

## **JEC Speaker Luncheon 2018**

### **Speech by Ir Alfred Sit JP, Director of Electrical & Mechanical Services**

#### **“Cultivating Innovation for Smarter Hong Kong”**

Kevin, distinguished guests, ladies and gentlemen, good afternoon. I'm very pleased to join you all here. Thanks Kevin for inviting me to this wonderful lunch as well as giving me an opportunity to share my thoughts with such a distinguished audience.

Before I continue, let me just send my deepest congratulations to JEC on their 95th anniversary in this year. Indeed, JEC has provided a wide array of engineering services to Hong Kong for nearly a century and has accompanied with the growth of Hong Kong all along.

#### ***You are the Power Engines of Hong Kong***

Hong Kong was once a tiny fishing village and has become an Asia's world city and financial hub. Today, Hong Kong has one of most efficient railway systems in the world, highly-reliable utility supplies, high-speed telecommunications network and one of the top five airports. Besides, Hong Kong companies have earned great reputations over the years in high-quality construction as well as world class project and facilities management. All these are essential keys for Hong Kong's stable economic development. The power engines behind the success of Hong Kong are multifaceted endeavors of many sectors, including all you here.

#### ***Innovation is a State of Mind***

Embracing changes, striving for breakthrough and having passion for improvements have long been the way for Hong Kong towards the success. Recently, I read JEC magazine with an interview of Kevin which impressed me very much. He said "We need to stay fresh, be aware of new technology and more fast to develop skills and new business from these changes." I cannot agree with this more.

"Technology" and "Innovation" are two buzzwords and are always connected together. In simple term, technology is the applications of science. It is not difficult to recognise technologies we use on daily basis: smartphones, automobiles, ATM, air-conditioners, ovens, Internet and so on. Then, how about innovation? We agree that it is important, but

we seem not to have a mutual understanding on what it actually is. My personal view is that innovation is more than technology advancement. It also can be a new attitude of thinking, a different perspective of insights and a new way of doing things. It is a process of translating ideas into applications to meet the public needs by delivering new values and to make us live smarter. Innovation can be from anyone in anywhere at any time.

### ***Innovation starts with Needs***

#### *Octopus Card*

Innovation starts with needs. One notable example is Octopus. Pioneered in Hong Kong, Octopus has transformed our default way of payment from conventional paper bills and coins to electronic forms. Octopus has been so successful as an integral part of Hong Kong life for more than 20 years. In recent years, people increasingly rely on contactless credit cards and mobile payment like Apple Pay, Google Pay, Alipay, PayMe and many others which shift the market landscape of electronic payment. One interesting example from Mainland is the adoption of Alipay by elderly hawker of roadside food stalls, whom we do not usually regard as active technology adopter. The reasons behind are simple and direct: They enjoy secure transaction without coins and no longer have to queue in bank for exchange. This successful story well demonstrates the essence of innovation – fulfillment of people’s needs by overcoming challenges.

So what challenges do we have in Hong Kong now? We live today in a global village. Hong Kong, like other metropolitan cities in the world, is facing threats from rapid urbanisation, climate change, dwindling natural resources and aging population. As we have learnt from history, we could not solve our problems with the same way of thinking. We need innovative ideas and new technologies to overcome the challenges and nourish smarter life ahead.

#### *Sophia*

To overcome labour shortfall arising from aging population, artificial intelligence robotics is one of the solutions. A Hong Kong based company has developed a robot named Sophia. Sophia can make natural-looking facial expression when communicating with users. She can learn and improve her skillsets over time, and of course, operate continuously without the need of taking rest. The combination of advanced AI and sophisticated robotic technologies should give us a new way out to tackle problems of diminishing workforces, aging population and growing demand for better quality of services. One day in future, we may be seeing more AI robots complement our workforces, like household duties, healthcares, customer services or other labour-intensive works.

### Wildfire Detection System

As described in Hong Kong's Climate Action Plan 2030+, the Government is committed to fight against global climate change. You may not be aware that another Hong Kong based company has been recognised a forerunner in the aspect of reducing carbon emission with its invention of a robotic Wildfire Detection System. It has already been deployed in 14 provinces in Mainland and overseas like Mexico to monitor and protect forests, parks and farmlands from wild fires round the clock. The system is equipped with advanced real-time thermal imaging detection and geographical information analysis allowing fire fighters to act fast to stop the spread of fire. Early extinguishment of fires means fewer carbon emission, less damages and fewer lives in danger. It is very encouraging to see Hong Kong based innovations being successfully applied and commercialised overseas.

### ***What's Next?***

The above-mentioned examples of Hong Kong based innovation show that we have talents, ideas and power to turn innovation into application. In fact, Hong Kong inventors are even more talented than we can realise. In the 46th International Exhibition of Inventions Geneva held this April, there were 98 new innovations and inventions from Hong Kong out of 800 entries around the world.

Let's have a quick test on how familiar we know about our I&T achievements. Do you know how many gold medals we got in the exhibition? 10? 34? 55? NO! we got 72 gold medals, including the top honour grand prize of the event! All these achievements show that we are actually good at developing innovations and inventions. However, despite all these successful stories that we are proud to show the world, there are studies and reports indicating that Hong Kong has been gradually left behind the nearby economies in terms of technological development and innovation. Perhaps, it is time for us to think and do more for promoting and facilitating our local I&T. It is time for us to act in a new way that we all collaborate together to build a smarter Hong Kong.

### ***The Government is a Facilitator and a Promoter***

The Government is well aware that I&T is one of the key factors for sustainable success of Hong Kong, and has committed as the facilitator and promoter for supporting the development of local I&T. In the Chief Executive's 2017 Policy Address, the Government has promulgated a vision of transforming Hong Kong into one of the world's

smart cities; and has been putting a lot of emphasis on I&T to bring new drive for economic development and improvement of our quality of life. The Government has initiated key directives to promote the development of I&T on all fronts such as increasing resources for research and development, providing investment funds and encouraging government departments to adopt technologies to uplift their services.

Echoing the Policy Address, the Smart City Blueprint announced by the Government in late 2017 has proposed six smart initiatives and various strategies for smart city development, which can only be realised via the application of I&T. For example, one of the initiatives is the pilot scheme for multi-functional smart lampposts. Under this scheme, traditional lampposts will be equipped with sensors, data networks and related digital facilities to facilitate collection of real-time city data like weather, environment, transportation and crowd flow to help us enhance the city management. There is no doubt that there will be even more smart functions of these lampposts with more innovative ideas.

In demonstrating the pioneering efforts of the Government on I&T applications, we take the lead in adopting Building Information Modelling (BIM) in major public works. BIM is the process of digitalisation of building data throughout life cycle and is an innovative technology for bridging communication between the project stakeholders.

The Government is also studying the adoption of Modular Integrated Construction for the construction industry. With this "factory assembly followed by on-site installation", labour-intensive processes can be accomplished in off-site prefabrication yard with a view to enhancing productivity, cost-effectiveness and quality. No less important, it would enhance construction safety through a better working environment. The Government will remain open to explore and promote the adoption of innovative construction methods.

As an engineering department of the Government, EMSD is proactively applying E&M related innovation and technology. One of the examples is the oil-free chillers, which make use of the latest technologies of oil-free magnetic levitation bearing type compressors and offer significant energy savings. Earliest from 2007, EMSD had initiated the trial implementation of oil-free chillers at the Government House and the EMSD HQs for evaluation on enhancement of energy efficiency. Since 2015, we have been co-operating with Hospital Authority to replace aged air-conditioning units in a number of

hospitals with oil-free chillers and engaged HKUST to verify the cost-effectiveness of the projects. It is concluded that an annual electricity consumption of around 13 million kWh has been saved. EMSD and HA were awarded with “Regional Energy Project of the Year Award” for the Asia-Pacific Rim Region, an award commending innovative energy management projects.

Besides the Government’s effort, we see that the industry had also demonstrated its proud tradition in using the I&T applications. For example, Towngas had developed a Riser Inspection quadcopter for visual inspection and leakage detection of gas pipes outside vertical wall of building. Gammon had imported wearable robots called exoskeletons with built-in motors, designed to help workers lift heavy objects. All these I&T applications are in the way to improve our productivity and work safety. While we are benefited from the I&T development around the world, shouldn’t we also support Hong Kong self-invented products, which will not only support our local I&T start-ups, but also our business development?

***It takes two to tango. Please join us to support local I&T***

In supporting our local I&T development, the Government is keen on establishing a collaborative way to promote local innovations. We have launched an online I&T collaboration platform, called “E&M InnoPortal” in March this year, to maintain a wish list of E&M technological development in the Government, public bodies and the E&M trades, while the start-ups and universities are welcomed to provide I&T solutions on the platform to address the wishes. The portal can also inspire us to explore wider application of I&T solutions. I would be very grateful if you and your colleagues can visit this portal to offer your wishes and solutions.

On the other hand, through our works with many start-ups and universities, we come to the understanding that they have difficulties in finding a proper testing ground for their I&T prototypes. To assist them in overcoming this hurdle, we have designated our Headquarters and its facilities as testing grounds for E&M-related I&T prototypes, and we would facilitate the measurement and validation process in a professional and impartial manner.

Just recently, we support a start-up from City University of Hong Kong to test a number of smart thermostats for fan coil units at our Headquarters. The smart thermostat, with

novel electronics circuitry and algorithm, could reduce energy consumption of fan coil units particularly at medium or low speeds, and help lengthen the motor's lifespan. Based on the preliminary results, the solution is considered promising in meeting energy saving target. We will soon complete the trials, and the measurement and validation report would be published in our InnoPortal for public reference.

As the senior management of our own organisation, I am sure we have shared the same experience that whenever we would like to implement new initiatives, we would be asked for allocating additional resources. It happened to me. It is harsh in a way, but we know that it is essential to the success of I&T development. To reaffirm the commitment in supporting innovation, I have set up a dedicated office – “Inno-office” in EMSD to serve as a bridge between us and the start-ups, universities and the E&M trades to further embrace I&T development with better connection. I would like to appeal all of you to keep effort on I&T investment and consider setting up dedicated innovation team in your office.

***We do “ICI” and Let's Dream a Bigger Dream together***

It is our goal to develop a smarter Hong Kong and achieve better lives. I echo with the Chief Secretary for Administration, “we are committed to improving people's livelihood, alleviating hardship and fostering upward social mobility in a more innovative, interactive and collaborative manner”. We aim to promote innovation and strengthen the use of technology. We have taken the first step to set up dedicated innovation team and offer a testing ground for local I&T. We do hope that all of you and the industry can join us to support more pilot tests of local I&T in your premises to prove their application for market needs and ultimately, to adopt more homegrown products. I appreciate how we have interacted today to exchange views and thoughts. I hope that we can extend this close connection and interaction among not only the Government and the industry, but also, I&T start-ups.

I&T not only leads the public to enjoy a better life of smarter city, but also benefits your organisation's efficiency, improves brand recognition and value, and takes forward the continuing prosperity of your organisation. In long term, everyone in our community can reap the fruits.

Though I&T is the vehicle for us to reach next level of success, how fast and how smart we could reach there indeed count on our intelligence and dream for a better life. While innovation can come from anyone and anywhere at any time, the odds of success couldn't be better and greater if we could "dream" together - "A dream I dream alone is only a dream; but a dream we dream together is reality". I take this opportunity to appeal all distinguished guests to innovate, collaborate, and interact. Let us dream a bigger dream, cultivate innovation and co-create a smarter Hong Kong.

Thank you very much.

6 July 2018