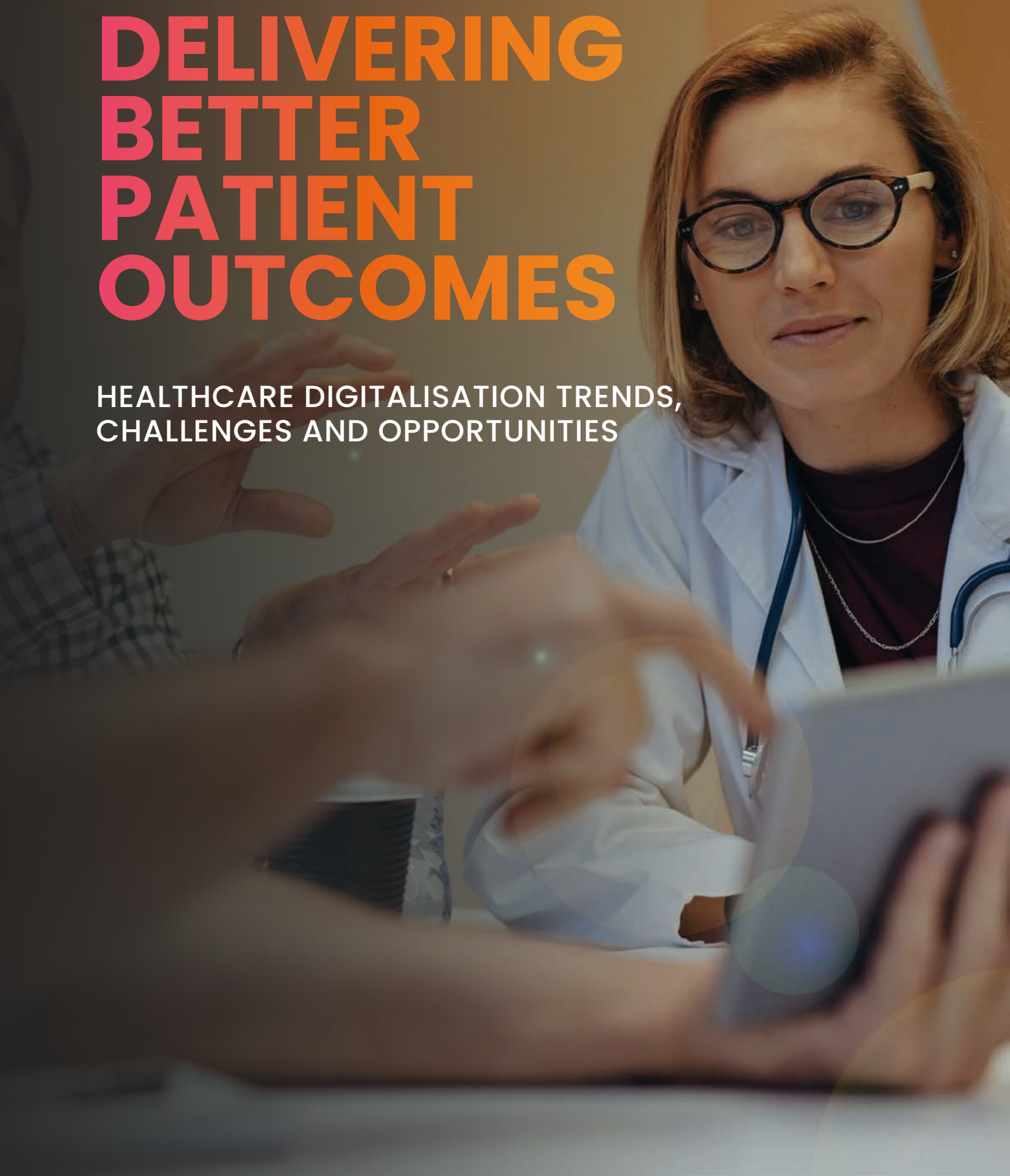# NODE4

Empowering business to do more

DELIVERING BETTER PATIENT OUTCOMES

HEALTHCARE DIGITALISATION TRENDS, CHALLENGES AND OPPORTUNITIES

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INTRODUCTION

DELIVERING BETTER PATIENT OUTCOMES

HEALTHCARE DIGITALISATION TRENDS,
CHALLENGES AND OPPORTUNITIES

Healthcare is at a critical juncture. Post-pandemic, patient demand is surging for care that works better for their needs.

From becoming co-designers of treatment with wearable device data and accessing care on their terms with telemedicine, to benefiting from the latest AI-driven clinical breakthroughs and viewing health records at the tap of a screen.

Patients are seeking quality, timely, value-based healthcare and service providers are under incredible pressure to deliver. Depending on digitalisation to meet demand but struggling with deeply entrenched challenges, such as interoperability, IT complexity and security threat, healthcare has an ambitious journey to progress.

It makes sense then that the most compelling, urgent theme of healthcare reform is digital transformation. It is the driving force behind innovation and the wholesale shift toward value-based healthcare and more sustainable operational and financial models.

The near future will see dramatic improvements to digital health interfaces and IT at a core infrastructure level. The benefits apply to stakeholders and leaders, staff across the board and of course, patients.

In this whitepaper, we explore the digitalisation trends, challenges, and opportunities that every healthcare organisation should be aware of. Analysed from our experience as healthcare IT specialists, we share the knowledge that will help you achieve better patient outcomes, thanks to IT that's more functional, secure, scalable and cost-efficient.

TRENDS: DATA EXCHANGE AND INTEROPERABILITY

Healthcare reform and interoperability go hand in hand. End-to-end interoperability – underpinned by data exchange – is a fundamental goal. It will undoubtedly define the future of healthcare provision and as such, is being promptly accelerated.

Improving health IT and digital interfaces sits at the heart of value-based healthcare. Strategies that enhance connectivity, data privacy and technology accessibility are therefore gathering pace. In pursuit, of course, of sought-after interoperability and data exchange.

Data exchange is the robust foundation for enhancing patient outcomes and clinical efficiency. Easy, secure data sharing across the care continuum empowers teams to make the most timely and effective clinical decisions, streamline operations and enhance patient privacy and experiences.

But today's healthcare challenges have triggered data exchange to evolve. The trend for total, secure and scalable interoperability is gaining traction for providers of every size and type. This includes data management as opposed to exchange – for example, being able to translate quality data into actionable insight sand building evidence for improved patient outcomes.

Leaders are also focusing on closing infrastructure gaps that could risk patient safety and matching the needs of frontline staff with health technology, such as real-time data, clinical analytics and telemedicine.

HEALTHCARE INTEROPERABILITY BENEFITS

1 Transform experience with insightful data

2 Enhance accessibility with virtual health

3 Personalise care with real-time information

4 Collaborate better across sprawling teams

5 Coordinate care for efficient delivery

6 Effortlessly monitor for timely interventions

7 Securely access clinical analytics to innovate faster

8 Streamline and drive operational productivity

Providers are choosing interoperability as a streamlining tool, too. Enhanced data availability and collaboration can enhance productivity and efficiency in areas such as triage and resource management. These challenges have only been compounded with post-covid demand.

And finally, as more data is handled and new technical tools enter the fold, compliance effort expands. Secure communication between systems will be increasingly led by regulatory best practice, rather than adapted to it. This approach will aim at blind spots - but tightly control data and systems access - to simultaneously improve outcomes and defend privacy.

TRENDS: PATIENT WEARABLES AND TELEMEDICINE

A passing trend or a useful medical application? If booming consumer demand is any measure, healthcare can expect wearables to become a permanent clinical tool.

Wearables range from fitness and blood pressure monitors to insulin pumps, ECG monitors and much more. They collect patient data in a way that until recent years, wasn't thought viable.

Today's advanced wearable devices share patient data with clinicians in real-time, allowing professionals to make timely, effective, tailored interventions. Wearables help curate value-based healthcare models in three stages. They monitor health and wellbeing markers, manage emerging risks and detect where intervention can prevent extended hospitalisation.

Complementing wearables is telemedicine, which patients and providers have adopted at scale. Telemedicine is gaining traction as digital health ecosystems shift to value-based care. The speed and accessibility of telemedicine can potentially redraw the healthcare landscape, particularly for condition prevention. All while streamlining delivery.

As technology and research advances, both wearables and telemedicine are projected to play a major role in clinical trials, reshaping how breakthroughs emerge. So, even if infrastructure and patient adoption lag in some organisations, the benefits of mobile health will unquestionably shape how care is formulated.

HEALTHCARE WEARABLE CAPABILITIES

 Remote patient monitoring

 Big data for richer insights

 Artificial Intelligence integration

 Predictive health analysis

 Adaptive care and instruction

SAFELY ADOPTING WEARABLES

That said, healthcare providers must pursue wearables and telemedicine with the utmost care. Wearables and telemedicine can seem like quick wins on the surface, but pose a massive risk to patient safety and operations if the data delivered is not secure.

Before even trialling remote healthcare solutions, undertake a robust audit of IT infrastructure cybersecurity resiliency. Address findings in full and ensure that your network, hosting, managed services and other infrastructure guarantee end-to-end security posture.

Depending on the age and design of your infrastructure, more extensive change may be required to securely deliver wearable data and telemedicine services. For example, migrating servers to alternative environments, reconfiguring business process management systems and creating new networks could all be prerequisites to remote healthcare technology use.

Delivering Better Patient Outcomes

TRENDS: ARTIFICIAL INTELLIGENCE

The pandemic expedited digital transformation in healthcare. Once a fringe concept thought to have limited real-world application, Artificial Intelligence (AI) is now very much today's technology.

This is due to the vast amounts of data being generated in healthcare settings. Increasing patient numbers and expanding technology are providing more data to process and make sense of. There's a growing trend of using AI to manage this task and better translate huge datasets into better patient outcomes.

AI is showing enormous promise for enhancing care and streamlining operations in four key areas:

Diagnostics, symptom prediction, infection detection and risk identification. Machine Learning (ML), a subset of AI, identifies similarities, differences and patterns in states and symptoms to devise predictions and probabilities that have clinical efficacy.

The move toward AI is progressing in tandem with interoperability. To clinically validate AI models, quality data is necessary. But this is difficult if data is fragmented across different platforms and in varying formats. Despite the appetite for AI, incompatibility and immaturity must be addressed first with efforts to clean up raw data.

HEALTHCARE AI IN NUMBERS

74%
of hospitals are
already using AI

36%
of systems can
recognise different
data values

30%
of global data
is generated by
healthcare

63%
say AI is delivering
value in specialist
care

66%
say diabetes
will benefit most
from AI

77%
see AI as
important to
clinical decisions

If algorithms are consistently correct, services and outcomes may benefit in areas such as accelerated diagnosis, predisposition trends and infection modelling. In the future, AI in clinical practice will drive efficiency and productivity while providing patients with prompt, personalised care, never a replacement for expertise, but a means of operating smarter.

TAKING ADVANTGE OF AI

AI needs high-powered computing to function meaningfully. This is because the transformative value of automation technologies comes from advanced data and analytics. Devices and applications must be highly available, fast, and integrated for providers and patients to benefit. As AI demand increases, expect to see major healthcare IT infrastructure upgrades swing into motion.

HEALTHCARE TECHNOLOGY IN SAFE HANDS

Although mirroring every trend isn't always the best approach, carefully adopting some will undoubtedly be advantageous.

Understanding how to leverage trends and deliver real change is half the journey. Then comes specifying, stable implementation, and ongoing support to ensure that new solutions remain fit-for-purpose and cutting-edge.

As a digital transformation specialist, Node4 helps healthcare adopt high-impact trends quickly without compromising stability, security, and user engagement. Our trusted experts enable teams and organisations to embrace change through a unique blend of consulting, planning, implementation, and support services, underpinned by extensive delivery experience.

Node4's FastFind Consultancy services are the ideal starting point for evaluating the value and practicality of technology trends. We'll audit where your IT infrastructure is now, understand the change you want to enable, and scope a path forward that guarantees better outcomes for patients and practitioners. To find out more, email info@node4.co.uk for no-obligation advice.

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CHALLENGES: MANAGING COMPLEXITY AND LEGACY IN IT

As technology emerges, research advances and patient demand evolves, healthcare faces a defining challenge. New, better IT infrastructure is needed to handle these realities and establish a sustainable future path for care delivery and commercial performance.

But healthcare IT is notoriously complex. It's a plethora of specialist systems, each providing a critical function not readily replaced. Slower to progress digital transformation than other sectors, considerable legacy also exists, that can't simply be "ripped and replaced".

This is where hosting, networking and data management become so important. IT infrastructure must be capable of supporting future developments. Introducing new data sources, applications, and external devices, for example. And then there's handling growing and spiking workloads, intricate functionality and uninterrupted uptime. In short, healthcare providers must think carefully about how and where they deploy complex workloads.

WHAT STEPS ARE HEALTHCARE LEADERS TAKING?

Some healthcare IT leaders are taking an immediate "right workload, right place" approach. However, others have long and medium-term plans to make wholesale changes to business process management systems. In practicality, this could look like making changes to core systems processing, migrating user-based services to a private cloud, alongside placing all other functions into SaaS.

Complexity also puts the brakes on interoperability. To disband data silos, eliminate blind spots and ensure that data and systems are compatible, advanced networking and integration must be undertaken. The sector has made great progress in data exchange, but without the connective tissue to transform data into action, the pain will persist.

And last but certainly not least, complex, legacy IT environments make standardisation a major hurdle. But leaders should make a point of pursuing it. By unifying all data with cohesive information and providing the same tools clinicians and leaders get better insights faster.

With new approaches to data aggregation and analysis, standardisation isn't a pipe dream. Some managed hybrid cloud environments can pull all data into one management portal, regardless of where data is hosted. This unlocks the benefits of digital transformation without the risk of moving workloads at an unsafe pace for privacy and safety. Microsoft's PowerBi and Node4's Azure Landing Zones are two examples.

Similarly, cloud specialists can help establish a migration path for those apps that need modernising or moving. So, staff can retain the similar interfaces they know and trust, but with enhanced resiliency, availability and cost-efficiency.

CHALLENGES: ENCOURAGING ADOPTION AND PARTICIPATION

To deliver better patient outcomes, healthcare teams must be sold on the benefits of digital change. Be it enhancing interoperability, introducing AI or expanding hybrid service, your colleagues are the change that will build a better world for patients.

Digitalisation success counts on wholehearted adoption in the healthcare community, but digitalised healthcare has faced historic internal resistance. Staff can be hesitant, just like patients, and it's important that this hesitancy is heard, empathised with and overcome. Friction isn't inevitable, but it's vital to demonstrate that new solutions can be trusted.

When an organisation progresses a commercial strategy, modernisation, or end-to-end change, the "way things are done" is disrupted. Processes, IT systems and devices that have been in situ for years must go. And putting faith in something new - as the core of patient care – can be daunting.

INSPIRING CHANGE AS A TECH LEADER

It's a leader's responsibility to promote and incentivise positive attitudes to continuous improvement and change. There's indisputable evidence that digital maturity benefits everyone. For example, technology enhancements help clinical teams deliver better, telehealth, and self-diagnosis can aid triaging and more care touchpoints can increase treatment adherence.

But at the heart of breaking down adoption barriers is peace of mind. With digital health solutions evolving rapidly – even from quarter to quarter – ongoing infrastructure and implementation support is essential.

Not only does managed support enable quick and safe pivots, but it ensures that digital healthcare is always fit-for-purpose.

If your staff know that in the background (or even on a helpdesk), a team is continually working on systems security, performance and usability, resistance is soon to fade. Clinical staff have three priorities for their IT: it's there when they need it, it protects their patients' privacy and it can be quickly enhanced if falling short. Managed services tick all three boxes.

PARTICIPATION BENEFITS IN NUMBERS
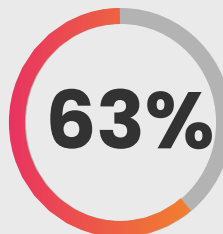
63% say cultural resistance is a barrier to digital transformation
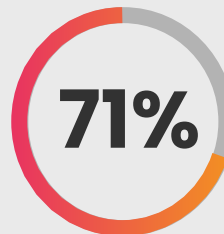
71% say they're willing to use telehealth post-pandemic
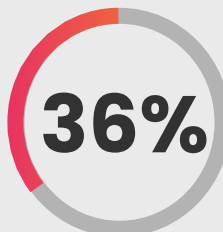
36% of health app users use symptom navigators
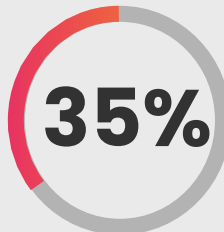
35% say data privacy is a concern in adopting wearables

$12.8bn of health wearables revenue is forecast in 2022

https://www.buildingbetterhealthcare.com/news/article_page/NHS_digitisation_soars_post_pandemic_BT_report_finds/177590
https://postindustria.com/how-ai-helps-in-healthcare-possible-ai-medtech-applications/
https://blog.ttelectronics.com/medical-wearables

Healthcare providers must increase patient participation in digitalised health. Providers and staff across the care continuum know that when a patient is better engaged, outcomes improve. Therefore, by making patients co-designers of their care, they can choose informed lifestyle and treatment choices early and focus on prevention.

Applications, wearables and data access can make personalised and timely care accessible for more patients. But providers must be prepared to prove their data security credentials or risk disengagement.

Digital healthcare adoption can, in theory, break health inequality barriers by providing wider access to services and data. However, the basics must not be overlooked - accessibility is not as simple as giving a patient a device or even assuming they own one. Some barriers, such as internet, budget and technical literacy, are beyond the control of providers. Knowing when digital support will enhance – and not complicate – patient experience is half the mission.

THE POWER OF PATIENT PARTICIPATION

Sustainable for future challenges

Prevention before treatment

Transparent patient relationships

Richer on-demand data for providers

Health excellence for all communities

https://www.verdantix.com/insights/blogs/wearables-survey-insight-data-privacy-concerns-at-the-forefront-of-firms-minds-when-considering-industrial-wearable-devices
https://www.healthclubmanagement.co.uk/health-club-management-news/Research-equipment-fitness/327754

CHALLENGES: ACCELERATING TRANSFORMATION SECURELY

Few worries keep healthcare teams up at night quite like a cybersecurity disaster. As the second most targeted sector in a ransomware epidemic, healthcare commands heightened vigilance.

Patients need utmost confidence that data privacy is upheld. And organisations and staff need to know that critical, life-saving systems are protected from downtime and destruction. After all, data theft or systems lockouts distil to care delivery being paralysed.

In the context of cybersecurity, healthcare digitalisation becomes a double-edged sword. Introducing more data into the ecosystem from apps, remote devices and clinical tools expand the cyberattack surface and subsequently, vulnerability. On the other hand, unfamiliar new systems may tempt human error. Accelerating transformation – especially data flow – is better for patients and practitioners, but how to do so securely is a key concern.

TAKING CONTROL OF SECURITY RISKS

To overcome this challenge, expect to see healthcare begin to outsource most or all cybersecurity to a specialist Managed Security Service Provider (MSSP). Cybercriminals spend all their time honing nefarious skills beyond the confines of compliance and law. To keep ahead of risk, organisational security must match this time investment and dedication. A means of achieving necessary security posture is to work with an MSSP.

With such intricate networks and expansive IT estates to manage, focusing on security 24/7 and becoming a true expert is unrealistic for internal teams. However, an MSSP delivers the continuous expertise required, with the best specialists working exclusively on securing your operation. When an MSSP has an end-to-end portfolio, they also knit together wider IT infrastructure and aid the secure flow of data, along with the safe adoption of new technologies.

Healthcare will also take a Security Operations Centre (SOC) approach to overcome digitalisation risks. A SOC aggregates data from all IT infrastructure and continuously monitors for suspicious activity. Automated alerts and responses neutralise threats faster - critical when downtime or data manipulation can be disastrous.

A SOC – which can be delivered by an MSSP - makes sense for healthcare organisations. Managing sprawling, interwoven IT estates and complex, critical data calls for specialised MSSPs, security consultants and technology. With security built-in at every layer, digitalisation challenges quickly become opportunities to deliver better patient outcomes.

HEALTHCARE SECURITY RISK MEASURED

46.4% of data breaches are caused by ransomware

90% have experienced a data breach in the last 3 years

2m patient records were stolen in just one breach this year

$7.13m is the global average cost per breach

Delivering Better Patient Outcomes

https://www.safetydetectives.com/blog/healthcare-cybersecurity-statistics/
https://www.cr-t.com/blog/healthcare-and-cybersecurity-how-a-hospital-stay-can-remove-more-than-just-your-organs/
https://www.scmagazine.com/analysis/breach/data-for-2-million-patients-stolen-in-largest-healthcare-breach-so-far-of-2022
https://www.safetydetectives.com/blog/healthcare-cybersecurity-statistics/

CYBER-SECURE BY DESIGN

Cybersecurity is a common thread entwined through critical healthcare digitalisation challenges. Overcoming transformation obstacles means mastering security, which is no easy feat for healthcare organisations juggling an evolving threat landscape with expansive, patient-critical IT.

To mitigate the risks of transformation, consider working with a Managed Service Provider (MSP) like Node4. Our security experts are exactly that – experts. They are solely focused on keeping ahead of threats and keeping your operations secure, and work closely with network, hosting, DevOps, collaboration and more to knit complex needs together. So, you can focus on delivering those improved patient outcomes.

With exceptional ability, experience of delivery and practical healthcare IT knowledge, your Node4 security solution is led by the best. We design, build and manage projects and solutions using the technology and approaches that suit you best. Our number one goal is to defend your patient and organisational safety by enabling stronger data flow security, operational resilience and application modernisation capabilities.

Choose from a range of expert-endorsed services including Managed SOC, Virtual Chief Information Security Officer and more. Discover our solutions, or book a no-obligation consultancy session at info@node4.co.uk.

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OPPORTUNITIES: BETTER PATIENT OUTCOMES FOR ALL

Every patient deserves the best care, and every healthcare service wants to deliver it. Unlocking digitalisation opportunities is a promising path for making good on these principles. It stands as a major turning point in the battle against health inequality.

From lessening barriers to care and decision-making delays to revolutionising condition prevention and data privacy. When healthcare providers digitally transform, patients enjoy healthier, happier, longer lives.

Arguably, the biggest opportunity for improving patient outcomes centres on data. Expanding the volume, type, frequency and quality of patient data is within reach using enhanced collection tools, such as wearables, apps, clinical handheld devices and even telemedicine.

With secure real-time data exchange, true systems interoperability and highly available IT infrastructure, data can be transformed into insights with superior clinical efficacy. Similarly, with the advent of AI and ML, clinicians and physicians could be supported in decision making with rapid, accurate intelligence that directs better outcomes.

OPPORTUNITIES: LOWER RISK AND LOWER COST DIGITAL TRANSFORMATION

Digitally transforming is a rare opportunity to reduce costs and establish the sustainable spending healthcare so urgently needs. This is true for the public and private sectors - both are grappling with post-pandemic demand and surging expenses from an economic fallout.

Modernised IT - with its lower operational costs and the improvement it enables - can help control and reduce difficult expenses. The trends analysed in this whitepaper all offer ample opportunity to streamline operations, reduce clinical burden, prevent excessive hospitalisation and shift infrastructure to opex, scalable budget models.

It makes sense that leaders are pursuing strategies for better health outcomes while promoting efficiency and waste reduction using interconnected systems and new technologies. The possibility of overcoming - or at least significantly improving - the infamous financial challenge in healthcare, has never felt closer with advanced digitalisation.

OPPORTUNITIES: PROVIDING MORE CARE WITH LESS TIME

Patient safety is paramount - the immovable priority for every member of staff across the care continuum. Protecting patients from risk while managing increased demand is at the forefront of healthcare's conscience. There are several reasons why demand is surging.

The NHS backlog is at record levels - this has subsequently driven private health enquiries. The pandemic appears to have spiked a chronic condition; long Covid. Patients who would have struggled with face-to-face appointments are now seeking more accessible, affordable remote care. The pandemic is also thought to have raised health consciousness and impacted the already worsening strain on mental health support.

Clinicians and organisations have more patients to care for. Productivity – providing more excellent treatment with fewer resources and less time – is critical. Digitalisation trends present an opportunity to ease that pressure, restore some balance and transition to value-based healthcare that delivers with speed, compassion and quality.

It's also important to note that private healthcare is, of course, a commercial care model. As the scope of private care broadens, remember that productivity credentials such as waiting times, treatment options and outcome statistics will hold weight.

INFRASTRUCTURE FOR EVERY AMBITION

Agility and insight are arguably more important in healthcare than in any other sector. And as you'll know, patients can't wait, so care, data and research can't wait either.

Yet despite this, healthcare has been historically slower to adapt to digitalisation and adopt modern technological solutions that can help transform patient and clinical outcomes. Whether spurring from fear of risk, overwhelming complexity or fluid plans for the future, healthcare is calling out for a dependable helping hand.

That's where Node4 come in.

Our diverse portfolio and outstanding people come together to enable any opportunity you (or we!) spot. In addition, our healthcare experts help you identify where IT can continuously enable your ambitions of enhanced patient care, financial performance, productivity and more.

Whether it is connectivity, cloud, data management, security, collaboration, data centre hosting or consultancy - Node4 knows how technology can make a difference to your patients. Discover our solutions or book a no-obligation consultancy session at info@node4.co.uk.

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CONCLUSION

Although the trends are ambitious and the challenges vast, healthcare sits on the cusp of unprecedented opportunity to evolve how it delivers care to the benefit of all. Enabling better patient outcomes with technologies and practices, such as security, data sharing, interoperability, remote solutions and managed services is projected to become the norm.

To better understand your digitalisation obstacles and challenges, and begin mapping your path to change, arrange a no-obligation consultation with Node4.

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