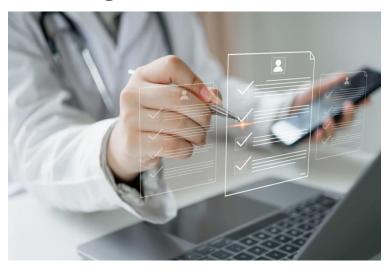# Prescribing Digital Integration to the Health Industry

Rachel Gong

Introduction

The digital health industry offers many opportunities for innovation and growth. Digital transformation of the health and healthcare sectors can improve productivity and revenue as well as promote better individual and public health outcomes. Digital health records are a key enabler of this transformation.

Given Malaysia's dual-track healthcare delivery systems, public and private health records systems need to be better integrated.

I propose three measures to facilitate an integration process: (1) build a supporting ecosystem to increase patient enrolment into digital health records systems, (2) set and enforce shared standards to ensure interoperability across the healthcare landscape, (3) establish health data regulations and other data governance mechanisms to build public trust in digital health records.

Digital health offers many opportunities for innovation and growth

Digital health is a growing industry that has benefited from advances in technology and data analytics, allowing what began as internet applications in the medical healthcare space to expand to a wider consumer health market[1]. Investment and innovation in health and healthcare has increased globally, with technological advances being introduced regularly, from biosensor tattoos to precision medicine. A sceptic might suggest that efficacy research and regulations have not kept pace with these developments, but market demand for HealthTech does not seem to have faltered, especially since the Covid-19 pandemic.

Market analysis of the digital health industry in Southeast Asia shows that market revenue grew from USD1.16bil in 2017 to USD 5.36bil in 2023[2]. Another analysis highlighted that Indonesia experienced the largest growth in the region[3], likely in association with having the largest population in the region. Malaysia, on the other hand, fell in the middle of the pack in accordance with a 2021 PwC report that showed low rates of venture funding for HealthTech in Malaysia[4].

Given the promise of revenue from medical tourism[5] as well as the needs of a growing aging population[6], it is important for Malaysia's health and healthcare sectors to reap the benefits of digital transformation and not be left behind[7].

A strong digital healthcare system depends on digital health records

The foundation of a strong digital healthcare delivery system, as highlighted by all three of Malaysia's post-pandemic health ministers, is digital health records, whether in the form of electronic health records (EHR), electronic medical records (EMR), patient health records (PHR), or lifetime health records (LHR)[8]. In February 2024, Health Minister Dr Dzulkefly Ahmad reiterated the need for a central patient record system enabling access to healthcare records in any healthcare facility throughout Malaysia[9], which best meets the definition of EHR.

This has been the target since Malaysia's 1997 Telemedicine Blueprint, where the goal was for healthcare workers and patients to be able to access an integrated set of medical records that follows patients throughout their lifetime, regardless of which healthcare facility they seek care at[10].

---

[1] Mathews et al. (2019), Kasoju et al. (2023)
[2] Statista (2024)
[3] Shoo (2023)
[4] PwC (2021)
[5] MIDA (2022)
[6] KRI (2021)
[7] Hospital Management Asia (2024)
[8] Ilyana Mukhriz and Gong (2023)
[9] Aida Ahmad (2024)
[10] Ilyana Mukhriz et al. (2023)

According to KRI's research, early initiatives to develop and deploy digital health records in public healthcare facilities as part of overall hospital digitalisation programmes came in fits and starts due to multiple factors, including lack of funding, proprietary and unwieldy technology systems, and poor supporting infrastructure[11].

However, the Covid-19 pandemic marked a turning point, demonstrating how quickly Malaysia could adopt a mobile health application with appropriate government support. In 2021, MySejahtera had the highest installation rate (85%) and open rate (92%) among Covid-19 health applications worldwide. It began as a contact tracing app but its functionality expanded to vaccine registration and records as well as being used to make health appointments and for infectious disease surveillance[12].

The use of a lightweight cloud-based system accessed via a mobile app or a web browser can also be seen in the rollout of a hospital information exchange (HIE) platform in Negeri Sembilan[13]. The HIE platform will be used with three user portals catering to healthcare providers, patients and facility administrators with different data permissions for different users. It can be accessed using just a web browser, reducing the hardware requirements needed at smaller healthcare facilities, although a reliable internet connection is still required.

At the time of writing, there is not yet a clear pathway to integrating this system, which is to be rolled out to all public healthcare facilities, with digital systems deployed in private healthcare facilities.

Integrate public and private healthcare records to ensure seamless healthcare delivery

Malaysia has a dual-track healthcare delivery system, with the public sector providing the bulk of healthcare delivery in terms of hospital admissions and outpatient care. In 2022, public hospital admissions accounted for 73.0% of total hospital admissions while 84.3% of hospital outpatient care occurred at public hospitals[14]. The burden borne by the public sector can be overwhelming in times of crisis such as a pandemic or a natural disaster.

The Covid-19 vaccination programme demonstrated how the public and private sectors can work together to provide seamless healthcare delivery. Private sector provision of care may expand given current challenges facing the public healthcare system including a shortage of doctors[15] and facilities in need of upgrades[16]. Thus, it is important that health records are able to follow patients and move across facilities as needed in order to ensure continuity of care.

---

[11] Ibid.
[12] Ilyana Mukhriz and Gong (2023)
[13] Ilyana Mukhriz et al. (2023)
[14] MOH (2023)
[15] CNA (2023)
[16] The Star (2024)

Three actionable measures to facilitate integrated digital health records

Systems integration is not simply a matter of establishing more public-private partnerships. Limited existing regulations on data protection and data transfers, non-standardised data systems and a lack of public trust can hamper data systems integration[17]. I propose three actionable measures to address these issues and facilitate integration of public and private digital health records systems.

1. **Build a supporting ecosystem to increase patient enrolment into digital health records**

    Digital health records are just one component of a comprehensive digital health ecosystem that includes, for example, lab reports and hospital management. On the supply side, upgrading hardware and network infrastructure, especially for smaller, less urban facilities, is necessary to ensure smooth service delivery. On the demand side, improving digital and health literacy is important to raise public awareness of the benefits of health data analytics and the use of health information of self-management of disease.

2. **Set and enforce shared standards to ensure interoperability across the healthcare landscape**

    Health informatic standards are widely known and used in the health industry. However, standards for health database architecture and health data formatting, while recommended, are not yet required[18] across the healthcare landscape in Malaysia. Enforcing standards such as a minimum data set will be important in ensuring that patient data can be shared efficiently across healthcare providers and facilities.

3. **Establish health data regulations and other data governance mechanisms to build public trust in digital health records**

    Data security and privacy concerns need to be addressed to build public trust in digital health records systems. Patients should be confident that their data will only be shared responsibly and safely. Current data regulations do not specifically address health data, which are sensitive data that require additional protections[19]. Where needed, guardrails should be put in place around how health data should be used, focusing not on improving profit margins but on improving health outcomes for as many people as possible.

---

[17] Ilyana Mukhriz and Gong (2023)
[18] Ilyana Mukhriz et al. (2023)
[19] Ibid.

Conclusion

Dr Dzulkefly has reiterated the Ministry of Health's commitment to national healthcare digitalisation and digital health records[20]. To achieve the government's goal of addressing fragmented health information systems as stated in the 12th Malaysia Plan and Health White Paper, the ministry could hold further engagements with healthcare practitioners, regulators and patient-rights advocates in the private sector, academia and civil society to exchange ideas and find avenues for collaboration and partnership.

---

[20] Bernama (2024)

References

Aida Ahmad. 2024. "Digital Transformation Needed for Malaysian Healthcare, Says Dr Dzul." *The Star*, February 16, 2024. https://www.thestar.com.my/news/nation/2024/02/16/digital-transformation-needed-for-malaysian-healthcare-says-dr-dzul.

Bernama. 2024. "Kkm Aims To Implement Digital Transformation Of Healthcare Within Four To Five Years." Bernama. March 26, 2024. https://www.bernama.com/en/news.php?id=2282890.

CNA. 2023. "Malaysia Healthcare Capacity Stretched with Long Waiting Times, Manpower Shortage: Reports." *CNA*, February 16, 2023. https://www.channelnewsasia.com/asia/malaysia-public-hospital-overcapacity-3282636.

Hospital Management Asia. 2024. "What It Takes to Propel Malaysia's Digital Healthcare Transformation to the next Level." *HMA* (blog). January 3, 2024. https://www.hospitalmanagementasia.com/tech-innovation/what-it-takes-to-propel-malaysias-digital-healthcare-transformation-to-the-next-level/.

Ilyana Mukhriz, and Rachel Gong. 2023. "Putting Patients First: Principles for Electronic Health Records in Malaysia." https://www.krinstitute.org/Discussion_Papers-@-Putting_Patients_First-;_Principles_for_Future-Facing_Electronic_Health_Records_in_Malaysia.aspx.

Ilyana Mukhriz, Rachel Gong, and Su Lin Lim. 2023. "Case Studies of Hospital Digitalisation: Lessons for Electronic Health Records in Malaysia." https://www.krinstitute.org/Discussion_Papers-@-Case_Studies_of_Hospital_Digitalisation-;_Lessons_for_Electronic_Health_Records_in_Malaysia.aspx.

Kasoju, Naresh, N. S. Remya, Renjith Sasi, S. Sujesh, Biju Soman, C. Kesavadas, C. V. Muraleedharan, P. R. Harikrishna Varma, and Sanjay Behari. 2023. "Digital Health: Trends, Opportunities and Challenges in Medical Devices, Pharma and Bio-Technology." *CSI Transactions on ICT* 11 (1):11–30. https://doi.org/10.1007/s40012-023-00380-3.

KRI. 2021. "Building Resilience: Towards Inclusive Social Protection in Malaysia." Khazanah Research Institute. https://www.krinstitute.org/assets/contentMS/img/template/editor/Booklet%20-%20Building%20Resilience.pdf.

Mathews, Simon C., Michael J. McShea, Casey L. Hanley, Alan Ravitz, Alain B. Labrique, and Adam B. Cohen. 2019. "Digital Health: A Path to Validation." *Npj Digital Medicine* 2 (1). Nature Publishing Group:1–9. https://doi.org/10.1038/s41746-019-0111-3.

MIDA. 2022. "Malaysia Remains Emerging Hotspot in Medical Tourism." *MIDA | Malaysian Investment Development Authority* (blog). October 13, 2022. https://www.mida.gov.my/mida-news/malaysia-remains-emerging-hotspot-in-medical-tourism/.

MOH. 2023. "2023 Health Facts: Reference Data for Year 2022." Ministry of Health Malaysia. https://www.moh.gov.my/moh/resources/Penerbitan/Penerbitan%20Utama/4._Health_Facts_2023-compressed_.pdf.

PwC. 2021. "Healthcare in a Digital Economy: Reimagining the Future of HealthTech in Malaysia." Malaysia: Pricewaterhouse Coopers. https://www.pwc.com/my/en/assets/publications/2021/pwc-deals-strategy-healthcare-in-a-digital-economy.pdf.

Shoo, Wei Khoon. 2023. "Understanding the Growth of Digital Health in ASEAN Countries." LinkedIn. June 10, 2023. https://www.linkedin.com/pulse/understanding-growth-digital-health-asean-countries-wei-khoon-shoo.

Statista. 2024. "Digital Health - Southeast Asia." Statista. August 28, 2024. https://www.statista.com/outlook/hmo/digital-health/southeast-asia.

The Star. 2024. "Hospital Wards Urgently Need Repair." *The Star*, April 15, 2024. https://www.thestar.com.my/news/nation/2024/04/15/wards-urgently-need-repair.