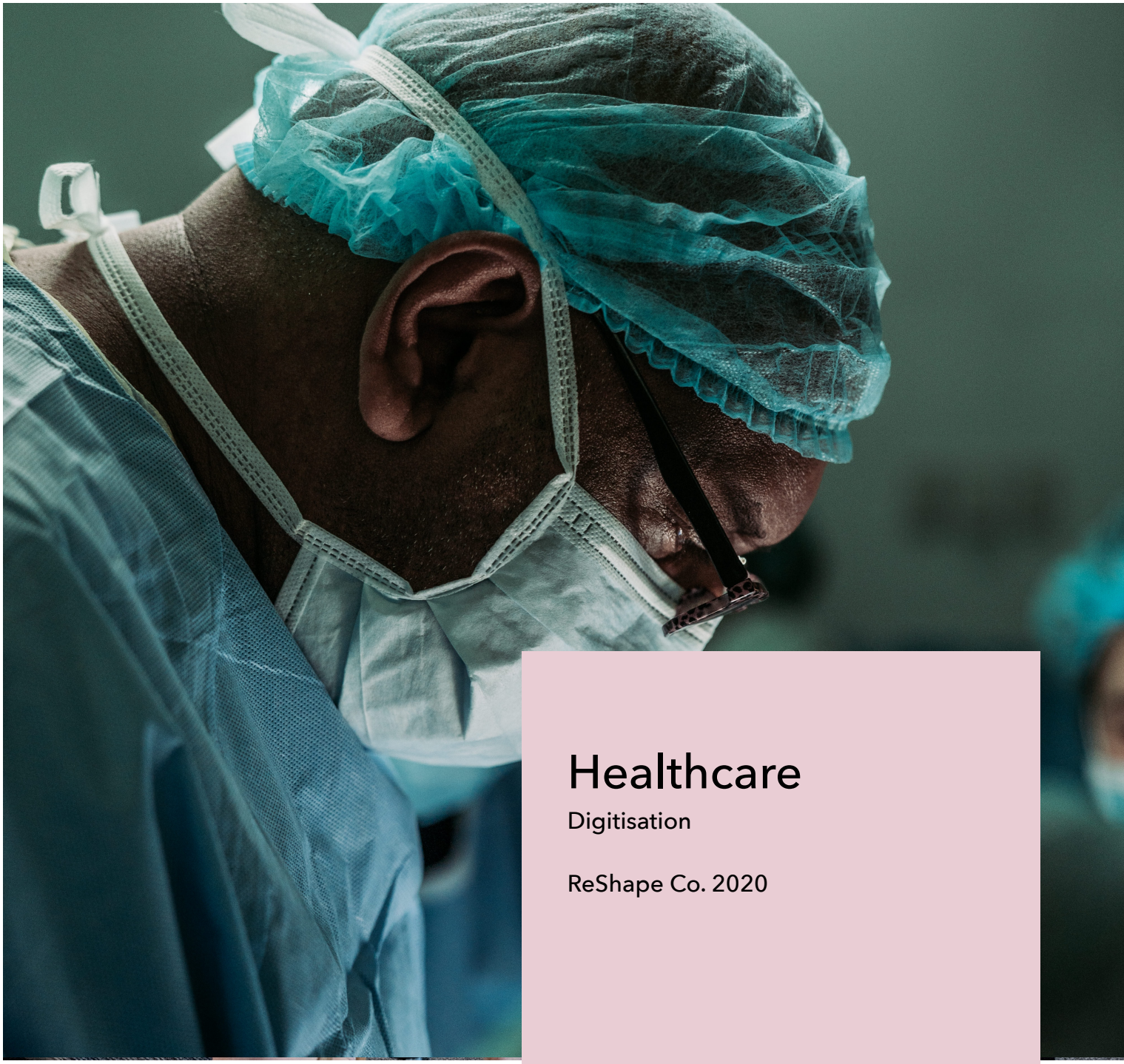

Healthcare

Digitisation

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Overview

Economic changes, aging populations and a higher prevalence in chronic diseases have led to an upsurge in costs in the healthcare sector. The industry has had to adapt to these challenges by returning its focus to efficiency and quality, enabled by digital technologies. The NHS Long Term Plan announced in 2019 set out a ten-year roadmap outlining how technology will enable clinicians to interact with patient records and care plans, wherever they are. The outbreak of the Covid-19 pandemic has only intensified the interest in digital health while social distancing measures are in place - in England, the NHS app allows patients to take more control of their own health to ease demand on the system and its use doubled in March. Video consultations are slowly becoming the norm. For regular news and updates on the digital transformation of the NHS, click here.

Top Industry Trends

- Telemedicine:

  Telemedicine has become increasingly important in countries with large remote populations where access to specialist care is limited, as well as an important consideration for Millenials when seeking healthcare services. The Global Telemedicine Market is expected to reach USD 80.61 billion by 2025.

  With the onset of the Covid-19 pandemic, remote patient monitoring and cost-effective treatment options are the major drivers of growth in the telehealth industry. A survey by SSCG Media Group in March 2020 found that around 53 percent of health practitioners (specialized in infectious disease, oncology, pulmonology and cardiology) in the US are now using telemedicine.

- Wearable devices and the Internet of Medical Things (IoMT):

  Data collection through wearable devices has been around for a number of years now but there has been increased interest in the ability of healthcare providers to use this data for preventative medicine. The global IoMT market was valued at $44.5 billion in 2018 and is expected to grow to 254.2 billion by 2026 - the smart wearable device segment of IoMT made up the largest share of the market.

- Artificial Intelligence:

  AI is increasingly used in preventing identity theft, reducing costs, streamlining processes and improving the customer experience. Using AI and deep learning to detect abnormalities in CAT body scans has been shown to be up to 150 faster than human radiologists. During the Ebola virus outbreak, AI was used to scan existing medicines to explore possible reformulations to find a cure. Microsoft recently announced a USD 60 million five-year philanthropic program called "AI for Health" to empower researchers and organizations to tackle the toughest challenges in global public health.

  In the context of the pandemic, AI-powered chatbots are used to support and triage patients and accelerate patient-provider interactions. Researchers are continuously using AI in understanding spread and speeding up research and treatment.

Thought Leadership

A 2019 study by Roland Berger titled "Future of Health: An industry goes digital - faster than expected" summarises the predictions of 400 international healthcare experts and leading industry leaders with respect to the upcoming digital transformation of the healthcare sector. Their verdict - the sector is likely to change dramatically by 2025. Venture capital funding in digital health exceeded EUR 4.5 billion globally just in the first half of 2019 and companies from developing and developed countries are strengthening their presence in the market and challenging established players. Artificial intelligence will play a major role in the diagnosis, monitoring and prevention of medical issues, with respondents estimating that up to 20 percent of medical services could be provided by AI. A majority of respondents also believe that patients will be willing to provide data to insurance providers to benefit from lower premiums that reward healthier lifestyles and some predict that health insurers will actively influence the behaviour of their customers, reducing the incidence of lifestyle-related diseases.

More detailed insights on the future of the healthcare sector can be found in Deloitte US's The digital hospital of the future report.

Emerging Areas

Improving diagnosis

Digitalisation in the healthcare sector is already aiding professionals in speeding up and improving diagnostic capabilities by better managing information flows. The ability to rapidly sift through vast amounts of data in electronic health records has been shown to reduce the rate of medication errors, is helping radiologists in analysing images for diagnosis and has potential applications for better preventative care.

Mobile delivery

Mobile health applications and wearable devices have the potential to transform healthcare due their convenience and ease of use. Among the most interesting recent trends, virtual reality (VR) has been shown to add value in the area of chronic pain management, where traditionally opioid prescriptions were the norm. VR is a safer, more efficient alternative as well as being an increasingly lucrative market, predicted to be valued at $5.1 billion by 2025.

Personalisation

The growth of wearable medical devices such as heart rate sensors and exercise trackers is changing the ways in which people interact with their own health and it is estimated that 57% of patients own or use a connected care device to monitor various health indicators. The personalized experiences can aid in early prevention and diagnosis but also give clients a sense of ownership over their health metrics and offers opportunities for gamification such as setting target goals to be achieved through nutrition/exercise.

Accessibility

Digital transformations in healthcare have also led to the rise of on-demand healthcare to better meet the changing needs of patients. Companies such as Nomad Health link doctors directly with medical facilities for short-term work in order to provide on-demand healthcare services that are tailored to the needs and time constraints of the patient and match the expertise of the medical professionals they get paired with. This market is particularly popular with younger generations as recent research highlights Millennials'

preference for more flexibility in healthcare as well as lack of commitment to one specific primary care physician/GP.

Telemedicine can also play a crucial role in connecting patients to healthcare professionals in remote and rural locations, avoiding unnecessary referrals and reducing costs for low-income patients particularly when the World Health Organisation predicts a global deficit of about 12.9 million skilled health workers worldwide by 2035.

Artificial Intelligence/Blockchain

The healthcare AI-powered tools market is expected to exceed $34 billion by 2025, creating a strong need not only for the systems that extract and organize vast amounts of data but also ones that synthesize the information for patterns and offer recommendations. Among the top applications of AI in healthcare are medical image analysis, computational drug discovery and effectiveness, treatment recommendations, patient data processing, virtual health assistants and biomarker discovery. The power of AI is particularly relevant to precision medicine such as in allowing for personalised diagnosis and treatment based on pattern recognition driven by genome sequencing and data analysis according to genetic, environmental and lifestyle factors.

Another growing market is that of blockchain technologies for healthcare, already shown to be effective in preventing data breaches, improving the accuracy of medical records and cutting costs. In 2018 the UK launched a pilot scheme to experiment with managing medical records and transactions among patients, healthcare professionals and insurance providers. More recently, blockchain was used by a US manufacturer to offer full traceability in the personal protective equipment (PPE) supply chain during the Covid-19 pandemic after it was revealed that the NHS had paid £156 million for a batch of PPE that proved ineffective in protecting healthcare workers. The potential for blockchain applications to security measures in the sector cannot be underestimated especially when health data is among the most hacked in the world and the industry is seriously underinvested in security.

Further resources on this topic:

- Blockchain in the NHS by the think tank Reform
- How Blockchain can Deliver Electronic Prescriptions by PWC UK
- European Commission's White Paper on 5G Transformations in the Health Sector

Recommendations for Embracing Digitalisation

The following recommendations are summarised and adapted from KPMG's Digital Health: Heaven or Hell? report on best practices in using technology to implement more efficient, high-quality healthcare:

1. Embracing transformation first, then technology. Technology should be a complement to new and more efficient ways of working rather than a substitute for outdated systems.

2. Investing in people. The transition to digital systems is seldom a smooth one, and many of the problems that arise are people-based rather than technology-based issues. Investing in organizational development and the education of clinical and administrative leaders who understand both technological and frontline care systems will be paramount to successful transformations in the sector. Healthcare professionals with a combination of technological skills and the ability to navigate clinical workflows and culture, are increasingly sought after.

3. Redesigning digital health systems. Health IT has historically been one of the most neglected areas in the industry but embracing the digital transformation will require well-coordinated efforts in creating systems that cater to the complex and high-risk operating environments of frontline workers.

4. Investing in analytics. Predictive models are increasingly used for resource allocation, demand anticipation and early intervention. Successful healthcare providers have tended to invest heavily in developing their own software and analytical capacity.

5. Continuous learning. Embracing digitalization is an on-going commitment. The focus should be on long-term goals of changes in workflows, automation and process redesign rather than short-term gains resulting from cost-cutting exercises.

6. Supporting interoperability. Coordinated care depends on efficient sharing of data across multiple settings and providers should individually experiment and decide the best ways in which electronic health records would be shared internally. There is no one-size-fits-all approach.
7. Securing data and systems. Cybersecurity has become a board-level priority over the past several years due to serious underinvestments in the past and the fact that health data is among the most valuable in the world. A study by KPMG of 223 healthcare payers and providers found that 81 percent had been compromised by cyber-attacks in a 2-year period, and only half stated they felt prepared to withstand attacks. Robust information governance procedures that protect patients' data will give clients the confidence to share their information across different care settings.

Further insights on analytics and managing data

- The Health Foundation's 2019 report Untapped potential: Investing in health and care data analytics
- The use of existing Big Data to improve healthcare (UK Roundtable report) by eit Health
- The Future of Personalized Healthcare: Predictive Analysis by Malay Gandhi and Teresa Wang (RockHealth Special Topics)
- Ultimate Guide to Big Data in Healthcare by Healthcare Weekly
- Big data in digital healthcare: lessons learnt and recommendations for general practice (2020) by Raag Agrawal and Sudhakaran Prabakaran

Further resources on managing cybersecurity:

- European Union Agency for Cybersecurity (ENISA) Procurement Guidelines for Cybersecurity in Hospitals
- Health Industry Cybersecurity Practices by the US Department of Health & Human Services
- Improving Cybersecurity in the NHS by the Institute of Global Health Innovation (Imperial College London)
- Compliance checklists and best practices for the healthcare sector by IT Governance
- Healthcare Information Security Podcast

Accessing industry support & insights

Industry-specific bodies in the UK:

- NHS Digital - responsible for IT and digital healthcare services
- NHSX - unit dedicated to digital transformation of NHS, in tandem with NHS Digital
- Comprehensive list of organisations that support the digital health and life sciences industry

Podcasts:

- Healthcare Weekly: At the Forefront of Healthcare Innovation
- Medtech Talk
- Digital Health Today
- Faces of Digital Health
- GeekWire Health Tech