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Maximising Healthcare's Data Power: The Intelligent Infrastructure Advantage

Sash Mukherjee
VP INDUSTRY INSIGHTS

Darian Bird
PRINCIPAL ADVISOR

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Introduction

Healthcare organisations hold vast data repositories that, if fully leveraged, can significantly improve clinical outcomes, patient engagement, and resource optimisation. Patient records, medical images, device data, and clinical notes offer insights that create immense potential for healthcare improvements. However, this data is often siloed, inconsistently formatted, and subject to privacy regulations, making comprehensive analysis difficult. Overcoming these challenges is crucial to unlock the potential of data-driven healthcare and deliver personalised, effective care.

Data and AI are transforming healthcare, but robust infrastructure is the unseen foundation that makes it possible. The right infrastructure enables real-time collection, storage, processing, and access to massive datasets, empowering critical healthcare decisions.

> **Smart, data-driven healthcare begins with intelligent data infrastructure.**

This ebook explores the changing landscape of Australian healthcare and aims to empower technology leaders to build data infrastructure for their organisations' success.

Drivers of Healthcare Transformation in Australia

The Australian healthcare landscape is undergoing a significant transformation driven by several key factors. These drivers are interconnected and create a dynamic data-driven environment for healthcare transformation in Australia.

Value-based care

Healthcare providers are prioritising patient outcomes and cost-effectiveness. Value-based care aims to incentivise healthcare providers for delivering positive care outcomes rather than the volume of services provided. This shifts the focus on preventative care, better coordination between healthcare professionals across the care continuum, and the adoption of new technologies that improve patient outcomes.

Regulatory pressures

The Australian government has actively shaped the healthcare system through regulations that promote efficiency, transparency, and improved patient access. These regulations include mandates for electronic medical records (EMR) adoption, data interoperability standards, virtual consultation service reimbursement, and healthcare data protection. As regulations evolve, healthcare providers need to adapt their practices and technologies to comply.

Virtual care enablement

Fuelled by technology and expanded Medicare Benefits Schedule (MBS) coverage since 2022, virtual care is on a rise in Australia. This offers numerous benefits, including improved access to care for those in rural or remote areas, and empowering clinicians to provide healthcare irrespective of their actual location. Healthcare providers have responded by investing in technologies and re-designing workflows to support effective virtual care delivery, including giving access to patient records outside the walls of the hospital.

Consumerisation of healthcare

Patients are becoming more informed and engaged in their healthcare decisions. They demand a consumer-centric healthcare experience: easy information access, greater transparency around costs and treatment options, and personalised care plans. This has seen a growth of customer-focused solutions such as patient portals and online scheduling, and a surge of device data as patients actively manage their health and wellness.

Digital Healthcare: Australia's Roadmap to a Tech-Driven Future

The biggest driver of transformation of healthcare organisations in Australia comes from the National Digital Health Strategy that emphasises the use of technology to tackle healthcare challenges. It focuses on four key goals:

Digital Enablement

Making healthcare more efficient and accessible through digital tools

ROADMAP PRIORITY AREAS

- Connect care
- Enable a digitally ready workforce
- Enhance and maintain modern and integrated digital solutions

Person-Centred Care

Putting patients at the centre of their healthcare journey

ROADMAP PRIORITY AREAS

- Support strong consumer digital health literacy
- Increase availability of health information
- Enhance consent management and flexible health information exchange

Inclusivity

Ensuring everyone has access to digital healthcare services

ROADMAP PRIORITY AREAS

- Improve and expand virtual care
- Integrate personal devices
- Support equitable health access

Data-Driven Decisions

Using data to improve healthcare delivery and outcomes

ROADMAP PRIORITY AREAS

- Use health information for research and public health purposes
- Plan for emerging data sources and technology such a artificial intelligence, spatial data, genomics
- Monitor and evaluate outcomes and progress

Source: digitalhealth.gov.au

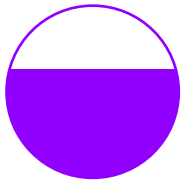
The strategy aims to streamline healthcare for everyone - individuals, communities, providers, industry, and governments. And data lies at the core of that ambition.

Australia's Healthcare Future: Balancing Compliance, Cost, Tech & Outcomes

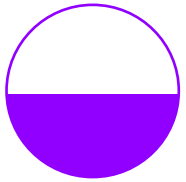
Australian healthcare providers walk a tightrope, balancing the need for improved clinical outcomes with cost control, all while navigating an ever-expanding web of government regulations. Yet, amidst these seemingly conflicting priorities lies a common thread: technology.

By fostering data synergy, where data from various sources is managed holistically and interacts in real-time, technology empowers key stakeholders to make informed business and clinical decisions. This focus on data synergy often drives technology upgrades, ensuring these upgrades optimise the ability to harness the power of all available data.

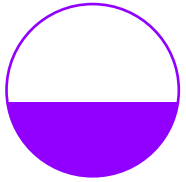
TOP BUSINESS PRIORITIES OF HEALTHCARE PROVIDERS IN AUSTRALIA



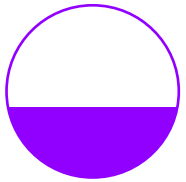
63%
Compliance with government mandates



48%
Cost optimisation



43%
Upgrading technology



41%
Improving clinical outcomes

N=182
Source: Ecosystm Digital Enterprise Study, 2024

Data-Driven Healthcare: Technology Implications for Providers

Australian healthcare organisations are modernising due to multiple pressures: patients expect seamless digital experiences, clinicians demand modern tools for efficiency, regulatory bodies enforce stricter data privacy standards, and government strategy prioritises digital transformation for better care and cost-effectiveness. To meet these demands and deliver high-quality care, healthcare organisations are re-evaluating their tech landscape.

#1 Empowering Care Everywhere: The Role of Cloud in Connected Healthcare

1

Enhanced Clinical Outcomes
Cloud solutions enable seamless access to patient records, fostering better collaboration among healthcare professionals and leading to faster diagnoses, informed treatment plans, and better patient outcomes. They also facilitate efficient virtual consultations, especially benefiting remote areas.

2

Improved Patient Engagement
Cloud-based tools and health apps empower patients by providing easy access to their health data and care teams through secure portals. This transparency enhances their understanding of conditions, encourages informed decision-making, and increases engagement in their healthcare.

3

Optimised Cost of Care
The cloud allows scalable healthcare IT infrastructure, ensuring smooth operations during peak demand. Cloud backups ensure data security and accessibility, and disaster recovery minimises disruptions, indirectly reducing costs.

#1 EMPOWERING CARE EVERYWHERE: THE ROLE OF CLOUD IN CONNECTED HEALTHCARE

Cloud Trends in Healthcare Organisations in Australia

63%
of healthcare providers consider cloud and business resilience the core of their tech modernisation strategy for 2024-25

80%
have deployed/are evaluating a hybrid cloud strategy

57%
consider better collaboration across the care continuum the key driver of cloud adoption

HOWEVER, CLOUD ADOPTION IN AUSTRALIAN HEALTHCARE PROVIDERS HAS ITS OWN CHALLENGES

42%
Managing network infrastructure requirements

40%
Understanding cloud consumption and usage

40%
Integration and data migration across environments

37%
Application performance/latency

N=182
Source: Ecosystm Digital Enterprise Study, 2024

#1 EMPOWERING CARE EVERYWHERE: THE ROLE OF CLOUD IN CONNECTED HEALTHCARE

Managing the Cloud Chaos

1

Unified Cloud Management

Many healthcare organisations provide access to cloud systems across distributed locations, to mobile providers, and a complex ecosystem of partners and patients. A single management layer that unifies multi-cloud providers with on-premises infrastructure can simplify operations.

2

Cloud FinOps

With cost efficiency top of mind for most healthcare providers, cloud FinOps can ensure greater cloud consumption management and optimisation. These tools provide visibility of costs by department, identify under-utilised resources, and help organisations right-size their cloud infrastructure.

3

AIOps

Automated tools, like AIOps, can free up over-burdened operations teams to allow them time to focus on higher-value initiatives. AIOps can reduce alert fatigue, identify data for cloud migration, and recommend remediation options.

#2 Healthcare Reimagined: The Power of AI to Deliver Better, Smarter Care

1

Improved Clinical Outcomes

AI enhances diagnoses by analysing vast structured and unstructured datasets to identify subtle patterns, allowing for earlier and more accurate diagnoses. It enables personalised treatment plans by considering a patient's unique medical history, genetic makeup, and lifestyle factors. Predictive analytics allow for proactive measures and early intervention by predicting a patient's risk of developing certain diseases.

2

Enhanced Patient and Clinician Experiences

Easy access to health data empowers patients to take control of their health outcomes and AI-powered tools like virtual assistants for scheduling and medication reminders allows them to engage better with their healthcare providers. The technology is also impacting employee experience through solutions such as ambient listening, clinician decision support and document workflow management.

3

Increased Operational Efficiency and Compliance

AI optimises resource allocation by identifying underutilised or misallocated resources. It can reduce administrative burden by automating repetitive tasks and minimising human error. AI-powered tools also help ensure compliance with evolving regulations and reporting requirements.

#2 HEALTHCARE REIMAGINED: THE POWER OF AI TO DELIVER BETTER, SMARTER CARE

AI Trends in Healthcare Organisations in Australia

45%

of healthcare providers will increase investments in clinical analytics and AI in 2024-25

47%

consider AI key to improving clinician productivity and experience

43%

consider identifying patient risk as the main outcome of their AI investments

49%

are upgrading their EMR to incorporate better AI capabilities

Yet, 55% of healthcare leaders in Australia lack trust in their data, hindering adoption of AI solutions.

SEVERAL FACTORS CONTRIBUTE TO THIS LACK OF TRUST

61%

Insufficient internal data skills

54%

Inability to maintain data quality

41%

Difficulty in providing real-time data access

N=182
Source: Ecosystm Digital Enterprise Study, 2024

#2 HEALTHCARE REIMAGINED: THE POWER OF AI TO DELIVER BETTER, SMARTER CARE

Empowering Trust in AI

1

Unified Data

The power of AI is maximised when models can be trained on diverse data sets and augmented with relevant information. By breaking down silos, data can be unified and securely accessed no matter where it is generated or stored.

2

Data Quality

With AI making information accessible to a wider audience, the need for data quality is paramount. Data stewards require tools, like data fabric and lineage, to better understand and classify data the AI models are based on.

3

High-Performance Computing

Training and customising new AI models is infrastructure intensive, requiring clusters of GPUs matched with similarly high-performance storage, networking, and management capabilities to process vast data sets.

#3 Always On, Always Secure: Ensuring Business Continuity in the Digital Age

1

Enhanced Data Security and Privacy
A robust resilience and cyber framework establishes clear policies and procedures for data security and privacy. This includes measures such as access controls, data encryption, and regular security assessments. By following these guidelines, healthcare providers can significantly reduce the risk of unauthorised access to sensitive patient information.

2

Improved Operational Resilience
In the face of cyberattacks like ransomware, an automated and orchestrated data protection system is essential for uninterrupted operations. Manual backups are simply impractical due to the dispersed nature of healthcare systems, with data residing across the care continuum, data centres, and the cloud. Regular backup and recovery of critical data allows healthcare providers to quickly restore functionality and minimise disruption to care delivery.

3

Streamlined Regulatory Compliance
A well-defined framework helps healthcare providers stay compliant with stringent regulations by providing a clear roadmap for data security practices. This reduces the risk of regulatory fines and penalties, while also demonstrating a commitment to protecting patient data.

#3 ALWAYS ON, ALWAYS SECURE: ENSURING BUSINESS CONTINUITY IN THE DIGITAL AGE

Cyber & Resiliency Trends in Healthcare Organisations in Australia

60%
of Board and Management discussions influencing technology teams are focused on business resilience

80%
analyse cybersecurity threats and vulnerabilities to determine cybersecurity posture

60%
conduct business impact assessments to understand the impact of a security incident

48%
of healthcare technology leaders are concerned about the increase in phishing and ransomware attacks

CYBER-RESILIENCE IS A HURDLE FOR AUSTRALIAN HEALTHCARE DESPITE INVESTMENTS

53%

Lack of an accurate assessment of cybersecurity posture and risk

47%

Low cybersecurity awareness among employees and other stakeholders

50%

Weak access controls or lack of role-based security controls

43%

Finding, assessing, and deploying security technologies

N=182
Source: Ecosystm Digital Enterprise Study, 2024

#3 ALWAYS ON, ALWAYS SECURE: ENSURING BUSINESS CONTINUITY IN THE DIGITAL AGE

Mitigating Cyber and Resilience Challenges

1

Protection

Recognising backups as the frontline defence against ransomware, cybercriminals now target recovery data making immutable and indelible backups critical. Orchestration is key to continuous data protection, automating schedules, retention policies, and data lifecycle rules.

2

Detection

Many breaches can go undetected for days or weeks when it only takes hours for some attacks to wreak havoc. Continuous security monitoring with real-time ransomware detection can accelerate mitigation efforts, such as quarantining files and initiating recovery.

3

Recovery

Multi-site, near-synchronous replication enables Recovery Point Objectives (RPOs) of seconds, minimising data loss. Automated failover and recovery orchestration can achieve Recovery Time Objectives (RTOs) measured in minutes, even in complex environments.

Ecosystm Opinion

Modernising healthcare hinges on digital technology and data. Cloud, AI, and cybersecurity are crucial enablers, but the true game-changer is the synergy between these enablers. This convergence creates a secure, free-flowing stream of information, unlocking the transformative potential of technology in healthcare. This aligns perfectly with Australia's National Digital Healthcare Strategy's vision: "Creating an inclusive, sustainable, and healthier future for all Australians through a connected and digitally enabled health system."

> **Achieving that synergy requires a solid foundation – a robust data infrastructure that facilitates this seamless convergence.**

The NetApp Intelligent Data Infrastructure

NetApp

NetApp-enabled intelligent data infrastructure delivers several key benefits

ANY DATA, ANY PLACE

Flexibility
Silo-free
Simplicity

ACTIVE DATA MANAGEMENT

Security
Compliance
Sustainability

ADAPTIVE OPERATIONS

Performance
Efficiency Team
Productivity

INTELLIGENT DATA INFRASTRUCTURE

With Intelligent Data Infrastructure, You Can Rise to Every Moment

BE THE SILO BUSTER

Deliver simplicity by managing complex workloads and eliminating infrastructure silos across apps, data, and clouds

BE THE BUDGET HERO

Make your on-premises and cloud infrastructure spend go further

BE THE SUSTAINABLITY CHAMPION

Power more sustainable operations with energy-efficient technologies, tiering, and analytics

BE THE BUSINESS DEFENDER

Keep your business running with built-in security, rapid recovery, and infrastructure observability

BE THE AI WORKLOAD INNOVATOR

Embed intelligence into your data infrastructure to enable your AI workloads for new levels of productivity and innovation

BE THE APPLICATION AGILITY DRIVER

Maximize your infrastructure and applications scalability and team responsiveness

Sash Mukherjee

VP INDUSTRY INSIGHTS
ECOSYSTM

Sash is a veteran in primary and secondary research with nearly twenty years of experience analysing, writing, and training across diverse industries such as Public Sector, Healthcare, Education, and Insurance. As VP of Industry Insights, she shapes our research and content strategy, delving into data and developing thought leadership to guide buyers and vendors on industry trends.

Darian Bird

PRINCIPAL ADVISOR
ECOSYSTM

Darian helps businesses navigate the path towards digital transformation, providing insight into cloud, automation, data management, and telecommunications. He has spent two decades advising business leaders on using technology to enter new markets, improve client experience, and enhance service delivery.

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NetApp

NetApp is the intelligent data infrastructure company, combining unified data storage, integrated data services, and CloudOps solutions to turn a world of disruption into opportunity for every customer. NetApp creates silo-free infrastructure, harnessing observability and AI to enable the industry's best data management. As the only enterprise grade storage service natively embedded in the world's biggest clouds, our data storage delivers seamless flexibility. In addition, our data services create a data advantage through superior cyber resilience, governance, and application agility. Our CloudOps solutions provide continuous optimization of performance and efficiency through observability and AI. No matter the data type, workload, or environment, with NetApp you can transform your data infrastructure to realize your business possibilities.

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