

Medical Device & AI Regulations

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Growing Pressures Driving the Shift to Healthcare Digitalisation

Digital and AI-driven technologies tangibly improve the effectiveness of healthcare delivery and access – whether holistic patient management, clinical productivity, or hospital site utilisation – all of which ultimately improves patient outcomes. Yet the sector faces financial challenges to acquire the clinical, care, collaboration and buildings technology required to make the digital transition complete. To boost the availability of capital with which to achieve digital transformation, the sector must therefore harness private sector finance to enable digital, commercial, clinical and sustainable transition.



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key points

- Pressure is mounting for healthcare organisations to accelerate adoption of digital and AI-driven technologies – proven to deliver significant benefits to delivery of care, patient outcomes, and operational costs.
- However, the significant levels of investment required cannot typically be afforded through available healthcare capital budgets.
- Given the projected market growth and urgent need for investment, research from vendors like Siemens Financial Services, GE Healthcare, Samsung or Philips finds that specialist smart finance will play a crucial role in enabling the development and digitalisation of healthcare systems all round the world.

Introduction

In recent years, digital capabilities in healthcare technology have been shown to enable greater access and productivity, early diagnosis, and contribution to better outcomes in healthcare systems across the world.

Most healthcare organisations around the world have already embarked on digital transformation and are now looking at speed of implementation, along with providing evidence of tangible outcomes, to inspire budget holders and maintain momentum in their digital transformation journeys.

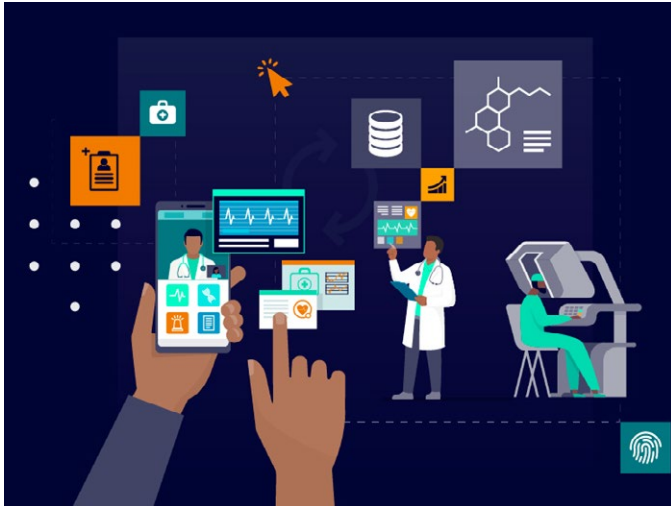
Although clinical benefits from digital transformation tend to be the first strategic targets of most organisations, the rising prices of supplies and energy are also focusing the minds of healthcare administrators on digitalisation to reduce costs in infrastructure and operations (European Commission 2019).

Digital Delivers Specific Benefits for Healthcare Organisations

According to academic (Elkefi & Asan 2022), governmental (HMI 2017), and analyst (McKinsey & Company 2021) commentators, the strategic approach to digital transformation is to establish a ‘digital thread’ running through healthcare organisations and systems. This allows digitalised capabilities to be seamlessly connected along the patient pathway, in order to achieve significant outcome improvements, clinical effectiveness, and hopefully, cost reductions.

An example of one of these digital capabilities is the use of new AI technology in healthcare. As one academic paper (Hosny et al. 2018) notes “Artificial intelligence (AI) algorithms, particularly deep learning, have demonstrated remarkable progress in image-recognition tasks... AI methods excel at automatically recognising complex patterns in imaging data

and providing quantitative, rather than qualitative, assessments of radiographic characteristics”.



Remote telesurgery is another digital capability rapidly growing in popularity. A recent study (Mohan et al. 2021) noted that while there remain some adoption obstacles, the pandemic experience shows value and viability of this remote technique. The study notes that, “Telesurgery or remote surgery is a promising surgical advancement... Zero-latency time and improvement in haptic feedback technology are required for precise and well-done surgeries. Technologies like 5G network, IoT, and tactile robotics should be integrated into telesurgery to overcome these barriers. Cost and legalisation to address legal and ethical issues remain to be addressed. Robotic surgery can demonstrate a pivotal role in the surgical procedures being performed in the... pandemic by minimising the number of surgical staff in the operation theaters, hence curtailing the risk of (COVID-19) infection that can contribute to higher morbidity and mortality”.

Additionally, **smart hospital buildings** offer improved patient experiences and outcomes, and at the same time deliver important cost savings and sustainability benefits. Equipping a hospital with an up-to-date



building management system can make the building’s operations more intelligent and energy efficient, leading to significant energy savings. In addition, built-in wastewater recycling and reclaimed water system can drastically reduce water consumption.

In the UK, the Milton Keynes University Hospital NHS Foundation Trust is piloting a solution that allows its hospital to create a digital twin of its building. This enables staff to access a huge amount of real-time data, such as room occupancy, the location of critical equipment, and even the status of paper towel dispensers in the bathrooms.



Enabling Urgent Investment

Not only are these technology investments important, they are also urgent.

In Europe, health ministers from all EU Member States have adopted the region’s first ever digital health action plan – an ambitious agenda that will leverage digital transformation in Europe and Central Asia with the aim of improving people’s health and well-being (World Health Organization 2022). The World Health Organization (WHO) highlights the requirement to “[r]ecognise the urgent need to address the major impediments faced by least-developed countries implementing digital health technologies”.

For healthcare systems the world over, enabling these investments makes a disproportionately positive contribution to efficiency and effectiveness in healthcare delivery, healthcare access, and patient outcomes (short-term and long-term, reducing the social cost of rising overall demand and lifetime healthcare costs).

Financing Digital Transformation

In general, investment in healthcare technology – and its projected growth over the next five years – is substantial, yet it cannot generally be afforded through available capital expenditure budgets in healthcare systems (The WHO Council on the Economics of Health for All 2021). This is the case both for aging equipment that



needs replacement and upgrading, as well as for newer technologies on the market whose benefits have only recently emerged.

Moreover, the healthcare sector is responsible for some 4–5% of global greenhouse gas emissions (Tennison et al. 2021) and therefore has a vital role to play in climate change mitigation efforts, which will not only result in substantial reductions in emissions, but can often lead to enhanced patient care, staff satisfaction, and cost savings (Tennison et al. 2021).

To boost the availability of capital with which digital transformation can be achieved, the healthcare sector therefore has to harness private sector finance to enable a digital, commercial, clinical, and sustainable transition. Private sector finance – usually from specialist financiers with a deep understanding of the technology and its applications – plays a crucial role in enabling the development and digitalisation of healthcare systems all around the world.

Smart finance, offered by specialist financiers, enables three key areas of technology investment: upgrade, net new technology, and smarter buildings.

These smart financing techniques are equally important for buyers and technology vendors alike. Buyers need an affordable and financially sustainable means of acquiring the equipment and technology they need to improve clinical efficiency, patient outcomes, cost optimisation, and smooth administration. Vendors need to leverage smart finance to make new technology more affordable and accessible for customers, manage cash flow, and offer a competitive value proposition to healthcare organisations.

Conclusion: The Urgency to Act Now

The need to refresh healthcare's existing technology base goes hand in hand with the equally urgent need to acquire emerging digital technologies. The global COVID crisis is/was a harbinger: this crisis clearly demonstrated the value – in terms of both efficiency and patient outcomes – of digital transformation in the healthcare sector.

In light of these drivers of change, each month that

Case Study – Admiraal De Ruyter Ziekenhuis

Source: [Siemens Healthineers](#)

Admiraal De Ruyter Ziekenhuis (ADRZ) in the Netherlands is working with Siemens Healthineers in a 10-year-long strategic partnership that includes providing medical equipment, building works, financing, and management services. This collaboration has yielded and will continue to yield significant clinical, operational, and financial outcomes.

The partnership value at a glance:

- Design, construction, and leasing of six standardised operating rooms to improve quality of health services to patients
- Efficient primary care offered to roughly 248,000 people in the region
- 10% lower turnkey investment compared with conventional solutions
- Rapid availability of the new infrastructure (15 months from preparation to completion)

passes without progress on digital transformation is regarded by healthcare digitalisation pioneers as a month in which healthcare resources have not been efficiently deployed, people's professional time has not been effectively managed, costs have not been optimised, and patient outcome improvements have not been implemented.

This transformation cannot be funded by public funds alone.

Private sector finance is playing a critical role in enabling the digital transition. Partnering with a smart solutions provider will allow healthcare organisations to achieve radical, data- and evidence-driven change through digital transformation – improving patient outcomes, reducing both immediate and lifetime healthcare costs, and deploying scarce clinical and care skills more efficiently and effectively.

Conflict of Interest

None. ■

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