



For Immediate Release

**LSCM Logistics Summit 2021**  
**“Innovate and Revitalise to Win over the COVID-19”**

***Showcasing the latest technologies in logistics and other sectors for industries to  
innovate and revitalise to win over the COVID-19***

10 September 2021, Hong Kong — The Logistics and Supply Chain MultiTech R&D Centre (LSCM) held its signature annual event, **LSCM Logistics Summit 2021**, today at Hong Kong Science Park. Under the theme of "Innovate and Revitalise to Win over the COVID-19", the event highlighted the importance of innovative technologies in combating COVID-19 and shaping the revitalisation of industry, as well as fostering Smart City development in Hong Kong. Showcased technologies and recent achievements of LSCM included prominent technologies to facilitate the measures implemented by the HKSAR Government to combat COVID-19, such as the Electronic Wristband and Monitoring System for Hong Kong's "StayHomeSafe" Home Quarantine Support Solution, the E-lock system, and various real-time monitoring and tracking systems.

Other highlights of the exhibition include the Centre's latest robotics technologies such as the 5G Tele-Control Warehouse Stackers and Deliverbot, as well as some Smart City technologies including the Outdoor IoT Sensing Network and Data Management Platform for Tree Management, Smart Barrier System, and Smart System for e-commerce/e-logistics Transactions on Cloud. In addition, LSCM's partner organisations also exhibited their latest technology projects developed in collaboration with LSCM, which are designed for warehouse management, elderly services and Smart City development.

To better prepare for the revitalisation of the industry and the economy in the post-COVID era, the Summit brought together government officials, industry experts, business leaders and academic representatives to share inspiring insights and valuable experience in leveraging on the latest technologies and innovations for combating the pandemic, revitalising the logistics & supply chain related industries, as well as developing Hong Kong into a Smart City.

***LSCM as an indispensable partner in combating COVID-19 in Hong Kong***

Since the emergence of the pandemic, LSCM has played an indispensable role in supporting Hong Kong's anti-pandemic work. Apart from assisting the Office of the Government Chief Information Officer (OGCIO) to develop the Electronic Wristband and Monitoring System for Hong Kong's "StayHomeSafe" Home Quarantine Support Solution to support the Government's home quarantine arrangement, LSCM's various location tracking technologies were deployed to secure the smooth delivery of the specimens in the COVID-19 Universal Community Testing Programme (UTCP). In addition, the E-lock system, developed in collaboration with the Hong Kong Customs and Excise Department, was deployed to ensure the security of vaccine delivery in the COVID-19 Vaccination Programme, which proves that technology R&D benefits not only the industry, but also the community.



“All the achievements in fighting against the epidemic could not be realised without the hard work, experience and resources that we have invested in innovation and technology (I&T) throughout the years.”, said **Mr Alfred SIT Wing-hang**, JP, Secretary for Innovation and Technology, The Government of the Hong Kong SAR in his opening remarks, “I am so proud that technologies developed right here in Hong Kong have been put into very practical and important uses to ride over this difficult period of time.”

### ***LSCM's latest technologies enhance industries' competitiveness and Smart City development***

LSCM has developed a number of novel robotics technologies to further enhance the competitiveness of the local logistics and supply chain industry and foster Smart City development in Hong Kong. For instance, the 5G Tele-Control Warehouse Stackers, which can be easily applied to multiple sectors, enable users to tele-control multiple stackers so as to enhance warehouse efficiency and reduce potential risk of injury.

To support the Government's initiative for Smart City development, LSCM has developed the Outdoor IT Sensing Network and Data Management Platform for Tree Management to identify trees with potential risk of collapse. And the Smart Barrier System detects landslide impact on the remote barriers built by the Civil Engineering and Development Department (CEDD) in real time by deploying Internet-of-Things sensor technologies. This enhances the effectiveness of the remote barriers. The two systems help to ensure a safer environment for the public.

The technologies that LSCM has been developing throughout the years has facilitated the Smart City development of Hong Kong, while the ones developed recently for COVID-19 have greatly enhanced the efficiency and effectiveness of the Government's various infection control measures.

“Although logistics and anti-epidemic work may apparently seem remote, in many cases a good logistics support is the prerequisite for the latter,” **Mr Patrick NIP Tak-kuen**, JP, Secretary for the Civil Service, of The Government of the Hong Kong SAR, said at the Summit. “I am confident that industry experts will continue to explore new and innovative solutions, not just to combat COVID-19, but also to gear up for the “new normal” post-pandemic economy.”

“The pandemic has raised our awareness about the importance of innovation and technology,” said **Ir Dr Alan LAM Hiu Fung**, Chairman of the Board of Directors of LSCM, at the Summit while delivering the welcome remarks. “We will continue to strive our best to develop technology which can help the industry to enhance operational efficiency and productivity, especially amid the pandemic, for business continuity and revival.”

LSCM has also partnered with local universities in developing other Smart City technologies. In collaboration with The Institute of Space and Earth Information Science of The Chinese University of Hong Kong, the Satellite CT Scan for Urban Infrastructural Diagnosis was developed. The satellite remote sensing technologies regularly monitor the deformation of buildings and infrastructures. The technologies have been applied to monitor two of Hong Kong's super-infrastructure, i.e. the reclamation for Hong Kong International Airport and the Hong Kong Port of the Hong Kong-Zhuhai-Macao Bridge. The technologies are expected to be extended to the Greater Bay Area and in the Belt



and Road region. Together with the Smart Cities Research Institute (SCRI) of The Hong Kong Polytechnic University, a portable and reliable 3D Mobile Mapping System was developed to provide accurate 3D maps for building spatial data infrastructure which is applicable to Smart City development.

(Please see Appendix I for more information on the LSCM technologies showcased at the Summit.)

***Heavyweights from the government and industry shared insights into the collaboration with LSCM and their achievements***

The LSCM Logistics Summit 2021 served as a key platform for government officials, industry experts, business leaders and representatives from academia to share insights on how innovative technologies are helping to revitalise the logistics & supply chain and related industries in Hong Kong amid and after the COVID-19 pandemic. Keynote speakers included **Mr Alfred SIT Wing-hang**, JP, Secretary for Innovation and Technology, The Government of the Hong Kong SAR, **Mr Patrick NIP Tak-ken**, JP, Secretary for the Civil Service, The Government of the Hong Kong SAR, **Mr Jimmy TAM Yat-keung**, CDSM, CMSM, Assistant Commissioner (Excise & Strategic Support), **Mr Ivor CHOW**, Managing Director, Hong Kong International Terminals Limited, **Dr George LAM**, BBS, Co-Chairman, Hong Kong Aerospace Technology Group, **Dr CHEUNG Wai Lun**, JP, Project Director, Chinese Medicine Hospital Project Office, **Mr CHUA Hoi Wai**, JP, Chief Executive, The Hong Kong Council of Social Service, **Ir Dr Alan LAM Hiu Fung**, Chairman of the Board of Directors, LSCM, and **Mr Simon WONG**, MH, Chief Executive Officer, LSCM.

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**Logistics and Supply Chain MultiTech R&D Centre**  
**物流及供應鏈多元技術研發中心**

**About LSCM**

The Logistics and Supply Chain MultiTech R&D Centre (LSCM) was founded in 2006, with funding from the Innovation and Technology Fund of The Government of the Hong Kong SAR, and is co-hosted by the University of Hong Kong, the Chinese University of Hong Kong and the Hong Kong University of Science and Technology. It aims to strengthen the local logistics sector and related industries by providing a one-stop resource for applied research and technology transfer, and to reinforce cooperation between the industry and research institutes, to bring about meaningful and significant benefits to the industry and the community. For more information, please visit [www.lscm.hk](http://www.lscm.hk).

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## Photo Captions

### Photo 1:



The Logistics and Supply Chain MultiTech R&D Centre (LSCM) held its signature annual event – LSCM Logistics Summit 2021 – today at Hong Kong Science Park under the theme of "Innovate and Revitalise to win over the COVID-19". The Summit brought together government officials, industry experts, business leaders and academic representatives to discuss the importance of innovation and technology for industry revitalisation amid the pandemic.

### Photo 2:



**Mr Alfred SIT Wing-hang, JP**, Secretary for Innovation and Technology of The Government of the Hong Kong SAR, delivered the opening remarks for the Summit, highlighting that all the achievements in fighting against the epidemic could not be realised without the hard work, experience and resources that we have invested in innovation and technology (I&T) throughout the years.

Photo 3:



Mr Patrick NIP Tak-kuen, JP, Secretary for the Civil Service, said at the Summit that good logistics support is the prerequisite for anti-epidemic work, and he is confident that industry experts will continue to explore new and innovative solutions to combat COVID-19 and gear up for the “new normal” post-pandemic economy”.

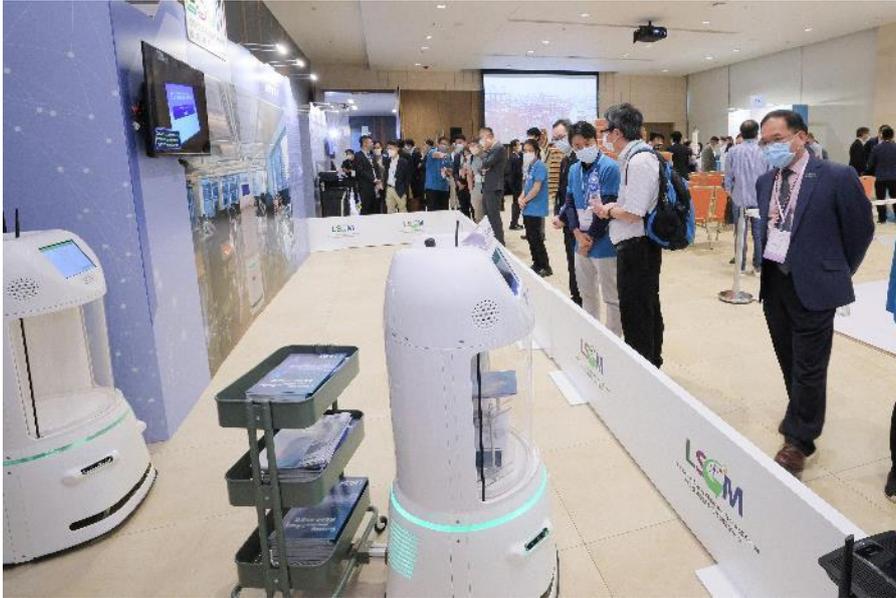
Photo 4:



Ir Dr Alan LAM Hiu Fung, Chairman of the Board of Directors, Logistics and Supply Chain MultiTech R&D Centre, delivered the welcome remarks and affirmed LSCM’s commitment to the research and development of innovation and technologies in order to facilitate the development of logistics and supply chain related industries and Smart City development in Hong Kong.



Photo 5:



LSCM Logistics Summit 2021 featured a variety of technology demonstrations, showcasing a series of the latest innovative technologies and achievements by LSCM.



Appendix I: Latest innovative technologies from LSCM

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| <b>1.</b> | <b>Tele-Control Warehouse Stackers Using 5G</b>  |
|           | <p>High labour and rental costs are two common challenges faced by many local warehouses.</p> <p>LSCM's technology enhances the functions of existing warehouse stackers by using Fifth Generation Cellular Network (5G) and advanced sensing technologies. The use of 5G can provide high-speed and low-latency data transmission. This not only enables the tele-control of multiple stackers at the same time, but also allows the incorporation of remote sensing technologies such as cameras for live image processing, and distance detection through laser technology (LiDAR).</p> <p>This technology can enhance warehouse efficiency, reduce manpower and potential risk of injury. In addition, it can be easily applied to the construction, logistics and other industries.</p>   |
| <b>2.</b> | <b><u>Deliverbot</u></b>   |
|           | <p><b>Society and industry</b> have great demand for delivery robot technologies to alleviate resource and manpower shortages, as well as to enhance productivity and work efficiency. This technology is developed for application in an office environment.</p> <p>The Deliverbot can navigate and avoid obstacles in an indoor environment. It is able to recognise the current location, and navigate around people and objects to avoid collision. The SLAM and RGB-Depth camera enable it to create an instant map of the area. This helps the robot to navigate on its own path to reach its destination. The Deliverbot is thus able to deliver items to the designated location(s).</p> <p>The Deliverbot can be deployed in different business environments, e.g. in hospitals and offices to deliver documents, items and meals, etc.</p>                               |
| <b>3.</b> | <b>Smart System for e-Commerce / e-Logistics Transactions on Cloud</b>   |
|           | <p>In trading and investment promotion, the transacting counterparts need to communicate for the purposes of marketing, negotiation, entering into agreements and transacting. Communication among different parties with disparate languages would be a major challenge, and costly services for professional translation are needed. Therefore, Micro, Small &amp; Medium Enterprises (MSMEs) businesses will be benefited if automated and cost-effective machine translation is available to them.</p> <p>Artificial Intelligence Machine Translation for different languages not only facilitates the communication among MSMEs and their global multilingual business partners, but also enables them to enhance the efficiency in handling their e-Commerce / e-Logistics business, as well as increase the reliability and handling capacity of business transactions.</p> |



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| 4. | <b>vCAVE-LED</b><br><p>The vCAVE-LED is a modularised multi-side immersive VR system that can be tailored to any business needs. The vCAVE-LED combines top engineering design with innovative virtual reality technology that enables users to collaboratively observe, manipulate and interact naturally with virtual and real-world objects in life-size scale. The high definition fine pitch LED display greatly enhances the immersive VR experience by providing high-fidelity and extremely vivid stereoscopic views of sceneries for interactive virtual and mixed reality experiences.</p> <p>This multi-purpose immersive VR system can be used in the analysis and design of complex systems, as well as in professional training and the development of products, buildings, and other infrastructures with BIM (Building Information Modeling). By integrating it with other user interfaces such as data gloves, trackers, joysticks, and a motion platform, the system is able to provide a unique first-hand experience for users. Coupled with the powerful and user-friendly VotanicXR SDK, users can easily expand the usage of the VR system by developing their own interactive VR content.</p>  |
| 5. | <b>Technologies for COVID-19</b><br><br><b><i>Electronic Wristband and Monitoring System for Hong Kong's "StayHomeSafe" Home Quarantine Support Solution</i></b><br><br><p>The "StayHomeSafe" solution, consisting of an electronic wristband (e-wristband) and a monitoring system, provides a tracking mechanism to ensure the confinee's presence in the designated quarantine premises during the quarantine period. The solution was developed to facilitate the compulsory home quarantine arrangement implemented by the Hong Kong SAR Government to combat COVID-19. By installing a tracking device in the residence and pairing it with an e-wristband worn by the confinee, the system monitors the tracking device remotely on the received signals emitted from the e-wristband to ensure that the confinee is nearby and the tracking device is within the residence. Alerts will be triggered if there are any abnormalities.</p><br><b><i>LSCM's Logistics Technology supported the COVID-19 Universal Community Testing Programme (UCTP)</i></b><br><br><p>LSCM technologies were deployed in the UCTP to secure the delivery of specimen collection boxes, Universal Transport Medium (UTM) and empty collection boxes among the warehouse, 148 Community Testing Centres and laboratories. The technologies applied in the process included Internet of Things (IoT), data analytics and visualisation, location track and trace, and Bluetooth Low Energy (BLE). A QR code was placed on each specimen collection box and Near Field Communication (NFC) technology was applied to make records of the distribution and collection of the boxes.</p> |



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|           | <p>BLE technology and GPS technology were used for tracking the location of the specimen collection boxes throughout the delivery process to ensure that the specimens were safely delivered to the laboratories. And the real-time Inventory &amp; Distribution Management System was used for managing the stock and delivery of the UTM.</p> <p><b><i>LSCM's Technologies support the COVID-19 Vaccination Programme</i></b></p> <p>LSCM developed the Real-time Vaccine Inventory Control and Management System to keep track of the distribution, collection and usage of the vaccines in the Community Vaccination Centres (CVCs). The E-lock system, which was developed in collaboration with the Hong Kong Customs and Excise Department, was also applied in the Programme to secure the transportation of the vaccines from the warehouse to CVCs. The system tracks the real-time location of the trucks. An alert will be triggered if there is any anomaly, e.g. if the E-lock is tampered or the geofencing is violated.</p>  |
| <p>6.</p> | <p><b>Outdoor IoT Sensing Network and Data Management Platform for Tree Management and Smart Barrier Systems</b></p>   |
|           | <p><b><i>Outdoor IoT Sensing Network and Data Management Platform for Tree Management</i></b></p> <p>During severe adverse weather in previous years, e.g. strong typhoons, many trees collapsed, and hundreds of sections of road and rail were blocked by the fallen trees. Many transportation facilities were also damaged while traffic and public transportation services were suspended.</p> <p>Therefore, LSCM developed a tree monitoring system which includes an outdoor IoT network and data management platform. The system can measure the tilt angle and direction of the trees to monitor their stability under unpredictable weather conditions. With deep analysis of the collected data, the trees with potential risk of collapse can be identified. In addition, the system can provide statistics of collapsed trees to optimise the disposal work.</p> <p><b><i>Smart Barrier System</i></b></p> <p>The Smart Barrier System allows real-time monitoring of falling debris and build-up. It uses a web platform and mobile app to issue alerts to the authority.</p> <p>It enhances the effectiveness of remote barriers built by the Civil Engineering and Development Department (CEDD) of the HKSAR Government throughout the years. By deploying Internet-of-Things sensor technologies, the Smart Barrier System can detect landslide debris impacts on the barriers in real time, and an instant camera</p> |



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|    | <p>system with infrared light has been developed to provide instant images which are transmitted to the related department for follow-up immediately.</p> <p>An on-site Warning Message System (WMS) helps to enhance the effectiveness of the landslide warning messages using Moving Message Display technology.</p>   |
| 7. | <p><b>AIoT Platform and Multi-modal Analytic Technologies for a Smart City</b></p> <p>With the advent and penetration of broadband 5G, Wi-Fi and LoRA /NB-IoT technologies, the IoT sector has been experiencing phenomenal growth in recent years. Devices sensing Wi-Fi, BLE and visual signals are increasingly deployed in Hong Kong. Although the sensing data collected in a venue are often correlated in nature, they are usually analysed individually in the cloud, forming data silos. It has been a critical industrial challenge to bridge these silos for effective multi-modal learning and mining to support applications such as object recognition, people sensing, user analytics, etc.</p> <p>Novel IoT and multi-modal analytics technologies have been developed to overcome the above challenges. To achieve a cost-effective smart carpark, a specially-designed, novel AI-based panoramic camera is used to recognise a large number of license plates simultaneously by employing super-resolution technology with an ultra-low streaming rate. To address the data silo problem an integrated data platform based on centralised or federated machine learning techniques for multi-modal, sporadic and noisy samples has been developed. These technologies enable cost-effective IoT deployment.</p> <p><b>PI: Smart Construction Management System</b></p> <p>PI (“Project Intelligence”) is a computer vision-based construction management system. It is designed to use surveillance videos to facilitate various management tasks: progress management, resource management, quality management and safety monitoring. PI detects and tracks workers and construction machinery in far-field videos and recognises their activities. Given the information on the types and numbers of objects and their activities, PI calculates working areas continuously and estimates construction progress and resources accordingly. The characteristics of construction activities like sequences, intervals, durations are used to determine if there are quality deviations against construction methods. Also, static and dynamic virtual fences are implemented to monitor unauthorised entry and dangerous proximity.</p> <p><b>Satellite CT Scan for Urban Infrastructural Diagnosis</b></p> <p>Civil infrastructural safety is a key indicator of a sustainable built environment. Unfortunately, the maintenance of infrastructural systems is usually not well coordinated. This may trigger excessive deformation of buildings and infrastructures such as foundation settlement, concrete cracking and sinkhole subsidence. Similar to</p> |



human health diagnosis with an X-ray CT scan, infrastructural health should be regularly monitored and diagnosed to prevent potential risks.

With the joint support of the Ministry of Science and Technology and the Innovation and Technology Bureau, the Institute of Space and Earth Information Science of The Chinese University of Hong Kong develops innovative satellite remote sensing technologies with big data analysis to regularly monitor the deformation of buildings and infrastructures with millimetre accuracy.

The technologies have some distinct advantages over engineering methods, namely, large-scale monitoring capacity, high spatial density of points, and cost-effectiveness with no need for any instruments installed on structures.

The technologies have been applied to monitor two super-infrastructures in Hong Kong, i.e. the reclamation for Hong Kong International Airport and the Hong Kong Port of the Hong Kong-Zhuhai-Macao Bridge. These technologies are expected to be deployed in the Guangdong-Hong Kong-Macao Greater Bay Area and the countries along the Belt and Road regions.

#### ***Smart City Platform: A Comprehensive Spatial Data Infrastructure***

The Hong Kong Polytechnic University's Smart Cities Research Institute (SCRI) has developed a portable and reliable 3D Mobile Mapping System to provide accurate 3D maps for building spatial data infrastructure and thus support wide smart city applications. It is particularly suitable for high-density and complex urban landscapes.

SCRI has already started the research on building the spatial data infrastructure platform with geo-informatics technologies. The platform has initially covered outdoor and indoor, aboveground and underground, and spatial-dynamic and temporal-dynamic models.

SCRI developed the extended Weighted Kernel Density Model for predicting the spatiotemporal COVID-19 symptom onset risk. A visualisation platform for COVID-19 onset risk has been further developed to provide professionals and the public with the status and short-term forecast of the epidemic.

The research team developed a series of AI-based object recognition methods. Correspondingly, the landslide recognition software and Image Analytic System, etc., have been developed to improve the automation in these fields, saving human resources and time costs.