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"Empowering APAC healthcare delivery framework through smart innovations"

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In conversation with Dirk Dumortier who is heading Business Development Smart City and Healthcare (Asia Pacific) at Alcatel-Lucent Enterprise, Singapore

COVID-19 has exposed the inadequacies in the healthcare industry which is now evolving through vigorous transformation. The Asia Pacific region is embracing digital transformation in the healthcare ecosystem. According to a 2020 report by Bain & Company, the APAC region is set to represent more than 40% of growth in global healthcare spending over the next decade, expanding at a rate almost double than that of the rest of the world. This also means that Asia-Pacific stakeholders have an unprecedented opportunity to transform the region's healthcare landscape through collaboration and networking tools. Mr **Dirk Dumortier** who is heading **Business Development Smart City and Healthcare (Asia Pacific) at Alcatel-Lucent Enterprise, Singapore** has more to share about a new framework for healthcare delivery.

What does healthcare continuity mean in the times of COVID-19?

There are two aspects to consider in healthcare continuity – operational needs and technical needs.

Operational needs involve ensuring that health facilities like clinics and hospitals remain operating during a pandemic while protecting both patients and healthcare workers. There are multiple ways to go about this. For instance, the building of temporary wards or rearranging normal wards into Intensive Care Units (ICUs) to cater to the surge in demand. Minimizing physical contact between patients and healthcare workers using collaboration tools that allow for shift handovers to be done remotely. Or the use of collaboration tools to enable administrative staff to work from home and general practitioners to reach out to their patients remotely.

Technical needs refer to the technologies that allow healthcare facilities to resolve operational requirements within a short time frame. Hospitals and clinics need to tap on technology that allows for:

- Ruggedised network infrastructure to create secure wired and wireless connectivity for both hospital and patient use.
- Work from home software and hardware – extending the hospital and care network and communications to home, allowing staff to work remotely without affecting operations.
- Over-the-top (OTT) cloud collaboration licenses for free to all healthcare workers. This managed service does not require any onsite installations and can be rolled out quickly, enabling collaboration between hospitals and clinics, and even teleconsultations.

At Alcatel-Lucent Enterprise, we have worked together with our supply chain and business partners to come up with an easy to order, fast delivering and installation of these solutions, to help healthcare facilities alleviate operational issues.

What does the next generation of hospital look like? How is innovation changing the hospital experience?

While innovation is changing the way people view healthcare, the speed and willingness to adopt technology is dependent on healthcare organizations and lawmakers.

The healthcare sector is constantly changing. Education and easy access to information have also made people more health conscious and wanting to take better control of their own health. The traditional mindset of visiting doctors to get cured of an illness has been replaced by that of maintaining one's health to prevent falling sick.

At the same time, the rising world population and rapid ageing is putting stress on healthcare workers and affecting healthcare costs – due to higher demand on healthcare, the combination of more complex diseases and elaborate medical equipment and medication required.

The COVID-19 situation has highlighted the limitations of our current healthcare infrastructure, and it is time to rethink the system.

Next generation hospitals will become more virtually connected. A patient of the next-gen hospital will be supported by "Healthcare as a Service" (HCaaS). A virtual care service that allows healthcare workers to monitor a patient's health and assist throughout the patient's healthcare journey via smart devices and sensors connected to Internet of Things (IoT) networks. Technology that can be used to notify staff if remedial or critical care is needed.

In critical care, the next-gen hospital will allow a patient's virtual health team be widened if there is a need. Patient records and treatment information will be easily accessible to specialist doctors. They can also tap on telehealth tools and other connected equipment. Hospitals will become leaner and more specialized. This translates to shorter hospital stays, which leads to optimized patient outcomes and lower healthcare costs.

Technologies like Artificial Intelligence (AI), Machine Learning, and cognitive understanding will be applied to patient data, structured and unstructured, to help healthcare workers in diagnosis and treatment management. Healthcare workers will have access to teleconsultation, telemonitoring and other telehealth solutions as basic tools, including the use of video analytics to monitor patients' vital signs. Besides this, we will see automated triage, where data is combined with chatbots and AI to provide 24-hour service to patients.

As an extension to tele-health, specific applications will be developed for hospitals and clinics to connect patient with healthcare workers. These mobile tools and applications assist healthcare workers in their workflows and integrate seamlessly with collaboration tools that offer direct access to other services such as food and e-concierge. Critical medical devices will be tagged to patient's data and managed by AI. This allows for better medical device, manpower and asset

efficiency.

What challenges are hospitals and healthcare organizations facing in their digital transformation journeys?

Laws have been introduced in the past to limit the number of students allowed into medical universities around the world. Regulations and enforced tools like Electronic Media Records (EMR) were mandated by lawmakers to ensure quality in healthcare systems. The digital transformation journey of healthcare organizations is mainly dependent on policymakers and governmental workings.

When it comes to digital transformation, healthcare professionals also need to be willing to accept change within the system – and this applies to sectors outside of healthcare as well. They need to be aligned and move in one single direction together.

Currently, we have seen the desire for change within the healthcare sector, albeit mainly driven by competition and manpower shortage. For instance, governments have been willing to review laws related to teleconsultation and the introduction of Patient Experience Officers and Chief Innovation Officers. However, the move to a futuristic hospital and the adoption of HCaaS will require a total restructuring of the healthcare system.

Other than human limitations and legal restrictions, there is also the issue of cost. In many cases, government leaders and hospital officials tend to have the ‘wait-and-let-others-experiment’ stand with digital transformation as often the return on investment is unknown. This is also understandable as this can involve public funding and governments need to protect.

Finally, like all digital transformation journeys, technology can also be a barrier. While most of the technologies we talked about exist today, there is still a need to fully integrate them and customize each one to the different medical fields and application focus. There is also the need to test and fully fine-tune the technologies before commercial deployment.

How far are we from a truly connected smart hospital?

Technology-wise, the first HCaaS model is already being deployed in markets like China, where laws and regulations are passed relatively quickly, and citizens are eager to be part of the change. Technology vendors in these markets also adopt a different strategy of fast development avoiding the usual long decision-making process. Industry players in other parts of the world will be able to see and learn from these projects, and at the same time fine-tune and optimize their own business models and technologies.

Organisation-wise, we may take another two to five years before we see a glimpse of a truly connected smart hospital. This is dependent on all the moving blocks such as manpower, willingness to embrace change within management, budgets as well as compliance and regulations. Let us hope that the pandemic has shed light on the importance of restructuring our current healthcare system, so stakeholders can come together to move together in one single direction.