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How Digital Ethics Drive the E-healthcare Systems: Expert Opinion

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Singapore's Healthcare-Cloud (H-Cloud), a computing platform supports over 50,000 healthcare staff at all nine public hospitals, eight specialty centres, twenty polyclinics and nursing homes. Ms Sheena Chin, Managing Director, ASEAN, Cohesity has more to share.

In the healthcare sector, businesses must abide by the Health Insurance Portability and Accountability Act (HIPAA) of the United States, Personal Data Protection Commission (PDPC) Healthcare Guidelines of Singapore, and other regional guidelines set by federal compliance regulations to protect the privacy of patient records. This becomes a challenge especially when information is uploaded to the cloud.

We have seen the severity of the impact of a data breach and how it could result in the leakage of sensitive patient records. In some cases, this breach of privacy could result in hospitals and other healthcare institutions to be taken to court. Digital ethics has become a rising concern for e-healthcare, and regulatory bodies are making sure that privacy guidelines are being followed by companies that use cloud services. Since the cloud is the new standard for efficiency and cost-effectiveness, the security of medical health records must be guaranteed while making data available centrally.

In response to this, Singapore's public healthcare sector launched the Healthcare-Cloud (H-Cloud). Consolidated and cloud-based, H-Cloud is a computing platform that supports over 50,000 healthcare staff at all nine public hospitals, eight specialty centres, twenty polyclinics and nursing homes. As the public healthcare's first private cloud setup, H-Cloud will help reduce operational costs by an average of 55 percent by 2025 and improve infrastructure availability to 99.95 percent. In Malaysia, the Ministry of Health (MOH) has implemented initiatives such as the roll out and upgrading of Hospital Integrated System (HIS@KKM) and Integrated Primary Care System (TPC-OHCIS). With focus on strengthening the current health system with a robust IT infrastructure, the projects aim to elevate healthcare to the next level with information technology as the key enabler.

Challenges and Risks in e-Healthcare

Due to the incompatibility of the systems used by healthcare organisations, interoperability is another massive concern for cloud users within the sector. To be able to move data to the cloud and use cross-institutionally, it must be compatible with the provider, software, computer, data levels and system integration applications. Standardisation and data transferability are major challenges due to differences in operating systems, programming languages, data formats and platforms that are used by healthcare institutions. Software programmers need to use a common data model and standard processes so that data can interact with each other. To accomplish this, the healthcare sector needs to establish universal standards. Doing so will

make maintenance and updating of records more efficient, resulting in substantial benefits for the overall health community.

However, with greater interoperability comes a higher risk of a security breach. With standardised formats, it becomes easier for hackers to tamper and track the transfer of data. The healthcare sector has been an ongoing target of malicious cyber threats but the persistence of cyberattacks on hospitals and health facilities increase during a public health crisis such as COVID-19. Therefore, health organisations must ensure that their web and cloud-based systems meet the legal standards of safeguarding private data in compliance with existing regulations.

Despite the ease that centralised data brings, the cloud platforms have its occasional downtime. This means that if data is not backed up on another cloud system, it will not be available to the healthcare provider during the downtime. As healthcare facilities need access to data always, back-ups need to be regularly updated as well.

Cloud platforms and its benefits to the health sector

The cloud provides a modern business model for healthcare institutions. It improves the quality of health services, allows greater collaboration between doctors and institutions and reduces the cost for internal IT departments, along with faster development cycle and application releases. A doctor in one city can discuss and share insights with a doctor in another location in real-time. This leads to a greater understanding of the patient's condition, a faster and better diagnosis, and the sharing of knowledge and experience, leading to elevated patient care. Patient files are regularly updated across all systems and can be securely and easily accessed at anytime, anywhere.

Cloud platforms also drive cost-efficiency. By maximising internal IT resources, budgets can be directed to other parts of the operation. Additionally, with the pay-as-you-go system offered by cloud data platforms, organisations only pay for what and how much they use. Healthcare institutions do not have to buy expensive hardware and software, licenses or hire staff for maintenance and security. Most significantly, as cloud platforms are monitored for compliance with regulatory bodies such as HIPAA and PDPC, clients of service providers can leverage the security afforded by these regular audits and checks.

The benefits and advantages of cloud technology certainly outweigh the risks. By utilising cloud data platforms, innovations in healthcare such as integrated data systems, telehealth and remote consultation and automation of various health services, can be implemented across the healthcare sector and help provide personalised, efficient and affordable health services to patients.

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