Victoria's Digital Health Maturity Model

A progressive maturity framework of digital health technology adoption

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Contents

Foreword

The world is fast becoming smart – smart cities, cars, utilities and homes leverage the internet of things, data and intelligent connected systems to support economic, social and environmental sustainability. So, we should expect nothing less than health systems striving for digital maturity by being adaptive, intelligent and interconnected.

The digitisation of healthcare is well underway bringing new tools and channels by which to effectively deliver healthcare services. As these flow through the health system, measuring and understanding the success of these services is vital to the pursuit of digital excellence to reach the full potential of:

‣ Improved patient care experience,

‣ Better outcomes,

‣ Improved clinical experience, and

‣ Lower costs.

Healthcare organisations and health systems need to understand what the road map to digital excellence looks like, given their current stage along the digitisation journey. One approach is to assess the digital maturity of an organisation as the basis upon which to build future strategy and investments and accelerate the process of digitisation within the organisation.

In 2019, EY was funded by the (then) Victorian Department of Health and Human Services to co-develop a digital health maturity model assessment that could be applied across all public health services (and indeed all private health services), focused on the Victorian hospital and healthcare environment. This was the largest assessment of its kind in the health sector in Australia, providing a clear view of the necessary digital maturity areas for uplift across ten core pillars.

This paper presents an overview of the Victorian Digital Health Maturity Model and we acknowledge the contributions of what is now the Department of Health in the development of the Model and this paper.

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The impact of COVID-19

Realising a digitally advanced health system at scale is complex, especially in an industry that until COVID-19, has been slow to change.

COVID-19 has provided a window into the modernisation of healthcare. In meeting an immediate need, health services have taken steps toward a digital and smart health system and creating a digital-first experience. Those who build on these gains, and continue to expand their digital capabilities, will embed and sustain digital in their business as usual.

Introduction

Technology is rapidly transforming healthcare

The rapidly advancing technology environment is transforming the way that healthcare is delivered. Advanced technologies underpin new services including virtual care and innovations for safer clinical care, and the automation of clinical and back-office operations. Digital health underpins shifts in the care location to anywhere, anytime and makes possible emerging care models around wellbeing, remote monitoring, and smart homes that ultimately move care closer to the consumer – at home or in the community. Digital health can, and should, play a key role in improving the safety and quality of the health system and improve patient outcomes for all.

Sharing organised and complete data to generate insights for better health outcomes is a key driving force behind improving health. New care models and locations give rise to streams of data, including behavioural, environmental and social, that eventually will need to be integrated with clinical data to deliver holistic and personalised care. To this end, health systems need to be able to connect and share data at scale and advanced technologies, such as artificial intelligence, will turn complex information into usable insights to support early intervention, improve health outcomes and enable greater operational efficiency.

Internationally, policy attention is directed towards creating highly connected health systems for patient-centric care and safe, effective and efficient service delivery. Many countries are pursuing digital transformation programs built around investing in the alignment of technology and infrastructure. In Australia, the Health Chief Executives Forum (formerly the Australian Health Ministers' Advisory Council) has agreed to principles that form a foundation for engagement across Australian governments towards a more connected healthcare system. As a result, state and territory jurisdictions are actively advancing digital health strategies.

As this shift to a digital-first model flows through the system, understanding the baseline digital maturity at both the organisational and health system levels is necessary. This means a shift in perspective from just digitising information to that where digital is deeply embedded as business as usual to drive improvement.

Future success depends upon the system-readiness of the health system and the presence of reliable technological infrastructure and digital systems. From a whole of system perspective, this requires foundations to ensure organisations and governments can work together (e.g., the policy, legal frameworks, business processes and administration responsibilities) to put in place the investments, specifications and standards to foster digital maturity. For organisations, this means weighing the current state and what is needed to move to adopt and incorporate core digital health capabilities.

The case for change is clear, but how can organisations and health systems judge and act upon where they are today and where they need to get to tomorrow? Digital transformation must occur at the right pace for an organisation and the broader health system, including investing in the right combination of elements that are wanted and needed. Establishing a sound foundation requires assessing the digital capabilities of an organisation (and collectively, a health system) as the basis upon which to build future strategy and investments.

The Model was developed with the clear goal to create an assessment tool which is a robust indicator of maturity alongside practical application of the assessment tool. The Model is:

- ▸ Founded on international models of care, leading practice and existing tools

- ▸ Aligned to patient-centred delivery of care and the need for accessible information

- ▸ Adaptable and scalable to the digital advancements and trends disrupting healthcare

- ▸ Flexible and supports regional and local customisation across diverse providers and settings

- ▸ Aligned with health services' organisational and clinical aspirations and priorities

- ▸ Focused upon continuous improvement through evaluation

- ▸ Balances the emphasis on the IT or technological functionality, with the human and organisational maturity

Victoria's Digital Health Maturity Model

The paper presents an overview of Victoria's Digital Health Maturity Model (the"Model"), co-developed by EY and the (now) Victorian Department of Health (DH), which can be used to assess the digital maturity of Australian healthcare systems at a single point in time. The Model provides a discrete definition of digital health and an assessment tool that captures a health service's current level of digital health maturity. Easy to use and understand, the outcomes of the assessment enable health services to clearly identify strengths and growth opportunities in their digital journey.

Internationally, a variety of models exist that assess digital maturity. These vary in focus, for example being specific to sub-areas such as electronic health records, telemedicine or care pathways. Others focus upon hospital networks or large integrated systems such as the NHS. HIMSS for example, has a suite of eight-stage (0-7) models covering such things as analytics, continuity of care and electronic health record adoption and also a digital health indicator measuring progress towards a digital health ecosystem. Common to many frameworks is the concept of tiered levels of maturity through stages. These are defined by technological capabilities and progressive stages of achieving policy goals of advancing digital health capacity and capability.

The federated structure of the Australian healthcare landscape demands a flexible approach to uplifting the nation's digital capabilities that is responsive to the different social, geographic and political environments. If consistency between jurisdictions can be achieved, this can contribute to progressing the national health system towards better sharing of information and coordination. To this end, the Model framework recognises that digital maturity is influenced by many factors including context and environment, information systems and architecture and the availability of resources including financial, talent and connectivity.

An overview of the Model

The Model consists of an assessment, analysis and reporting, and results in an overall indication of relative maturity on a five-point digital maturity scale. This scale is a sequence of discrete levels of maturity that reflect the aspirational and evolutionary path for digital adoption. Five categories of ascending levels of maturity range from "Initial" through to "Transformative". (Refer Figure 1: Five levels of digital health maturity)

Completing the assessment results in a discrete, quantitative analysis of an organisation's digital health maturity. The outcomes of the evaluation are understood as broad levels of maturity, intended to provide an organisation's leadership with a current status assessment against a solid framework of reference points.

As a result, the outputs can inform strategic planning and the building out of a roadmap of practical actions and investment required to steer the next stages of growth. The more granular information arising from the various sub-categories allows organisations to understand areas of strength and opportunity and to strategically target local priorities.
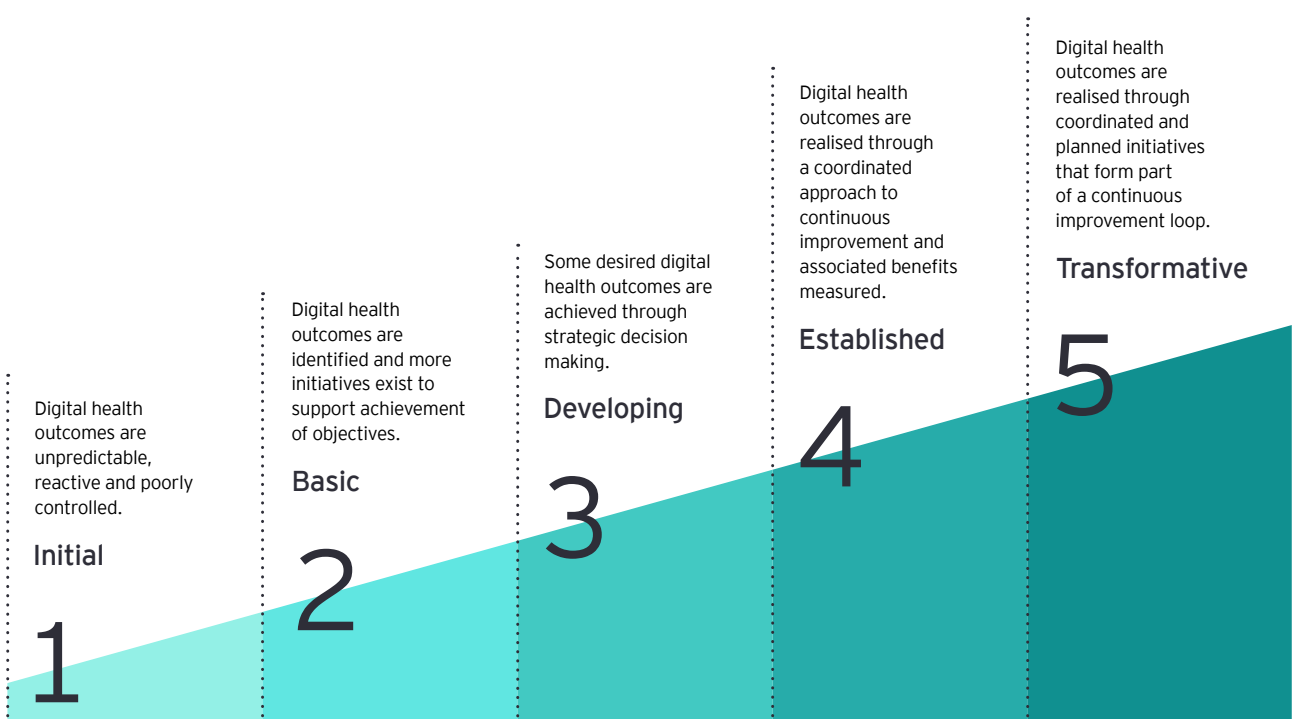
Growth is conceived as following a digital journey appropriate for the local context rather than as an orderly linear progression between stages. As a robust, evidence-based and standardised assessment, organisations such as public health services can benchmark their performance against their peers as well as against target maturity level objectives.

The Model is founded on evidence-based practice and was developed following a human-centred approach with multiple health services. The Model has been validated through a broad pilot program with health services of varying sizes and service delivery models in Australia. The Model is aligned with patient-centred care and the scope of the tool is broad, covering the technological, human and organisational capabilities that are important enablers of digital health.

All health services have been assessed against the Model. Victoria's Digital Health Maturity Model provides the means to evaluate progress of the Roadmap in lifting digital maturity from 'basic' to 'transformative' states.

Ten pillars of core digital health maturity form the backbone of the assessment. (Refer Figure 2: Ten pillars of digital health maturity)

Figure 1: Five levels of digital health maturity

Digital health outcomes are unpredictable, reactive and poorly controlled.

Initial

1

Digital health outcomes are identified and more initiatives exist to support achievement of objectives.

Basic

2

Some desired digital health outcomes are achieved through strategic decision making.

Developing

3

Digital health outcomes are realised through a coordinated approach to continuous improvement and associated benefits measured.

Established

4

Digital health outcomes are realised through coordinated and planned initiatives that form part of a continuous improvement loop.

Transformative

5

Ten pillars of digital health maturity

The tool is a web-based self-assessment completed by relevant executive stakeholders in the healthcare organisation including the service leadership, senior information technology staff and clinical end users. Scoring via an algorithm delivers a final numeric and explanatory assessment. Approximately 40 questions span the scope of the pillars and provide over 760 primary structured data points for analysis, reporting and benchmarking.

All questions are weighted against their importance to digital maturity, which yields a score per pillar on a scale of one to five. The pillars are weighted evenly to provide a single overall digital maturity score. Health services receive a comprehensive report with both raw scores and analysis covering an overall maturity perspective and core strengths and opportunities for development in the key pillars and sub-categories within each pillar.

Figure 2: Ten pillars of digital health maturity

Governance and Stewardship

Oversight of digital health strategy, board and executive level support and key areas of governance.

Organisational Capability

Change and project management, workforce capability, and clinical engagement.

IT Operations and Infrastructure

Enabling features of a mature technical architecture environment.

Level of Digitisation and Functional Adoption

Adoption of technology, systems and functional capabilities (criteria are closely aligned to the HIMMS EMRAM framework).

Security and Privacy

Maturity of solutions and supporting policies and procedures.

Information Sharing and Integration

Foundational components of interoperability.

Data and Analytics

Data management and governance and the integration of data into clinical and operational decision making.

Consumer Participatory Health

Incorporation of the consumer perspective and strengthening of consumer health and digital literacy.

User Experience

User-centred design, quality of user experiences and incorporation of user feedback.

Innovation

Structural, financial and cultural environment support for digital health innovation.

What is next for Victoria's Digital Health Maturity Model?

The DH commissioned an evaluation of the Model. The evaluation, conducted by Deakin University found that it is valid, comprehensive in scope, easy to understand and capable of being used in other Australian jurisdictions. The research team identified that the Model was flexible and did not presuppose rigid "maturity stages" and that each dimension was able to be independently assessed. In addition, it was noted that the Model was co-designed with health services and departmental input. This makes it effective for use at the state-wide system level, not just within single health organisations (as is the case with some other models).

The deployment of the tool and the comprehensive reporting of tangible, practical actions to assist with uplifting of organisational digital maturity have been the focus of positive feedback from participants in the Model. Executives and clinical personnel report that organisations benefit from reviewing their operations and capabilities and a deep understanding of strengths and opportunities arising for digital advancement.

Opportunities for future development and strengthening of the tool include further validation within Australia, and internationally. Ongoing refinement of Victoria's Digital Health Maturity Model is necessary to reflect rapidly emerging technologies, priorities and interests shift over time. As the Model becomes more widely adopted across the sector, consolidation of a deep time-series of results allows a fuller picture of the maturity of digital health in Australia. This can inform outcomes research and future policy development.

Conclusion

Victoria's Digital Health Maturity Model addresses complexity around the uptake of digital technologies and industry capability. It provides a tool to gauge current status and future activity. The tool has been independently evaluated and widely used. It has been found to provide valuable information for strategy planning and risk management.

The Model identifies and measures key capabilities necessary for the adoption of digital health technologies and to transition through the evolutionary process of increasing sophistication for digital excellence. From a whole of health system perspective, value lies in understanding the extent of digitisation in the system and what is needed to further facilitate policy goals around a digital-first future for healthcare.

Healthcare systems are increasingly reliant on digital health technologies to support the delivery of high-quality, efficient and safe care. To progress toward a truly connected health system demands a baseline of digital maturity to build upon. This will enable the health sector to make the move from the current siloed systems with little ability to share information to a cohesive networked infrastructure that delivers a unified experience.

Endnotes

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