# Transforming
# Through Data

## STRATEGY - IMPLEMENTATION - STANDARDS - AI - CYBERSECURITY

# Healthcare's Digital Transformation with HIMSS: Challenges, Innovations, and the Road Ahead

Healthcare's transformation hinges on digitalisation, navigating challenges and steps to integrate data, leverage AI, fortify cybersecurity, and enable global data exchange. Strategic planning, collaboration, and innovation are needed to navigate this journey towards excellence in patient care.

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## key points

- Digitalisation is driving healthcare's transformation. To fully realise its benefits, organisations must prioritise digitalising healthcare data, integrating systems, leveraging AI technologies, fortifying cybersecurity measures, and working collaboratively to achieve interoperability and real-time data exchange across borders.

- Through strategic planning, collaboration and innovation, healthcare can evolve into a sector defined by efficiency, security and excellence in patient care.

- Integration of digital systems and the use of AI, particularly large language models (LLMs), are crucial for unlocking the full potential of digital health transformation.

- The ultimate goal of healthcare digitalisation is the real-time exchange of patient data across organisations and borders, which requires robust interoperability standards, harmonisation of privacy laws and stringent cybersecurity measures.

- Collaboration between organisations and governments is essential to overcome technical, policy and legal barriers and fully realise the benefits of digital transformation in healthcare.

Healthcare stands on the cusp of a monumental transformation driven by the digital revolution. At the heart of this transformation is the digitalisation of healthcare data, a foundational step for the sector's evolution.

However, it is crucial to acknowledge that the path to obtaining the full benefit of digitalisation is fraught with challenges and requires perseverance long beyond the initial digitalisation of existing data.

Insights from HIMSS (Healthcare Information and Management Systems Society) and others delve into the current landscape of healthcare digitalisation, the pivotal role of artificial intelligence (AI) and big data, the looming spectre of cybersecurity threats, and the vision of a future where healthcare transcends borders in real-time delivering efficiency and excellence.

Regardless of the scale observed, whether from the perspective of an individual healthcare organisation or an entire nation, the digitalisation journey involves three steps:
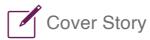
1. Implement systems to digitise existing information and capture future information digitally.

2. Assemble these capture systems into an integrated platform within individual institutions.

3. Exchange health data between institutions across regional and national borders.

Each step requires meticulous planning and must overcome various technical, behavioural, and legal challenges.

## Digitisation is the Bedrock of Transformation

The transformative journey begins with the digitisation of healthcare data.

This process is not merely about converting analogue records into digital formats but involves capturing the nuanced, rich depth currently buried in unstructured notes and narratives.

Most organisations base this effort around an electronic health record or EHR, which serves as the capture method and data repository for digitised data. The ideal digitisation endeavour should be comprehensive, ensuring every piece of data, regardless of its format, is accessible and interpretable. The challenge, however, is that most organisations will begin this journey with a varied infrastructure comprising a mix of legacy applications and systems.

Unable to replace the entire environment wholesale, they usually opt to deploy an electronic health records system as the new central application. They must then spend months or years completing internal process and workflow changes alongside application integrations to extract maximum value from the new platform. The transition from paper to digital is monumental, requiring technological upgrades and a cultural shift within organisations. It is at this point that many journeys stall.

## Unlocking Unstructured Data: The Promise of AI and LLMs

Enter AI and Large Language Models (LLMs). Through natural language processing and machine learning, AI can delve into the depths of unstructured notes, extracting valuable insights that were previously inaccessible. The promise of AI and LLMs is not just in data interpretation but in transforming this data into actionable knowledge, enhancing patient care and operational efficiency. However, as healthcare professionals harness the power of AI, they must tread carefully. The increasing digitalisation and exchange of data present significant challenges for privacy. The very tools that unlock the potential of unstructured data

also empower cybercriminals, enabling them to launch sophisticated attacks. The healthcare sector, rich in sensitive personal data, becomes an attractive target for these nefarious actors.

> We can navigate this terrain through strategic planning, collaboration and innovation, transforming healthcare into a sector defined by efficiency, security and, most importantly, excellence in patient care

## Integration: Unlocking Maximum Value

The next step is to weave the data capture system with other clinical applications into a well-integrated platform. There was a time when many organisations thought a comprehensive electronic health record system would form the bulk and the core of their information management platform. However, over the last several years, particularly after the lessons learned during
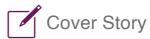
the COVID-19 pandemic, some organisations have been begging to rethink the role of the EHR. Whether because of the slower pace of feature additions to large EHR platforms or simply a need to solve operational problems in particular ways, organisations are beginning to see the EHR as a part of a larger platform.

Writing in *Forbes* in late 2021, author Katie Jennings quoted former tech executive and venture investor Missy Krasner saying, "I have never in the history of health care in the United States seen this kind of supernova of innovation with a flurry of investment activity into digital health. Covid has made interoperability sexy again" (Jennings 2021).

The interoperability of platform components is perhaps the most critical factor in controlling the speed and cost of building a highly digitally integrated enterprise to prepare for the future of healthcare. Achieving the goal of an integrated, high-performing platform is the key to unlocking the next level of healthcare digitalisation's benefits. However, it also requires organisations to manage new threats.

## Cybersecurity: Fortifying the Data Fortress

As the digitalisation journey progresses, cybersecurity must be a cornerstone of the strategy. The future of healthcare relies on the secure, efficient exchange of data across organisations and borders. However, as capabilities grow, so too do cybercriminals' capabilities. The industry must unite and share knowledge and resources to counteract this evolving threat.

Healthcare organisations have a special responsibility because compromised IT systems can directly impact patient care. As systems become more interconnected, they open new vectors for attacks and data theft. If an organisation considers building a platform that augments its core EHR system, cybersecurity must become ingrained in its culture and inform the overall system architecture. Simply bolting a platform together without a holistic view of hardening it against threats will not do.

## Data Exchange: Real-Time Data Across Borders

The ultimate goal of this transformation journey is the real-time availability of patient data across organisations and borders. Imagine a future where, regardless of where a patient is in the world, their medical history, allergies and treatment plans are accessible to healthcare providers. This interoperability and data fluidity level would supercharge care delivery, increase quality and ensure optimal patient outcomes globally.

However, achieving this vision requires overcoming significant hurdles. Interoperability standards must be robust and universally adopted, privacy laws need harmonisation, and cybersecurity measures must be unassailable. Few of the individual barriers to achieving this final stage are technical. Most are related to policy and legal differences and require organisations to work collaboratively and alongside governments to overcome these challenges.

Much of the interoperability work promoted by governments worldwide aims to enable this widespread exchange of information. Yet, much work remains to bring healthcare up to the necessary level of internal digital integration to fully enable the large-scale data exchange we all strive for.

## Conclusion: A Call to Action

As we stand today, the healthcare transformation journey is well underway, but there is a long road ahead. Organisations must prioritise digitalising their data, harnessing the power of AI and big data while remaining ever-vigilant against the rising tide of cybersecurity threats. The path is complex, with many challenges, but the potential rewards are immense. Together, we can navigate this terrain through strategic planning, collaboration and innovation, transforming healthcare into a sector defined by efficiency, security and, most importantly, excellence in patient care.

The future of healthcare is not just a dream; it is a destination we can reach through collective effort and unwavering commitment.

## Conflict of Interest

None.

references

Jennings K (2021) The Billionaire Who Controls Your Medical Records. Forbes. Available at https://www.forbes.com/sites/katiejennings/2021/04/08/billionaire-judy-faulkner-epic-systems