unveiled on 24 October 2017 with additional omnichannel logistics and multi-channel commerce capabilities serving both B2B and B2C customers. As a subsidiary of Keppel Logistics, UrbanFox leverages Keppel's extensive regional network to help brands seamlessly integrate their online and offline channels, warehousing and inventory, as well as last-mile fulfilment requirements to capture opportunities offered by ecommerce. UrbanFox's clients include well-known global brands such as Kao and Mondelez. Find more information about how UrbanFox is shaping the future of logistics at <https://www.urbanfox.asia>.

### **About the Agency for Science, Technology and Research (A\*STAR)**

The Agency for Science, Technology and Research (A\*STAR) is Singapore's lead public sector agency that spearheads economic oriented research to advance scientific discovery and develop innovative technology. Through open innovation, we collaborate with our partners in both the public and private sectors to benefit society.

As a Science and Technology Organisation, A\*STAR bridges the gap between academia and industry. Our research creates economic growth and jobs for Singapore, and enhances lives by contributing to societal benefits such as improving outcomes in healthcare, urban living, and sustainability.

We play a key role in nurturing and developing a diversity of talent and leaders in our Agency and research entities, the wider research community and industry. A\*STAR's R&D activities span biomedical sciences and physical sciences and engineering, with research entities primarily located in Biopolis and Fusionopolis.

For ongoing news, visit [www.a-star.edu.sg](http://www.a-star.edu.sg).

### **About the Singapore Management University (SMU)**

A premier university in Asia, the Singapore Management University (SMU) is internationally recognised for its world-class research and distinguished teaching. Established in 2000, SMU's mission is to generate leading-edge research with global impact and to produce broad-based, creative and entrepreneurial leaders for the knowledge-based economy. SMU's education is known for its highly interactive, collaborative and project-based approach to learning.

Home to over 10,000 students across undergraduate, postgraduate professional and postgraduate research programmes, SMU is comprised of six schools: School of Accountancy, Lee Kong Chian School of Business, School of Economics, School of Information Systems, School of Law, and School of Social Sciences. SMU offers a wide range of bachelors', masters' and doctoral degree programmes in the disciplinary areas associated with the six schools, as well as in multidisciplinary combinations of these areas.

SMU emphasises rigorous, high-impact, multi- and interdisciplinary research that addresses Asian issues of global relevance. SMU's faculty members collaborate with leading international researchers and universities around the world, as well as with partners in the business community and public sector.

SMU's city campus is a modern facility located in the heart of downtown Singapore, fostering strategic linkages with business, government and the wider community. [www.smu.edu.sg](http://www.smu.edu.sg)

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