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BeLiveable PFM

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Ladies and Gentlemen, today I would like to present how we can contribute in building a "Liveable City" in Hong Kong. BeLiveable PFM can be the key. Before I start, let me take you back to 1962. Here is a cut from the Cantonese film called the "Little Detective". In 1962, a famous Hong Kong actor, Fung BOBO got a great idea of mobile phone. About 10 years afterwards in 1973, the first mobile phone was invented by Motorola. This marked a big leap in technology development.

So how about us? Over a decade ago… have we ever imagined of indoor positioning, parking navigation, and even auto checkout at a shop? After 10 years, all these ideas are not a dream. They are nowadays technologies and new applications. One hot topic, which has been changing the world, is Internet of Things (IoT).

I am sure all of us are using Internet everyday for our daily work, as well as enjoying the convenience and joy brought by the Internet. Nowadays, not only we human beings are using the Internet, things like smart sensors and smart devices are also having their own access to the Internet, which is known as the Internet of Things - IoT. With the IoT technologies, these smart devices are able to communicate among themselves wirelessly, transforming data into useful information. These smart devices can also connect with mobile phone and wearable gadgets via wireless network to provide us information at suitable time and place. With the use of AI and big data analytics, the large volume of data collected from these smart devices can also provide many useful information, such as a clear picture of what sort of services or goods is most wanted, generating a more precise Business Intelligence. Analysis indicated that by the end of 2020, there would be about 5.8 billion IoT devices being connected, enhancing services in different business sections. Let's see how IoT may bring impacts to the retail industry.

Wireless IoT sensors can be easily deployed in large scale to detect and indicate available parking spaces. They can also connect with our mobile phones to provide indoor navigation service, enabling contactless payment and making suggestions for customized

promotion to visiting customer, based on analysis of their purchasing pattern. Imagine when visiting a shopping mall, you can easily find a vacant parking space. And then a virtual guide will bring you to the shop or restaurant that you like. At the shop, the virtual guide will tell you the position of goods you wish to buy and display the related product information. And using contactless auto-checkout, you don't need to wait at a long queue for checking out items anymore.

And how about the integration of IoT with the Building Information Modelling - BIM for the Property and Facility Management sector in Asset Management. The BIM gives us a 3D digital twin of the building and its facilities and equipment that we are managing. Through integrating the facility asset data, like usage, occupancy, equipment model, maintenance details, and their real-time status from the Building Management System (BMS) and IoT sensors, we have the integrated system that we call the BIM-Asset Management or BIM-AM. EMSD holds a patent on BIM-AM. I am going to show you how EMSD has transformed BIM to BIM-AM by integrating different technologies from the project stage, to operation and maintenance, as well as facility management stage.

The BIM-AM does not only bring enhanced user experience and reputation, but also benefit the property and facility management. For example, in an office building, IoT devices can be installed to monitor carpark and meeting room usage. The BIM-AM is serving customers on one hand, advising them the location of currently vacant carparks and rooms, and on the other hand, it is collecting useful data from the facilities for analysis. By analysing the usage patterns, property and facility managers can devise more customer-oriented strategies to help enhance facility availability and improve the usage. With fuller and clearer picture of resource utilization, property and facility managers can also better optimize the use of resources and schedule for opening, closure and maintenance as appropriate. As such, the overall operating cost of the property or facility could be better controlled.

Other than the above impacts to the economic aspects brought about by technological advancement, here we come to the environmental aspects. Striking a balance between economic growth and environmental sustainability is the social obligation that we all should take care of. In 2016, the Paris Agreement came into force, calling for global actions to restrict carbon emissions to keep the global average temperature increase well below 2 degree Celsius. Each Party devises their own nationally determined contributions with targets and timelines. Hong Kong plays a part to fulfill obligations that China has under the Paris Agreement. As such, Hong Kong needs concrete actions and has to review our work against climate change every 5 years with an ultimate target of meeting the Paris Agreement. Let's have a glimpse of the work.

We strive to have energy saving in order to reduce carbon emissions. The government issued an energy saving plan in 2015, setting the energy intensity reduction target of 40% at Year 2025 using 2005 as the baseline. Meanwhile, the government has further developed a "4Ts operation framework", namely "Timeline", "Target", "Transparency" and "Together", and engaged the private sector to join force for energy saving in the existing buildings. With the collaboration between the public and private sectors, we have already reached a reduction of 31.4% from 2005 to 2017. But what is the next step for the remaining 9% and what about 2025 and beyond?

Retro-commissioning (RCx) is one of the important steps. It is a quality assurance process that re-check and re-tune the performance of the facilities in a building back to the most optimal level meeting the latest usage profile of the building. This includes identifying energy saving opportunities and improving system operation and maintenance, such as air-conditioning, lighting and other mechanical systems. It sometimes involves tweaking the system control for the best performance or system upgrade. For government buildings, we selected 6 buildings of various sizes, functions, ages and annual energy consumption as pilot for the implementation of RCx. Among those buildings, the case study in the Education Bureau's Education Services Centre in Kowloon Tong shows the greatest energy saving of about 9.4% after RCx. At an overall level, these buildings achieved, on average, about 5% energy saving after RCx, with a payback period of about 3 years. Here is a video showing our efforts in RCx.

The Property and Facility Management (PFM) sector is facing various challenges in the competitive and demanding business environment, with ever rising customer expectation. We all faces difficulties such as the lack of competent candidates with multiple skillsets, limited opportunities in cost reduction with fixed overhead, spending a great deal of time and efforts in meeting exceptional customer expectations, etc. The adoption of Innovation and Technology (I&T) should help solve some of the problems. We need to take a big leap in using I&T and leading changes to make our city more livable.

Noting that we need more I&T ideas and solutions, the EMSD introduced our E&M InnoPortal in 2018. The portal provides an effective online platform to match I&T wishes and solutions on offer in order to facilitate technology adoption. Just simply search "inno portal" in any web search engine or scan this QR code to locate the portal. Please do take a while to visit it, and you may find a good I&T partner there.

Nowadays we are all fighting hard against the coronavirus. It definitely poses a challenge to the society in all aspects, not only in Hong Kong, but also the world. We

have also received over 200 solutions on the Anti-epidemic thematic page of our EMSD InnoPortal. Here is a showcase of Indoor disinfection robots. We are glad to say from our heart that "Together, We Fight the Virus!"

There are more and more anti-epidemic solutions coming on stream, such as that for contactless applications, disinfection or detection. In lift system, we can simply wave our hand to call for a lift. To enter the floor that you wish to go, you can simply scan a QR code, or use the smart positioning system or holographic technology to detect your finger position without you ever touch a floor button. We have already adopted some of these technologies in the EMSD HQs. In escalator system, users are urged to hold the handrail for safety, and the handrail sterilizer is in place to enhance handrail hygiene. At building or restaurant entrances, smart fever screening system is in place for facial temperature measurement, but not raising unnecessary alarm when you are holding a cup of hot coffee. Focusing on disinfection and cleaning, robotic system is adopted for indoor disinfection and cleaning. For food delivery, there is delivery robot. They significantly relief manpower and protect us from cross-infection. What's more? There are anti-virus nano-coating that can be applied on furniture and building surfaces, in ventilation air-duct and air purifier. Here I would like to take this opportunity to thank and appreciate all property and facility managers' efforts in fighting the virus!

Last but not least, I would like to quote from Stephen Richards Covey, an American educator, author, businessman, and famous speaker. You may know him by his book "The 7 Habits of Highly Effective People". What he gives us is… "Live out of your imagination, not your history." Don't let the past experience limit our thought. Don't rest on the present days. Take a big leap to imagine our future! Keep our imagination. In 1973, we had the first mobile phone. In 2020, we have sound technologies, like IoT and BIM. How about thirty years later? Are we still living in houses? Can houses fly? We can go far beyond what we have. Today we are here, as one of PFM members, let us uphold a beliveable PFM, and shape a liveable Hong Kong. Thank you.

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