

FUTURE AGENDA

Open Foresight

THE FUTURE OF HEALTHCARE

Insights and Implications from
Multiple Global Discussions

Duke
CORPORATE EDUCATION

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THE FUTURE OF HEALTHCARE

Insights and Implications from
Multiple Global Discussions

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Introduction

There are two things we can say for certain about the future: it will be different, and it will surprise. Nowhere is this more evident than in global healthcare. The challenges and opportunities facing the sector are many and varied, and the need for flexible, capable leadership that can shape the future is clearer than ever.

This is one of the key threads running through this research report – developed by Future Agenda and supported by Duke Corporate Education. We believe it provides a practical, in-depth guide to the forces shaping the future of healthcare: what they are, why they matter, and what they mean for executives and the organisations they lead. This document has several broad goals:

- To help leaders make sense of the range of interconnecting shifts and trends, enabling them to succeed in the present;
- To guide leaders as they plan and shape the future for their organisation;
- To outline what still needs to be done: the potential pitfalls and problems that may arise; and
- To highlight the leadership implications of these challenges.

We welcome your comments and an opportunity to discuss and explore these vital issues further.



Summary

The research for this report is based on a wide range of expert discussions that have been undertaken around the world. Primarily as full day workshops that bring together a unique combination of informed individuals to challenge future assumptions, dialogue with regulators, researchers, companies, doctors, care providers, charities and NGOs has provided a perspective of how healthcare is changing in many different contexts. As we have moved from region to region, we have explored the key drivers of change across a wide range of healthcare systems, across economies with varied levels of spend and across countries with a wide range of health outcomes.

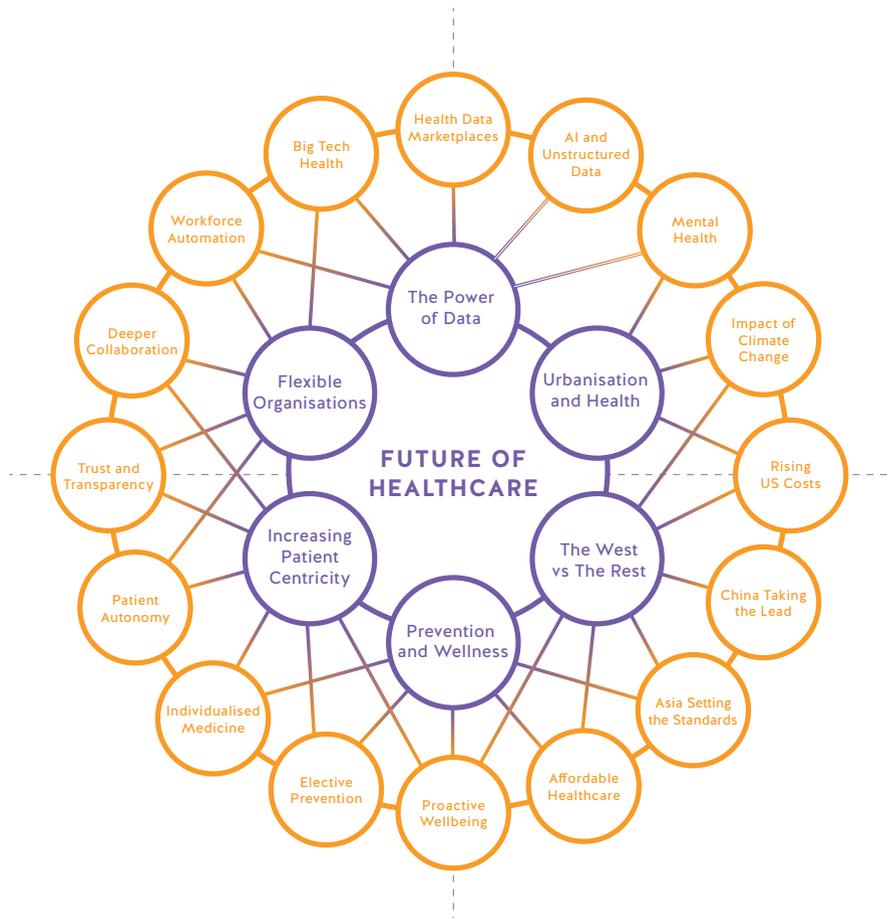
From over 40 workshops around the world focused on and around the future of health, we see six macro trends impacting the future of healthcare:

The Power of Data

The exponential growth in health data will provide multiple benefits for diagnosis, integration and personalisation of care. As more and better patient data is shared, we gain multiple efficiencies.

Urbanisation and Health

With most of us living in cities, growing social and environmental pressures increasingly impact health. Growing challenges include rising obesity, limited physical activity and mounting risks from contagion.



Key Healthcare Trends 2020-2030



The West vs The Rest

The Eastward shift in economic influence and innovation prowess changes the balance of power in health. Asia increasingly sets the standards and the prices forcing a change in many Western models.

Prevention and Wellness

More advanced, personalised diagnostics align with growing societal and political pressure to drive the much called-for shift to proactive prevention in preference to expensive cure of disease.

Increasing Patient Centricity

There is a step-change in the volume, quality and ownership of a broadening portfolio of individual's health data. This enables a transformation of care to become more personalised and effective.

Flexible Organisations

New forms of flatter, project-based, collaborative, virtual, informal organisations come to dominate key sectors including health – much is enabled by technology and an increasingly mobile workforce.

Aligned to these we have also identified and prioritised sixteen additional future shifts that, although not universal, could all drive substantial change in multiple systems.

The Healthcare Challenge

Today we are, on average, healthier than ever, are less likely to die in childhood, and will, probably, live longer than our grandparents ever thought possible. Even so, there is little room for complacency. Despite access to better healthcare systems, people are still dying from preventable diseases. There are multiple reasons for this. Global healthcare challenges include poor diets and sedentary lifestyles; inadequate sanitary conditions; rising temperatures; ageing populations and a parallel rise in chronic disease. All these are converging so that, in many regions, healthcare costs are on the climb plus there are growing shortages in the availability of skilled healthcare workers.

Although we may live longer, we may not necessarily be healthier. Most current systems reward innovation that prolongs life, not necessarily the quality of life. According to EIU research, although many are hoping for a narrowing of the gap, typical healthy life expectancy continues to be around 3 years less than average life expectancy.¹ This is where the greatest need lies and also where majority of the cost is. So, as was suggested in a New York discussion, in the future *“ideally we want to live as long as possible and die as quickly as possible.”* As part of realising this, a UK perspective of the NHS in 2030 foresees a major role for social innovation, which harnesses the power of people – patients, carers, communities and citizens – to improve health.²

CSIRO, the Australian governmental research organisation, has recently highlighted that many health systems around the world all face a similar set of core challenges.³ These comprise:

1. A changing national health profile often influenced by a rise of diabetes and obesity;
2. Inequity of access and experience with a growing gap between rich and poor;
3. Increased consumer demand for better care – the latest and more expensive treatments;

4. The ability of healthcare providers and payers to adapt to ongoing technology developments
5. Fragmented, inflexible health systems that don't allow for connected decision making, and
6. Unsustainable financing, largely driven by the spiralling cost of healthcare provision.

In order to address these challenges a number of shifts are commonly envisaged in different countries. These include:

- Moving from volume to value-based healthcare with new models and approaches;
- Digital innovations around effectiveness and accessibility leveraging more health data;
- Increased competition, rising spend and pressure on margins pushing for greater efficiency;
- Greater transparency leading to improved productivity;
- Increasing patient responsibility for their own healthcare;
- The rationing of services and consolidation of facilities for some universal healthcare systems;
- An increasing mixing of public and private health systems; and
- A redefinition of industry boundaries.

As all the multiple factors coalesce, many want to know what will be the major changes that will most impact the healthcare sector in the next decade? Which are the organisations that will drive future change and who are the leaders that will navigate the road ahead? This document shares some perspectives gained on these from multiple expert discussions around the world.

The Pace of Change

As we consider the future, it is important to recognise how quickly change can occur. For cultural shifts, it can often take decades, but for those driven by new technology timescales can be far shorter: It is clear that the length of time it takes a new innovation to impact large populations is accelerating dramatically. For example, it took over a century for the car to get from first introduction to 1bn users, but only 27 years for the mobile phone and 15 for Internet access; it took 9 years for Facebook and Instagram to each become similarly ubiquitous, but a mere 3 years for apps such as Angry Birds and, more recently, China's TikTok to reach the same user-base. All this as the number of employees to achieve success is shrinking; in 2011 Facebook paid \$22 billion for WhatsApp when it had only 55 staff and since then nimble start-ups like Snapchat, Slack and Stripe have become worth billions – each with only a handful of full-time employees.

Governments are also transforming society in a fraction of the time that it took before. Despite its size and comparative poverty, the vast majority of India's 1.35bn population is now registered on a single database – the Aadhaar India Stack. Originally designed to support full citizen digital identity and drive financial inclusion, this system is rapidly being expanded to cover education and healthcare. On an even grander scale, alongside similar data integration, China has also implemented facial recognition across the entire population. You can already withdraw cash, check in at airports, and pay for goods just by being 'seen' by a camera. Equally the government can monitor your every move.

The healthcare sector is also undergoing considerable change, not least due to the impact of new technologies.

- Amazon is becoming embedded in the US prescribed drug supply-chain and Alexa is answering patient questions on behalf of the NHS.
- Apple is consolidating health records from a wide range of clinical and personal information and using its watch to track key vital signs 24/7.
- Google's DeepMind has proven the effectiveness of pattern recognition products that automatically detect eye conditions in seconds and can spot acute kidney disease early; this dramatically exceeds the performance of highly experienced and expert doctors.

In fact, change in the healthcare sector is happening so quickly that some consider that "medicine will advance more in the next 10 years than it did in the last 100."⁴

Research Approach

Future Agenda's Future of Healthcare project began in 2010 as part of a global programme hosted by Vodafone Group which explored the key issues facing society over the next decade. To start the debate, an initial perspective was written by Dr Jack Lord, former CEO of Humana. This was a 2,000-word article which provided an overview of key drivers of change on the future of health. It highlighted some of the questions that we intend to tackle and considered the key challenges, options and possibilities before suggesting how healthcare could develop in the future. There followed a series of 6 workshops held in multiple locations around the world. These brought together academics, business leaders, regulators, NGOs, start-ups, students, and consultants to collectively consider, identify and prioritise the issues which they thought would influence healthcare in the future. The key insights from the workshops were then highlighted in the 'World in 2020' report which was published in December 2010. In 2015 this process was

repeated. This time Dr Devi Shetty founder of India's Narayana Health authored the initial perspective and a further 8 workshops were held across the world. Another six events were focused on the future of ageing. Again, all insights were shared openly.

From these and other parallel discussions on the future of food, data, privacy, ageing and cities it became clear that emerging issues around the use of more and better patient data are of primary concern for many and are driving change across the sector. This then became our focus for deeper exploration in 2017/18. Twelve full-day expert workshops were undertaken in Dubai, Johannesburg, Mumbai, Oslo, Sydney, London, Toronto, Boston, San Francisco, Frankfurt, Brussels and Singapore. These were complemented with additional discussions in Shanghai and New York and the insights were shared in the 2018 Future of Patient Data report (www.futureofpatientdata.org)



Locations of Expert Workshops



All these workshops comprise between 25 – 30 experts and broadly follow the same process. They begin with a discussion around the views gained from previous dialogue. In small groups participants then consider the relevance of each insight for their region and prioritise them as areas of high, medium or low significance according to their particular perspective. This is followed by a discussion about any areas of import which might not yet have been addressed. In the afternoon participants choose to work in depth on an area of specific interest where they see the greatest innovation potential, considering the drivers of change and collaborate to provide a more detailed exploration of how change could happen

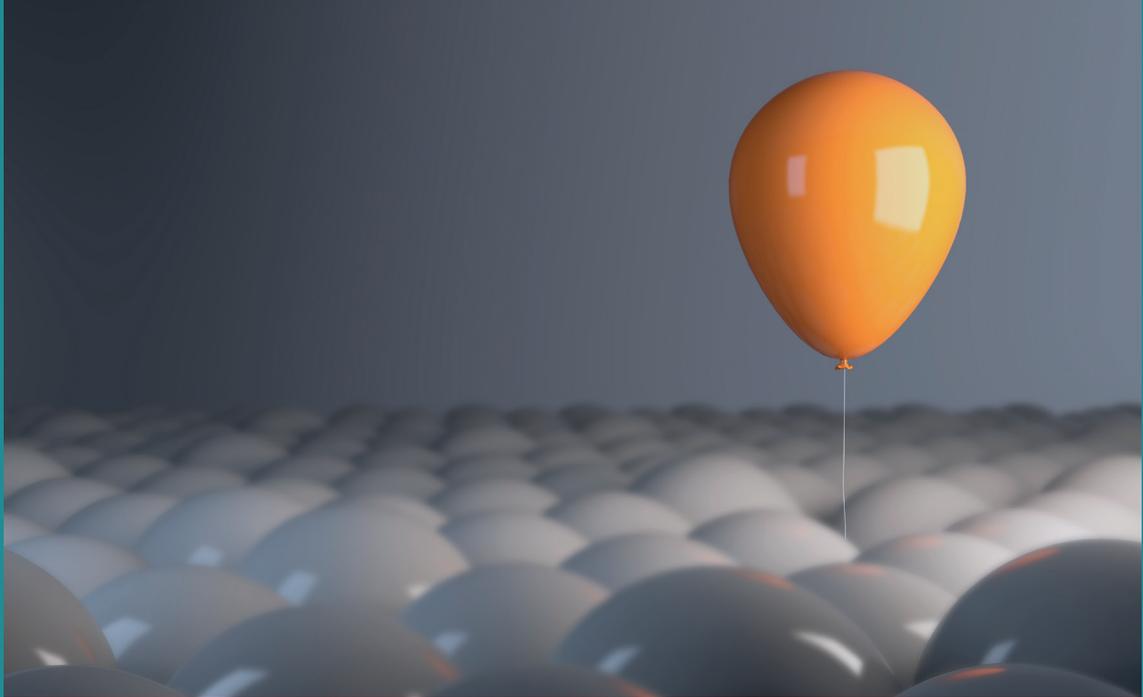
In the past year or so, more views have been gained on the future of healthcare in further workshops undertaken in Copenhagen and London. Other events took place at Oxford University, as well as in Geneva with the World Health Organisation. More perspectives were also developed during a number of sessions conducted as part of Duke Corporate Education (Duke CE) programmes around the world.

The output of all these discussions has been summarised in this report and incorporated Duke CE's leadership perspective. Duke CE's work over the years with healthcare clients has helped leaders be catalysts of transformation in their organisations in the midst of complexity. This report features some

of the core insights Duke CE has gleaned from this work. These include key takeaways relating to the macro trends and associated leadership challenges facing healthcare clients, as well as insight on how different organisations have successfully become more agile, collaborative and customer centric.

Building on these fresh Future Agenda and Duke CE perspectives, this new briefing therefore provides an updated view of how we see the future of healthcare evolving over the next five to ten years. It aims to outline a number of issues which, from these discussions, we consider both relevant and important, and adds contextual commentary. We begin with the macro trends, add the shifts which will impact healthcare, then provide some considerations for leadership across the different areas: insurance, life sciences, regulation and healthcare provision.

As always, our aim is to curate an informed global perspective, sharing views across disciplines and across continents. We do this to help organisations to build strategic responses able to adapt to the way that systems will function, consumers will behave, and governments will regulate over the next decade. This document is intended to share diverse perspectives, provoke thinking about some of the key issues ahead and also raise questions for the organisations seeking to be the leaders of the future.



Macro Trends and Future Shifts

Many recognise that issues such as population growth, resource constraints and increased connectivity are driving significant transformation globally across most sectors. These are considered to be global mega-trends and therefore nearly 'certainties' – very high probability changes that will have growing influence over the next decade and beyond. They all demand consideration and planning for potential impact, opportunity and risk.

Macro Trends

Beyond these, there are other shifts also impacting individual sectors in a variety of ways. Within healthcare, our research suggests six macro trends which may have most influence:



Macro Trends for Healthcare 2020-2030



Future Shifts

Aligned to these we have identified sixteen future shifts that, although not universal, could all drive substantial change in multiple systems. Most of them have links to more than one of the macro trends.

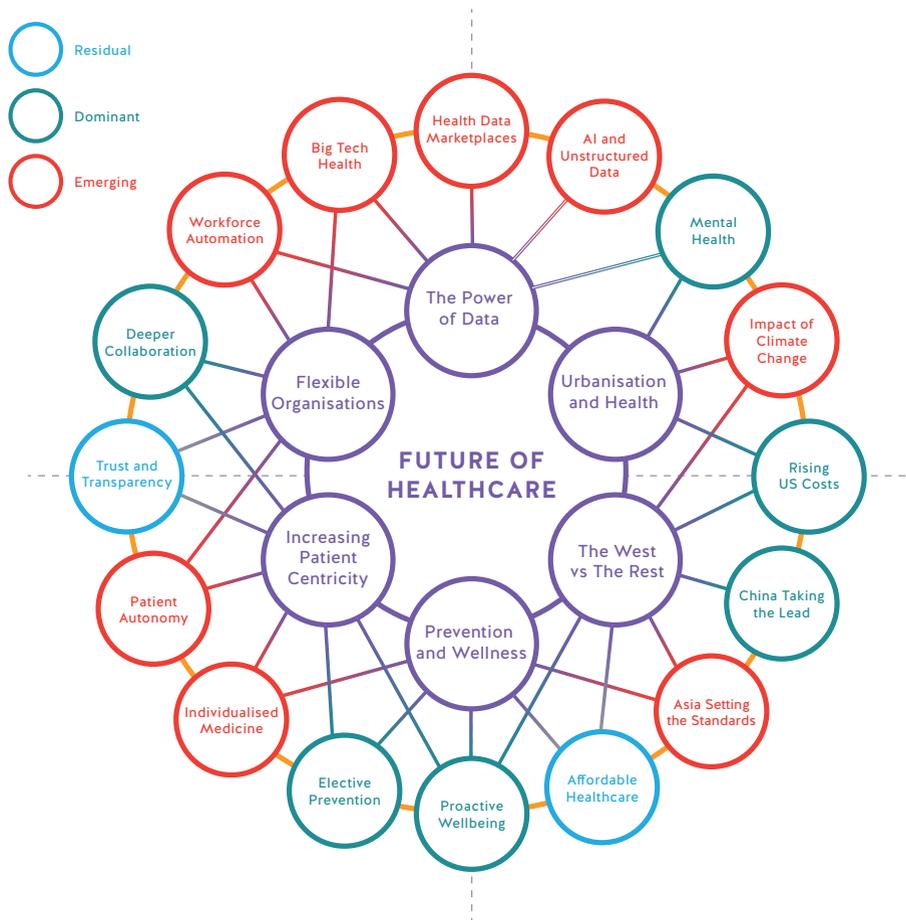
In addition, these shifts also fit into three different categories of maturity:

- **Residual** issues that have been in the mix for some time but are still relevant and important to address;
- **Dominant** issues that are very much centre of attention for many today and increasing in impact;

- **Emerging** issues that are currently evident in niche areas and / or locations but are fast-accelerating and may well have substantial future influence.

These are highlighted in the diagram below and also by icons alongside the following narrative.

The core of this document provides a summary of the macro trends and the additional future shifts. We have included some participants' quotes from varied workshops in blue text and italics.



16 Key Shifts for Healthcare 2020-2030





MYOCARDIAL MONITOR BIOPSY

3D WIREFRAME SCAN

RECORDING ●
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Trend One: The Power of Data

The exponential growth in health data will provide multiple benefits for diagnosis, integration and personalisation of care. As more and better patient data is shared, we gain multiple efficiencies.

“There will be a dramatic increase in the pace and scale at which new digital health care innovations will emerge.”

Over the next decade, the use of data will affect all industries and disrupt the status quo. Data-rich firms able to integrate legacy systems and create new global platforms will increasingly capture the economic and social value of this and outplay traditional leaders. Many expect that *“there will be a dramatic increase in the pace and scale at which new digital health care innovations will emerge.”* In particular investment in digitisation will allow health data to support the delivery of more personalised health services. However, as increasingly personal and sensitive information is shared, *“protecting high value data in more interconnected systems will be key as concerns around cyber security increase.”* At the same time regional and national regulators will struggle to control the growing power of big tech so, despite calls for alternative models, self-regulation is likely to remain the norm.

These will raise both challenges and opportunities across the healthcare sector. These include:

- Organisations that have been in a ‘land grab’ for data will try to identify and qualify what is actually of value, and what is not;
- Companies will progressively seek to quantify their data assets and maximise impact in terms of the overall corporate portfolio - but also to minimise potential digital tax liabilities;
- In order to ensure that data is not biased, false or fake, humans and automated algorithms will be widely deployed to clean multiple data-sets – often at considerable expense;
- Digital skills will be prized capabilities within many companies. Data scientists will be critical sources of competition – gaining high wages and influence; and
- At a multi-national level, data localisation and sovereignty policies will be introduced in some key markets. These will act to constrain global sharing in order to protect national interests.

From our varied discussions there are three associated key shifts considered to be potentially impactful. These are AI and Unstructured Data, Big Tech Health and Health Data Marketplaces.

“Protecting high value data in more interconnected systems will be key as concerns around cyber security increase.”

AI and Unstructured Data



As deep, self and reinforced learning develop, the ability of AI to deal with unstructured data delivers major improvements in diagnosis and treatment. Agents learn by trial and error and AI is embedded into many clinical decisions.

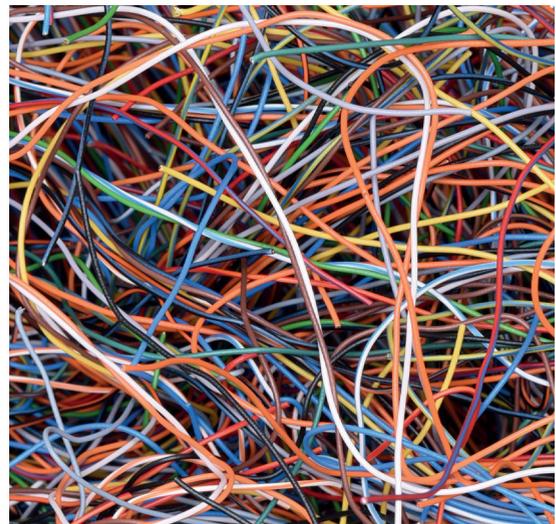
In the main the use of AI in healthcare has to date focused on machine learning and pattern recognition. *“At the moment, the emphasis is on imaging and radiology because that is well structured information.”* While IBM’s Watson and Google’s Deep Mind have been pioneers, and many see that *“we are just at the very early stages,”* with a plethora of new players in the US, Europe and increasingly China, are all seeking to have impact. As chat-bots for both patients and professionals become more commonplace and the use of voice and video data escalates, the quantity of more complex data sets is growing.

Most notable for the future are the AI start-ups that analyse unstructured health and clinical data. As the second generation of AI – the so-called deep, self and reinforced learning – develops, then the ability to deal with unstructured data could deliver major improvements in both diagnosis and treatment. Machine learning and pattern recognition AI essentially replicates human behaviour and *“automates human routines”*, but soon algorithms will learn for themselves, developing completely different approaches and solutions. *“Machines will no longer have to sift through lots of information and the amount of data needed to be processed will decrease – machines will know exactly what to look for.”* With increased capability and reach, assistive, augmented intelligence and, eventually, full artificial general intelligence has the capability to become embedded into many clinical decisions. *“Over time algorithms will lead to much greater efficiencies in diagnosis and the management of disease progression.”*

However, there are also problems ahead. As we become more aware of the possible consequences of poorly thought through products and services around, for example, algorithmic bias. Equally, as regulation continues to lag behind technology innovation, concerns about ethical standards grow and we will hear increasing calls for a global, independent organisation that can establish principals and standards for the technology industry. As yet there is little clarity around who or what organisation this should look like: *“do we need a global body – the UN for ethics?”*

Beyond this, with so much development underway, companies that are not directly invested in the leading edge of the AI transformation may lose out as health systems and sectors increasingly align around the new leaders.

“Over time algorithms will lead to much greater efficiencies in diagnosis and the management of disease progression.”



Big Tech Health



Led by Amazon, big tech will disrupt healthcare, reinvent some core elements and unify fragmented systems. All of the ‘big 5’ are investing heavily in major ‘special’ projects focused on the radical transformation of healthcare.

In the next few years big tech will increasingly disrupt healthcare. Many are aiming to reinvent some core elements of the overall experience and unify fragmented systems. Most likely led by Amazon, the industry leaders are *“already starting with a land-grab of health data” and looking to provide “joined up services that integrate food, exercise, activity, wellness and medicine.”* Beyond their growing AI capabilities, this is increasingly about access and the ability to analyse masses of data – clinical and personal information as well as proxy data captured from smart homes, smart cities and connected cars. The US ‘big 5’ of Alphabet, Amazon, Apple, Facebook and Microsoft as well as China’s Alibaba and TenCent are all recruiting significant high-level health expertise and investing heavily in major ‘special’ projects focused on a radical transformation of the sector.

This is only the beginning. In London this year it was noted, *“there is also a lot of ‘dull-tech’ that needs to be implemented to address some of the basics.”* The expectation was that this will probably be outsourced to technology companies and *“those that succeed will become too big to fail as too much will depend on them.”* Added to this, several see that potentially this could *“create monopolies or duopolies that limit choice where switching from one to another is technically possible but painful as an experience.”*

Each of the big-tech firms have the potential to drive major change but it is Amazon and Apple which were identified as having the potential to cause most disruption – and, even ahead of the recent announcement of the Alexa / NHS partnership,⁵ most see Amazon leading. In San Francisco one major West Coast venture capitalist shared that *“we invested in 18 new healthcare ventures last year and 17 of them use AWS.”* In Boston the view was that *“Amazon could be the catalyst that creates a single more unified US health system.”* In Singapore another perspective was that “for Amazon, data access will open the door to health at an extraordinary scale.”

“Amazon could be the catalyst that creates a single more unified US health system.”

It is not just the data the Amazon owns and can scrape from Alexa and its other business areas; it is the data that it already hosts on its servers that many see as potentially open for, or vulnerable to, access and analysis. Many organisations, including hospitals, doctors’ surgeries and pharmacies, are drawn to the convenience and reliability of leading-edge logistics services with high levels of customer satisfaction such as Amazon Prime - but much of the associated data may also be available to Amazon. Moreover, as *“the company already has a full ‘digital twin’ of each and every user”* adding in health information alongside all the other personal data in the system is an easy progression. In a UK discussion the view was *“the big tech services may become so compelling that people won’t worry and will hand over control of information just as has happened with Uber in transport.”* The biggest future source of healthcare competition may well already be here. It’s just not yet visible to all.

Health Data Marketplaces



Embedded in the future of access to health data is its value, exchange and use for social and commercial purposes. Personal and clinical data will increasingly be represented in healthcare data marketplaces.

Quite often something that starts in the criminal world moves into the mainstream in a more refined (and legal) context. It is therefore interesting to see that the dark web values health data considerably more, sometimes more than 1000 times more, than personal financial information. As the economic value of health data is recognised and quantified then many envisage that this value will be similarly reflected in the mainstream. *“Health data will be commoditised in open, transparent exchanges for both financial and social gain.”*

Bilateral data trading is already present in several sectors. Within healthcare Ancestry.com and 23andme, for example, *“gain from reselling and renting out their customers’ data at a significant premium.”* However, as technology and regulation render the value, ownership and trading of data more visible, then some anticipate, and are investing in, the creation of full, three or four-dimensional data exchanges that operate based on price, time, access and use. As well as major tech companies, governments in Dubai, Mumbai and Shanghai are supporting this – seeing that *“markets such as these may have just as much impact in the future as the financial exchanges of London, New York and Hong Kong have in the past.”* In Singapore opinion was that at some point *“there may be a global health data marketplace.”*

Given this, several organisations are planning for authorised clinical data to be represented in healthcare data marketplaces in order to enable buying and selling access to high-quality, anonymised data sets. Whether this will be at a personal level or, maybe more likely, via trusted third parties that aggregate multiple certified data sets remains to be seen, but, as they scale, many more organisations across healthcare will be invited to participate. Not everyone views this as a positive change. Indeed, some in a US West Coast workshop were strongly resistant seeing it as a threat to competitive advantage: *“we will never sell our patient or clinical data to anyone”*. Others in Toronto questioned *“what is the sustainable model for data trading?”* However, in other locations the general view was this is a major future opportunity. For example, at a time when the British government sees that renting access to the NHS aggregated patient dataset could be worth £10bn a year, many increasingly recognise the significance that marketplaces will have in realising this.⁶

“Health data will be commoditised in open, transparent exchanges for both financial and social gain.”



Healthcare Leadership Implications



Data is already impacting the day-to-day lives of patients, users, providers and other stakeholders throughout the ecosystem and along the supply chain. These provide both challenges and opportunities for organisations and their leaders. Crucially, managing information and data so that decisions are as effective as possible depends upon people: how they use available information and systems, how they share their knowledge with others, and how motivated they are to use information to innovate and create value. It also depends on the processes used to manage information and knowledge. The technology itself, while essential for success, is often seen as a corporate panacea, when in reality the data issue is a people issue.

Leaders need to think differently and act fast to understand the impact, risk and opportunities presented by 'The Power of Data'. As a leader for the present and future, it is valuable to consider the following issues:

- How appropriately and effectively do we gather, share, maintain and use data?
- What are the significant data-driven disruptors faced by the industry, our customers and business, and what are the implications for the way we work?
- How can 'we' differentiate our value proposition from newer and more agile competitors?
- What are the major opportunities presented in this 'new' world where data has value?
- How does our leadership and innovation need to adapt to the future of our industry?
- How can 'we' capitalise on the risks posed by Big Data, AI and privacy protection?



Trend Two: Urbanisation and Health

With most of us living in cities, growing social and environmental pressures increasingly impact health. Growing challenges include rising obesity, limited physical activity and mounting risks from contagion.

Today, over 55% of the world's population lives in urban areas, a proportion that is expected to increase to 68% by 2050. The UN projects that, combined with the overall growth of the world's population, the gradual shift in humans from rural to urban areas could add another 2.5bn people to cities by 2050, with close to 90% of this increase taking place in Asia and Africa.⁷ While those migrating are attracted by economic prosperity and the promise of a better life, many end up in increasingly dense cities, living in the unplanned crowded ghettos and slums that host a third of urban populations. The challenge of more and more people living closer together has multiple societal effects and, although not suggesting that life for the rural poor is easier nor access to healthcare is adequate, many consider that urban living has a number of growing health implications. Two of the most commonly highlighted are rising obesity and the risk from the spread of disease.

Obesity: Most significant for some, more sedentary lifestyles in urban environments are leading to higher incidence of obesity. Over 30% of the global population is already overweight or obese and this is set to rise to 50% by 2030: Associated chronic diseases currently account for 5% of worldwide deaths, while the associated economic burden is currently around 2.8% of global GDP. In both India and China, the incidence of obesity in cities is three to four times the rate in rural areas. In Kenya, Senegal and Ghana it is double. With the prevalence of severe obesity globally expected to increase by 130% over the next two decades, what was once seen as a rich-country problem has become the top health concern worldwide with cities as the focus. Alongside a host of US and Middle Eastern cities

where over 15% of adults have diabetes, many elsewhere are also increasingly concerned about children. In Chinese cities the obesity rate for boys is over 7% and half of overweight children globally are in Asia.⁸ No wonder more around the world see diabetes as a 'ticking time bomb'.⁹

Contagion: Organisations are increasingly focusing research on the relationship between cities and infections.¹⁰ Anxiety about contagious cities has been growing steadily since the 1918 flu epidemic and recent examples have highlighted future vulnerability. Hong Kong was, for example, the at the centre of the 2003 SARS epidemic and the fast growth of more mega-cities is providing "hotbeds of contagion" and the potential for more infectious diseases to spread: *"the urban jungle is a pathogenic paradise."* Proximity of living means more chance for the spread of disease and international bodies like the WHO are increasingly concerned by the impact of fast-developing pandemics and epidemics, especially within urban environments – and with virus diseases such as Ebola very much at the fore.¹¹ In addition, other government organisations such as the CDC in the US are highlighting other examples of contagion.¹² The recent outbreak of measles related to unvaccinated travellers from countries including Israel, Ukraine and the Philippines, had for example, by July 2019, impacted 30 different US states.¹³ Going forward, multiple bodies expect that we will have *"two to three major pandemics with the next decade."*¹⁴ Managing the response to these will be critical.

While these are two clear and present challenges, from our discussions there are, however, two other shifts that are also set to have significant future urban impact. These are Mental Health and The Impact of Climate Change.

"The urban jungle is a pathogenic paradise."

Mental Health



Urban migrants often face homelessness, unemployment and family break-up. With increased stress, low social cohesion and more crowding, mental health is a growing issue in many cities. AI is increasingly part of the wider care portfolio.

In many of our conversations a common view was that “mental health is a growing issue that has not been getting the right level of attention.” Globally 1 in 4 people experience mental health problems. Although not unique to urban citizens, compared to rural areas cities are associated with higher rates of mental illness: an almost 40% higher risk of depression, over 20% more anxiety, and double the risk of schizophrenia, in addition to more loneliness, isolation and stress.¹⁵ The reasons are multiple: Many migrants moving into cities are looking for a better life, but often face homelessness, unemployment, family break-up, greater poverty which increase stress and anxiety. In addition, social factors such as physical and psychological segregation into different neighbourhoods add to feelings of discrimination and low social cohesion. Furthermore, with more time spent working, or looking for work, less privacy, more noise, crowding and less social interaction, the majority have fewer opportunities for relaxation and exercise.¹⁶

Moreover, as many lonelier urban dwellers, young and old, increasingly rely on social media platforms as the core of wider interaction, “there is further build-up of isolation and anxiety.” Ironically therefore it is Instagram that has already come to the fore as having the capability to help diagnose stress early. Facebook is developing AI analytics of Instagram feeds to diagnose depression. Similar technology is also being introduced by Wal-Mart to determine the emotional state of customers. In a Dubai discussion it was suggested that “facial recognition software already has the capacity to recognise stress and anxiety and, alongside other digital diagnostic tools - such as voice pattern analysis, it will be increasingly used to identify and monitor mental

health problems.” Many believe that this might herald a step-change in the way mental health could be diagnosed and treated. Looking forward, other experts have also commented on the implications of greater integration of Alexa, Siri and similar voice activated platforms. As these services develop, “we may unlock the ability to sense and analyse individual behaviour patterns, detect early signs of Alzheimer’s, Parkinson’s as well as depression and anxiety and, consequently, will be able to deliver a wider range of AI-driven support.”

In some circumstances chat-bots will increasingly give those who are uncomfortable talking to others the confidence to communicate more openly because they have a perceived anonymity. This has already proved to be successful in Singapore, where “mental health is not as openly discussed as it ought to be”. Initial research papers detailing evidence of the potential of chat-bots for mental health care have started to explore this and the role of technology in ‘emotional chatting’.¹⁷ Elsewhere in Asia chat-bots are being used to help with depression.^{18,19} In Mumbai comments reinforced the view that AI can support diagnosis of mental health as well as other socially unacceptable diseases such as tuberculosis.

In 2010, with the second highest suicide rate in Asia, Japan declared mental illness as one of its top 5 priority diseases. In the UK alone, by 2030, there will be an additional 2m people with mental health problems.²⁰ EIU research predicts that between 2016 and 2030, mental illness will reduce economic growth in India and China by \$11 trillion.²¹

While mental health generally is now increasingly part of many international, national and corporate wellness agendas, several see that the urban mental health agenda is rising fast. Moreover, with the growing incidence of comorbidity of anxiety with diabetes and COPD in urban ageing populations, attention on mental health is set to expand.

The Impact of Climate Change



With 2°C of global warming probable and 4°C possible, the impacts on public health are becoming apparent: Poor urban air quality, the migration and extension of tropical diseases and growing malnutrition are all underway.

As the impact of 2°C of global warming becomes evident, and we increasingly plan to adjust to 3°C and 4°C, many existing systems will be stressed due to more flooding, longer droughts and increasingly volatile seasons. Nations, and especially cities, will seek to develop and execute adaptation strategies and enhance preparedness. While there will be an acceleration of investment in potential options to mitigate impact, some of the most at-risk coastal cities will develop resilience strategies and even plan for relocation.

An accelerating migration of, what some believe, could be up to 1 billion people over the next fifty years will be a challenge the like of which the world has never seen. Combined with more unstable weather patterns and variable water quality, several in our workshops anticipate *“an extension of the reach and duration of tropical disease as well as the re-emergence of old infections.”* As *“infectious tropical diseases move north”* so the *“geography of virus will shift”* and with an increase in epidemics and pandemics, public health in all regions will be affected. This is as much of a problem for rich countries as for poor ones – but with cities as a common focus.

The consequence of this will be *“a growth in the demand for new and more effective vaccines and the need for more proactive action by government”*. This includes better communication around prevention and more frequent public health alerts, particularly in mega cities and areas of significant migration. Others have also reported forecasts that “deaths from severe heatwaves will increase dramatically over the next few decades and an additional 1.5m people would die each year from climate change, if emissions trends continue, even after efforts to mitigate their impact.”²² A growing number of government bodies including, for instance, Public Health England have similar views.²³

Declining air quality is an additional huge concern. Indeed, the OECD believes that “pollution will soon become the biggest cause of premature death worldwide.”²⁴ Poor urban air quality is a major driver of citizen activism globally, not just in China and India, with calls for cleaner, healthier cities and neighborhoods growing. While city planners variously seek to introduce low emissions zones, ban petrol and diesel vehicles and incentivise electric and autonomous mobility, the incidence of asthma and other chronic diseases is already killing millions a year. As part of what has to be a broad collaboration, the health sector evidently has a substantial role to play in helping address this.

“Infectious tropical diseases move north”



Healthcare Leadership Implications

Urbanisation and health are intrinsically interlinked: the challenges are clear and so too are the opportunities and leadership imperatives. These include:

- Leading with a clear purpose
- Recognising the opportunities to communicate and engage with people
- Connecting with ecosystem players – from regulators to patients – to find ways to improve healthcare quality and access for all



Mental health especially is no longer a topic to be avoided, with psychological safety and well-being part of everyday concern. It is evident that a team that have these in place can perform and manage better now and into the future. As a leader, for the present and future, it is vital to think carefully about the following and be able to answer:

- How do we genuinely and comprehensively embrace the issues needed to lead in this area?
- How do 'I' ensure psychological safety and wellbeing in every aspect of life?
- What needs to change to enable this?
- What, if anything, should we do to publicise the changes we are making?
- How effectively are we connecting with the communities that we serve?
- How can we mobilise our people to embrace this issue and generate initiatives that will address this priority?
- How do we collaborate with our customers – corporate and personal – to address these issues as strategic and moral priorities?





Trend Three: The West vs The Rest

The Eastward shift in economic influence and innovation prowess changes the balance of power in health. Asia increasingly sets the standards and the prices forcing a change in many Western models.

China, India and the continent of Africa all have rising populations of over 1.3bn and a growing middle class in all three regions is extending their influence and reach on the global stage. This is increasingly providing direct competition to the West whose global dominance is coming to an end. According to McKinsey Global Institute analysis, the centre of economic gravity is moving East at 140km / year, back towards where it was over 1000 years ago.²⁵ The 21st century is therefore set to be the Asian century with Africa destined to play a major supporting role.²⁶ As this happens, several nations in sub-Saharan Africa will be gradually more influential as they transition to become major growth markets.²⁷

For healthcare this will result in:

- Greater competition for established Western brands in the future growth markets where 'Made in China' and 'Made in India' attract a premium and greater loyalty;
- More home-grown Asian and African innovation, much of it driven by 'frugal' thinking;
- The rising influence of non-Western cultures and approaches in many elements of society and business;
- New global players emerging from both China and India, many linked to technology: Despite resistance from some governments, firms such as Huawei, Tencent, Baidu, TCS, Infosys and HCL become increasingly embedded into multinational systems: and
- A recalibration of global expectation around who is leading and who is following as China becomes the preferred partner for many developing nations.

Four specific future shifts may have additional impact here: Affordable Healthcare, Rising US Costs, China Taking the Lead and Asia Setting the Standards.

Affordable Healthcare

Only a third of the world population has access to basic healthcare services. Increasing spend and the introduction of universal care is a priority for many but gaining tangible benefit in the short term is a major challenge.

Although it is now a \$10tn sector that is growing at around 5% per annum globally, two thirds of the world's population currently don't have access to decent healthcare – so improving cover for the majority is an ambition that is increasingly a priority for many emerging economies. As well as the UN and WHO, multiple regional actors are all seeking to have impact on rising costs. In India, healthcare spend is around 4% of its GDP; in China it is approaching 7%. Going forward achieving universal access is a major focus in many nations and an average of 5% of GDP spend is a common target. How many will follow the success of countries such as Thailand in introducing universal care within a decade is a source of debate - but the intent is clear.²⁸

It is worth noting that 5% GDP spend is still about half the average spend in the West where the challenge is to balance what is achievable and what is possible. In London one question was *“how will we bridge the gap between supercool innovation for the few and large-scale cost interventions for the many?”* Additionally, the escalating cost of healthcare is being further stressed by the need to look after the old and the chronically ill. In some countries there is a balance of public and private funding to support this but certainly not all. Allocating much over 10% of GDP to healthcare is seen as unsustainable by most nations so, over the next few years, hard decisions will be taken around budgets and priorities. The current UK policy is to try to reduce net healthcare spend per capita. It is the first major country to attempt this and many other nations are watching the outcomes with interest.



Comparing some of the markets we visited there is a wide range of current spend and impact. Although India only has an average life expectancy of 68 years from a 4% of GDP healthcare spend, in the US healthcare spend is now approaching 18% and life expectancy is around 78. By contrast, in Germany spend is just over 12% of GDP with an average life expectancy of 81, whereas in Korea and Japan, where healthcare spend is 7.4% and 10.9% of GDP respectively, average life expectancy is over 83 years. Australia is achieving similar success. As the costs of treating more chronic disease in increasingly elderly and growing populations in most countries have additional impact, future projections of what is affordable healthcare will continue to be a pivotal fiscal and political issue. With costs globally on the rise, many are expecting average public expenditure on healthcare across the EU to grow to around 14% of GDP by 2030. While this is significant, it is however dwarfed by what is underway across the Atlantic.

“How will we bridge the gap between supercool innovation for the few and large-scale cost interventions for the many?”

Rising US Costs



In the US discussions on public healthcare spend are linked to taxation - so there is little incentive to change. Healthcare costs will continue to grow but the organisations that profit most come under mounting scrutiny.

With a healthcare outlay of twice the average of other developed countries, the US is spending around 18% GDP on health and there are few signs that this will level off any time soon. In both Washington DC and New York discussions, leading experts suggested that most of this will continue to be private expense as *“government spend is increasingly linked to taxation - so there is little incentive to change the status quo.”* Indeed, in San Francisco, there was little confidence in the government’s ability to provide necessary healthcare services even if, in the unlikely event, it did have more funding. Certainly, both state and federal governments seem unwilling to invest more in healthcare. And yet costs continue to grow. As a consequence of this, health insurance, funded by individuals and companies and not government, will continue to bear the load. Looking ahead, as the financial burden of healthcare therefore escalates, many expect *“there will be a growing emphasis on more value-based healthcare and outcome-driven pricing”* and that the *“payers will increase pressure on healthcare providers to reduce costs.”*

How these pressures are applied may not be the same across all areas of healthcare. For instance, although hospital treatments can be very expensive for Americans, the pharmaceutical sector is frequently highlighted as a major source of high-margin cost to the health system: In the US, *“pharma accounts for less than one sixth of the total healthcare spend but captures almost half of healthcare ecosystem profits.”* Despite the fact that it now costs well over \$1.4bn to bring a new chemical or biological entity to market, if some lobbyists for change get their way, as traditional margins are reduced, this *“imbalance of profit generation may not continue.”* Others suggest that it is not the pharma companies that capture all the

profits but rather a host of middlemen which all earn above 10% return on capital.²⁹ This will increasingly raise multiple questions, not just on what companies can charge for varied drugs in different markets but also on the level of price transparency. Some see the end of regional pricing focused on revenue maximisation and a move to a more centralised approach. Perhaps, as was suggested in New York *“as the EU brings smaller countries together to gain economies of scale that can drive down regional prices, US states may similarly seek to benefit from a more consolidated perspective.”*

“Government spend is increasingly linked to taxation - so there is little incentive to change the status quo.”



China Taking the Lead



With 730m Internet users, China is the “Saudi Arabia of data” providing massive amounts of rich information for new algorithms. Centralised population data access and huge investment support it in becoming the leading centre for AI.

Although Europe and the US has been at the forefront of much of the recent innovation in healthcare, many see that in an increasingly digital world leadership is fast moving to China. If ‘data is the new oil’ then, with 730m Internet users, China is now the “*Saudi Arabia of data*” providing massive amounts of rich information for new healthcare algorithms to experiment with. China’s huge population and less stringent privacy laws than some regions have already allowed huge tranches of patient data to be collected by local companies from a growing range of feeds. Moreover, unlike in the US where the healthcare market is fragmented across over 800 providers, in China, as in India, “*nearly everyone’s health data in increasingly consolidated and so provides far bigger, richer data sets for new platform development.*”

In a Shanghai discussion it was highlighted that “*all of China’s health data will be on one of three servers by 2020.*” In another China discussion the impact of the fast-growing number of Internet hospitals in enabling this was highlighted.

Complementing this, China now has world’s second largest portfolio of AI companies. Beijing is the leading centre for innovation and boasts nearly 400 AI companies - a hundred more than both London and San Francisco. Over the past decade, the number of AI based US patent applications from Chinese companies has doubled. Within healthcare, as it seeks to build a full ‘digital life ecosystem’ iCarbonX is just one of the Chinese firms having global impact: It is one of the fastest growing in the sector with over 300m customers already in the mix. Aiming at a target \$200 for an AI generated full personal profile, it “wants to know everything about your body.”³⁰ ICX sees that “it can make a major contribution to preventative activities and

“All of China’s health data will be on one of three servers by 2020.”

bringing down the cost of health care globally.”³¹ Other Chinese companies of note include We Doctor and PingAn. Founded in 2010, We Doctor has connected over 2,700 hospitals, 220,000 leading doctors, 15,000 pharmacies and 27 million monthly active users to provide intelligent data synchronisation, decision making and appointment tracking. Integrated AI uses the available medical information including previous treatments of patients to produce highly sensitive systems that give highly accurate diagnoses.³² PingAn, the world’s largest insurance company, has developed AI to predict the likelihood of a patient suffering from a specific chronic illness even before physical symptoms are present, as well as systems to accurately identify infectious diseases in advance.³³ Moreover, it’s facial recognition software can automatically calculate a customer’s body fat percentage and feed that into the algorithms determining insurance premiums. With these and others growing fast, as was stated in Sydney “*as China extends its reach, it will build momentum across deep learning and predictive analysis and most probably lead global innovation in this area within the decade.*”

“As China extends its reach, it will build momentum across deep learning and predictive analysis and most probably lead global innovation in this area within the decade.”

Asia Setting the Standards



Significant new approaches for global healthcare will emerge from Asia. In India the scale of the Aadhaar platform is driving integration and innovation while elsewhere the deployment of micro-insurance is improving access.

Those who are primarily China-focused sometimes fail to see the healthcare innovations elsewhere in Asia, and most notably in India. Often characterised as a nation of cheap generic drugs and frugal innovation, global healthcare delivery disruption is however emerging here at scale. For example, over the past decade Devi Shetty's Bangalore based Narayana Healthcare has become the posterchild for innovative surgery, delivering cardiac operations at global standards for less than \$2000. Narayana is now taking high-profit business from the Western leaders treating patients sent by the US and European health systems. At the same time India and other nations across SE Asia such as Indonesia and Thailand are looking at fundamental shifts in funding options – for example by developing micro-insurance platforms to enable the majority of the population to have cover *“for a few Baht added to their mobile phone accounts”*.

However, most current attention is being focused on the implications and opportunity from the implementation of Aadhaar - the national integrated data platform - and the ability to access the whole of India's population's data in an instant. The view in Mumbai was that *“we have a volume advantage and can move at scale”* and that *“with Aadhaar we are data-rich with easier mapping.”* Looking ahead multiple health care start-ups, many in Bangalore and Pune, are variously connecting millions of patients, providers and doctors; using AI for breast cancer screening; developing wellness platforms; disintermediating prescription services and undertaking highly accurate testing in oncology, gynaecology and fertility. These, like other Indian companies before, are scaling to 100m users within 12 months of launch and will set completely new standards for healthcare efficiency. As more join existing India multinationals with major ventures across the West, their influence may quickly spread internationally. Some see that, although China is initially setting the standards for China, India may be setting them more rapidly for many other regions.

“With Aadhaar we are data-rich with easier mapping.”



Healthcare Leadership Implications

There is a clear and dominant shift eastward economically, technologically, innovatively and also by user. Organisations and individuals need a shift in their focus, management and leadership to engage with this shift to capitalise on opportunities.

Cultural issues are particularly significant in cross-border mergers and partnerships. One solution is simply to recognise the differences, show flexibility and work hard at developing a unifying set of values and perspectives. Common systems and integrated objectives can help achieve this. As a leader for the present and future, it is valuable to consider the following questions:

- How effectively do we address emerging market needs?
- How can a leadership team based in the West ensure they understand and work well with stakeholders in Asia and Africa?
- How is the organisation perceived in different markets – what are the dominant issues?
- How can we make a strong connection between these needs and the growth of data and AI?
- Are people prepared for doing business in an environment or culture different to their own?
- How do we prepare to lead a new generation of leaders and patients with new needs?
- How do we adapt to fast-moving new markets with newer needs?
- Are we agile enough to evolve in time?







Trend Four: Prevention and Wellness

More advanced, personalised diagnostics align with growing societal and political pressure to drive the much called-for shift to proactive prevention in preference to expensive cure of disease.

Way back in 2005 the World Health Organisation noted that 80% of all cases of heart disease, stroke and diabetes are preventable.³⁴ Today, looking ahead a commonly agreed aspiration is for *“personalised, off-the shelf treatment with a major focus on prevention not cure.”* Many consider that a broadening influence of predominantly Asian cultures and a growing public appetite for disease prevention will align with new science and more policy support to facilitate a shift in our approach to healthcare. Some see this is also driven by *“a fundamental engagement with and re-interpretation of traditional Eastern principles across a broader portfolio of treatments”*. At the same time progressively ageing populations and the rise in chronic disease in many regions, will all push the need for health systems to move toward both prevention and cure. Policymakers will need to take seriously the design of health interventions and treatment as a powerful influence on the uptake of healthy behaviours. With dependency ratios rising in most countries, several suggest that *“we need a greater focus on health-span and not just life-span.”* Driven by the better understanding of an individual’s genetic predisposition, new diagnostic technologies will, many hope, lead to more preventative therapy. Some believe that better genetic profiling will eventually reveal *“a gradual, non-linear move from reactive medicine and treatment to the delivery of preventative medicine that means we will have cheaper, faster and more effective healthcare”*.

As prevention and wellness moves from niche to mainstream, some key implications include:

- Supporting patient engagement when they are healthy before they become sick: *“If people are going to change their behaviour and attitudes to health there has to be a clear, impactful ambition.”*
- Integrating a meaningful, more holistic view of wellness across the full range of healthcare providers. *“Wellness is increasingly a combination of psychology, physiology and spirituality – far more than traditional medicine.”*
- Changing the value proposition and business models of traditional pharma companies while recognising that, for a time, payers must simultaneously fund a shift in the health systems that *“need to ‘double pay’ for a generation.”*

Many are now suggesting that shifting the focus of care from sick care to health care will be driven by a combination of Proactive Wellbeing and Early Intervention.

“We need a greater focus on health-span and not just life-span.”

Proactive Wellbeing



Mass consumer engagement focused on making healthy choices easier is aligned around shared targets and more localised integrated care models. Systems become more proactive, comprehensive and continuous.

Effective prevention involves creating conditions which make healthy choices easier. A more proactive approach to wellbeing is therefore being called for by many. Much of the future attention here will be on the non-communicable diseases driven by lifestyle behaviours, but others effected by the environment are growing in importance and potential impact.

The growth of the prevention agenda is strongly linked to an alignment of mass consumer engagement and a shift in business models. Prevention efforts can be completely undermined when the population is not convinced of the need to change. Effective prevention therefore also needs to change minds so that new laws are seen as an aid to better health rather than a hindrance to lifestyle choices.³⁵ Supporting this is a modification in language from a largely technical disease vernacular to also include such elements as longevity, mindfulness and inner balance. At the same time several experts considered that, to be effective, wellbeing will need to be *“driven by hard-hitting partnerships across food, exercise, health literacy, policy and incentives.”* These should move from the current high-end, sometimes luxury positioning, to more low-cost mass-engagement – *“similar to what has changed behaviour around smoking and drink-driving.”*

As well as united public and private sector targets, at the core of envisaged change is a more engaging and holistic view of health literacy which may well be developed in partnership with others in the wider healthcare arena - such as food manufacturers and insurance companies. Furthermore *“the role of ambassadors, coaches and celebrity influencers of mainstream opinion”* should not be underestimated. Without a joined-up approach many see that the benefit from proactive prevention could be limited.

In parallel with this, many also advocate that a more localised integrated care model is adopted. As envisaged in a workshop in Frankfurt, there will be *“a growing decentralisation of support to smaller facilities within communities that are focused on walk-in consultation and treatment, while complex operations become more centralised in larger hospitals that are individual centres of excellence.”* So rather than every district hospital offering a wide range of care and surgical interventions, treatments are grouped into more regional centres with higher levels of diagnostic and support capability. These will be all aligned to the primary areas of need and determined by increased analysis of personal and public health to aid speed and accuracy of prediction. At the other end of the spectrum, changes in how local support is provided are evolving. In Seoul's Gangdong district, health counselling centres based in the community rather than in healthcare facilities have, for instance, been attracting large numbers of citizens and having a measurable, positive effect on health indicators. If business models, behaviours and support services can indeed all align around preventative healthcare then, as the WHO envisages, by 2030 health systems will become *“proactive rather than reactive, comprehensive and continuous rather than episodic and disease specific and founded on lasting patient-provider relationships rather than incidental, provider-led care.”*³⁶

Elective Prevention



Equipped with greater understanding of individuals' genetic predispositions and new intervention technologies, we proactively vaccinate and undertake minimally invasive surgery to reduce the need for major treatment in later years.

As patients become more informed, especially through wider adoption of genetic profiling and more research about health behaviours, prevention and health literacy, *“they will be more empowered to take some bold decisions.”* Experts in Brussels felt they will better understand the long-term consequences and implications of their health conditions and so there is mounting corresponding desire to reduce the need for major interventions.

Within this is a rising opportunity to choose minimally invasive surgery informed by improved diagnostics. Linked to a growth in more robotic and computer-aided surgery, it will become more acceptable for patients to voluntarily have a simple procedure 20 years or so ahead of potentially major surgery. Many see that earlier intervention will become the norm and Angelina Jolie's elective mastectomy is a common early reference. Moreover, with the potential for tissue regeneration, foetal tissues engineering and 3D printing of organs, some in Frankfurt even considered that *“proactive transplants could be occurring within the decade.”*

But it will not just be about surgery. There is much faith too in the success of research and a change in the emphasis of business priorities within the pharmaceutical sector undertaken in partnership with payers such as national health systems. Although there is still work to be done on eradicating malaria, TB and HIV, significant progress has been made with therapeutic cancer vaccines and future potential targets include addiction, diabetes, hypertension and Alzheimer's disease.³⁷ A leading recent achievement has been in the adoption of the HPV vaccine which “could lead to the end of cervical cancer.”³⁸ If the 20th century saw

vaccines used to eliminate many acute infectious diseases, then the 21st is seeing research take on the challenge of developing vaccines for chronic infectious and non-infectious diseases.³⁹ With an increasing focus on earlier, lower cost interventions – many of which will be vaccines, some see that preventative healthcare *“will add pressure to the current ‘artificially high’ level pricing of some drugs.”* Consequently, several in the pharma sector feel that over the next few years *“there may well be a fundamental mismatch between the value propositions of prevention and cure within some regulatory jurisdictions.”*

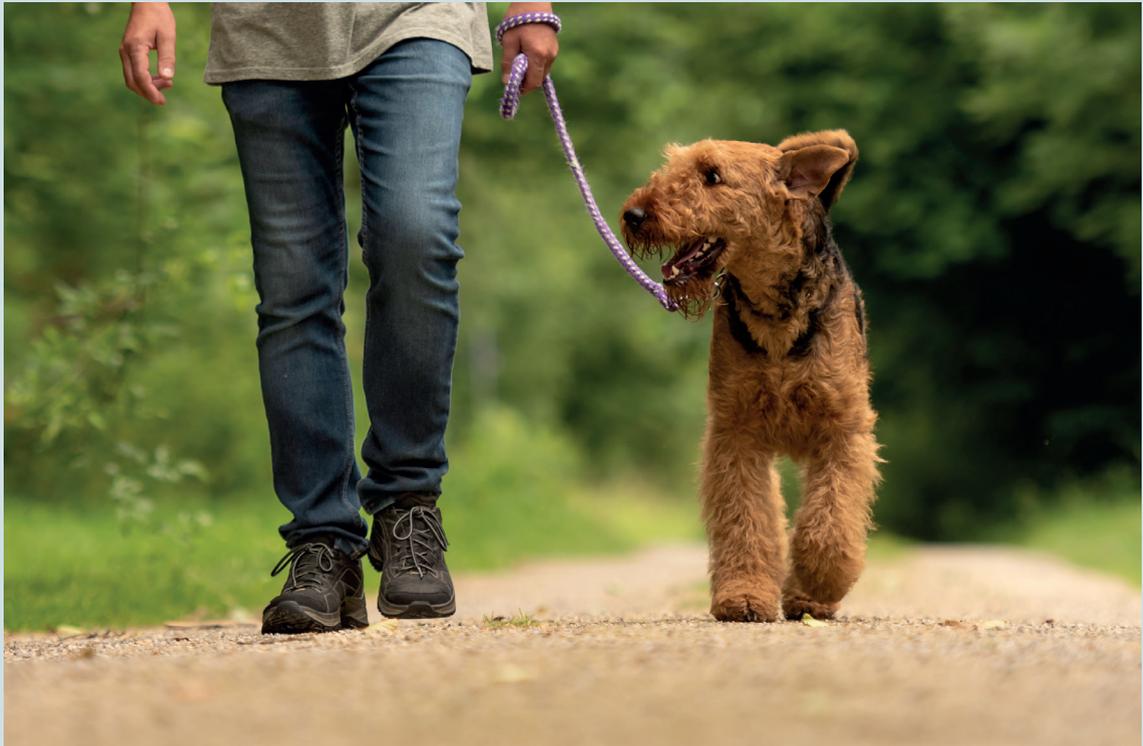
“Proactive transplants could be occurring within the decade.”



Healthcare Leadership Implications

There is a clear shift in focus to proactive prevention of disease and illness as well as personalised 'cure'. Proactive action, early, will reduce the need and impact on healthcare and providers, as well as improve the long-term health of patients and customers. As we saw in the first trend - the rise of big Data and AI – data is everywhere and must be capitalised on for growth and market capitalisation. As a leader for the present and future, it is valuable to think, consider and address the following issues:

- How do we become more advanced to support preventative healthcare and long-term wellness?
- How do we lead for a different future and needs?
- How do we understand and adapt to emerging and developing trends?
- How do we address disruptions quickly?
- How do we become sufficiently innovative to get ahead of customer and industry changing needs?







Trend Five: Increasing Patient Centricity

There is a step-change in the volume, quality and ownership of a broadening portfolio of individuals' health data. This enables a transformation of healthcare to become more personalised and effective.

New regulations are driving a shift in the ownership of data so that individuals have the option to control their data while at the same time becoming more informed about its use. Patients will therefore gain significantly more access to information about their own health as the momentum behind greater personal focus and empowerment grows. An increasingly broad and integrated range of datasets, including more device and proxy data, will enable them to see, control and share clinical and personal information with platforms and organisations that they trust. As patients become more aware of their role in maintaining their own physical and mental health, providers and payers will seek to move to build more direct, personal relationships with them. Many we spoke to advocate that *“more detailed, personal information will generate better health outcomes.”* However, as information becomes decoupled from traditional medical professions, and “Dr Google” is progressively more sophisticated and trusted, organisations across the healthcare sector will be obliged, some reluctantly, to make more data available that was previously seen as proprietary.

“More detailed, personal information will generate better health outcomes.”

Future innovation and change in this area will stem from:

- **More regulation around access to and management of personal data.** While initially resisted, the success of GDPR and allied principles in Asia and California are gaining widespread support with many nations now calling for a GDPR-lite or like approach;
- **The advent of third-party personal data managers and privacy agents.** With platforms such as digi me gaining traction in more countries, a plethora of services will emerge that allow consumers to gather their personal data and share it with organisations on their terms;
- **New business models such as on-demand health insurance.** Cover available by the hour, community-based collaborative self-insurance and dynamic pricing of treatment will intersect with greater customer centricity and the growth of the self-insured employer market;
- **Big data providers using apps to make health visible and disintermediate value chains.** With over 120,000 health apps already on the Apple iOS platform and 325,000 on Android, the availability of patient data is rising exponentially and much of it will be available for analysis outside traditional health companies; and
- **A corresponding loss of control of individual and aggregated data by payers and providers.** As a consequence, many will be forced to partner with big-tech on non-favourable terms.

We see three main shifts here that will potentially have impact. They are Patient Autonomy, Individualised Medicine as well as Trust and Transparency.

Patient Autonomy



Increasing access to more personal data allows empowered individuals to take more informed views. As health knowledge is decoupled from the professions, the public self-diagnose and are proactively specific about their needs.

“Patients will have the legal right to their medical records when they request them.”

Access to better data will allow individuals to be *“more informed about their personal health - but not necessarily more knowledgeable.”* As clinical information is decoupled from expert systems and combined with other data sets, including that from a broadening range of wearables, the public will become more specific about their current and future health needs. The general consensus is that in most nations *“patients will have the legal right to their medical records when they request them”* and therefore will be able to get access to everything that physicians and payers can see. *“They will be able to opt-in and out of data sharing and be able to correct errors.”* Patients will thus become more ‘empowered’ by having greater access to more and better information about their health and so will be able to make more informed decisions about their lifestyle choices. As more personal data will, in turn, enable more bespoke healthcare, so, the argument goes, this healthcare can become increasingly tailored to the individual – addressing their behavioural needs as well as their genetic predispositions.

However, if made available to key trusted parties within health systems, this increasing volume of self-reported and device-driven data will also allow for the development of more person orientated approaches for treatment. The healthcare model may shift from a system focus to a patient focus aligned to the information that is progressively available about and to individuals. In principle, therefore, as they are equipped with a burgeoning volume of information about their conditions, citizens will be increasingly empowered and encouraged to adopt more healthy lifestyles. In Norway it was proposed that this will *“drive individual responsibility and accountability that will deliver positive change.”* Systems will correspondingly be restructured to make best use of electronic records and the associated patient data which is shared across a wider portfolio of services that can then be aligned around the patients’ needs.

Yet, with more patients self-prescribing and relying on automated diagnostics, healthcare professionals are progressively faced with changes in both information asymmetry and status. As patients move to the centre of many metrics and are *“more health-literate and increasingly empowered”* a cultural change may sweep across many areas of medicine raising some big questions, particularly for doctors, insurance and the pharma sector. *“When a patient comes in equipped with online analysis and convinced that they have a brain tumour, persuading them that it is only a headache is increasingly challenging.”* But equally, *“if a patient has set their mind on particular brand of drug, there will rarely accept an alternative.”*



Individualised Medicine



The prospect of more individualised ‘n=1’ healthcare is accelerating. Predictive analytics and genetic profiling will transform medicine, but over the next decade the benefits are not for all - just a lucky few.

It has long been argued that predictive analytics and genetic profiling will transform medicine. The prospect of more individualised ‘n=1’ healthcare is now clearly accelerating and has been of particular interest in multiple discussions. A good number of those experts we spoke to see that within the next decade, *“truly bespoke, targeted healthcare at the n=1 level will be available – but only for those where governments, organisations or individuals can afford to pay.”* However, even at a broader population level, many believe that precision medicine allowing decisions, treatments, practices, or products to be tailored to small groups is a realistic ten-year ambition. Many anticipate great progress in genomic insights, gene editing and the development of more bespoke drugs tailored to the individual’s DNA. The development of genome and proteome technologies will open the door to the creation of more personalised drugs. We are certainly already seeing a steady rise in the number of ‘personalised medicines’ available in key markets with individual diagnostic tests now being offered for thousands of genetic orders. The question is how long will it take for the full impact to be delivered? And will the benefit be primarily for the wealthy? In Johannesburg the outlook was that personalised medicine will simply be too expensive for the majority so, in poorer regions it will be a *“niche in healthcare”* and *“for the next decade will only be for the wealthy and the rich economies.”*

In addition to improvements in the healthcare service the widespread use of DNA data is expected to significantly reduce the cost of care. As the price of genetic profiling is dropping quickly how well we use the associated information raises a number of questions. From a negative view, there are, for example, concerns about who is gaining the

greatest financial value from the data. On a positive side with more investment in the sequencing of genomes, such as with the UK’s Biobank programme, many foresee a better understanding of *“genetically defined”* diseases that will aid the development of more focused drug discovery, diagnostics and testing. This will enable medicines to be made specifically for patient groups. As understanding of the molecular base increases, we can breakdown diseases into sub-diseases and so better treat them and even identify as yet undiagnosed conditions. But how should that information be managed by individuals, employers, insurers, healthcare providers and governments?

Looking ahead, most expect that at first individualised medicine will be concentrated around specific fields, such as oncology, and that proof of impact there will then drive wider adoption: *“Technology will improve, and prices will drop. Medical advances will mean that the market will grow and the ability to improve prediction and manage our health accordingly will increase.”* But there are also reasons to be cautious. In San Francisco it was pointed out that *“15 years ago, we were talking about precision medicine which was not delivered – now it’s called individualised medicine - maybe we have just changed the name.”*

“Truly bespoke, targeted healthcare at the n=1 level will be available – but only for those where governments, organisations or individuals can afford to pay.”

Trust and Transparency



As the pressure to be trusted becomes a priority some will seek to address the problem by being more transparent. However, sharing more information with patients can be confusing and does not replace being trustworthy.

“There is a need to recognise that data is not truth, it just presents information in different ways,”

The Future of Healthcare

A Trust really is a major factor in healthcare – perhaps more than many other sectors. Patient trust gives a doctor freedom to diagnose and a surgeon the permission to operate. However, the sheer amount of accessible information and how we now use it is re-shaping the way we trust and make decisions. The internet has played a major role here - democratising knowledge - and social media has realigned who we trust from traditional institutions and individuals with accredited knowledge to peer groups or communities. Conflicting views create confusions on who best to trust particularly around health issues, – is it the local doctor, articles found on Google, the filter bubbles on Facebook or, as questioned in a London workshop, *“is it Gwyneth Paltrow or NICE?”* This is affecting the relationship between payers, providers and patients. *“Is trust always balanced against value”* was another comment. Even in a Shanghai discussion some felt that *“the nature of how trust relationships are built is changing.”*

As the pressure to be trusted becomes a priority for both new and established organisations, some will seek to address the problem by being more transparent – within the constraints of security and privacy policies. In the past, privacy concerns and analogue data capture meant that much clinical data was opaque and open to interpretation only by the few. Now it is becoming not only better connected and more transparent, but, in aggregated datasets, also more usable by the many. However, while exciting for many, this by no means is a solution to the overall problem. As was mentioned in Madrid, *“There is a need to recognise that data is not truth, it just presents information in different ways,”*

Some, such as physician and author Eric Topol, consider that we are entering “a new era in trust and transparency.”⁴⁰ As initiatives such as Open Notes give US patients the ability to review their patient records, they build expectations for more visibility and *“increase patient activation and engagement.”* However, sharing more data about your company or its products in a desire to be open is not always effective - too much information can be confusing. It does not replace being trustworthy. Building and maintaining trust will increasingly become the primary future focus for many healthcare providers. In Bangalore opinion was that *“there will be business models that are trustworthy – we just haven’t seen them yet.”*

Insights and Implications from Multiple Global Discussions

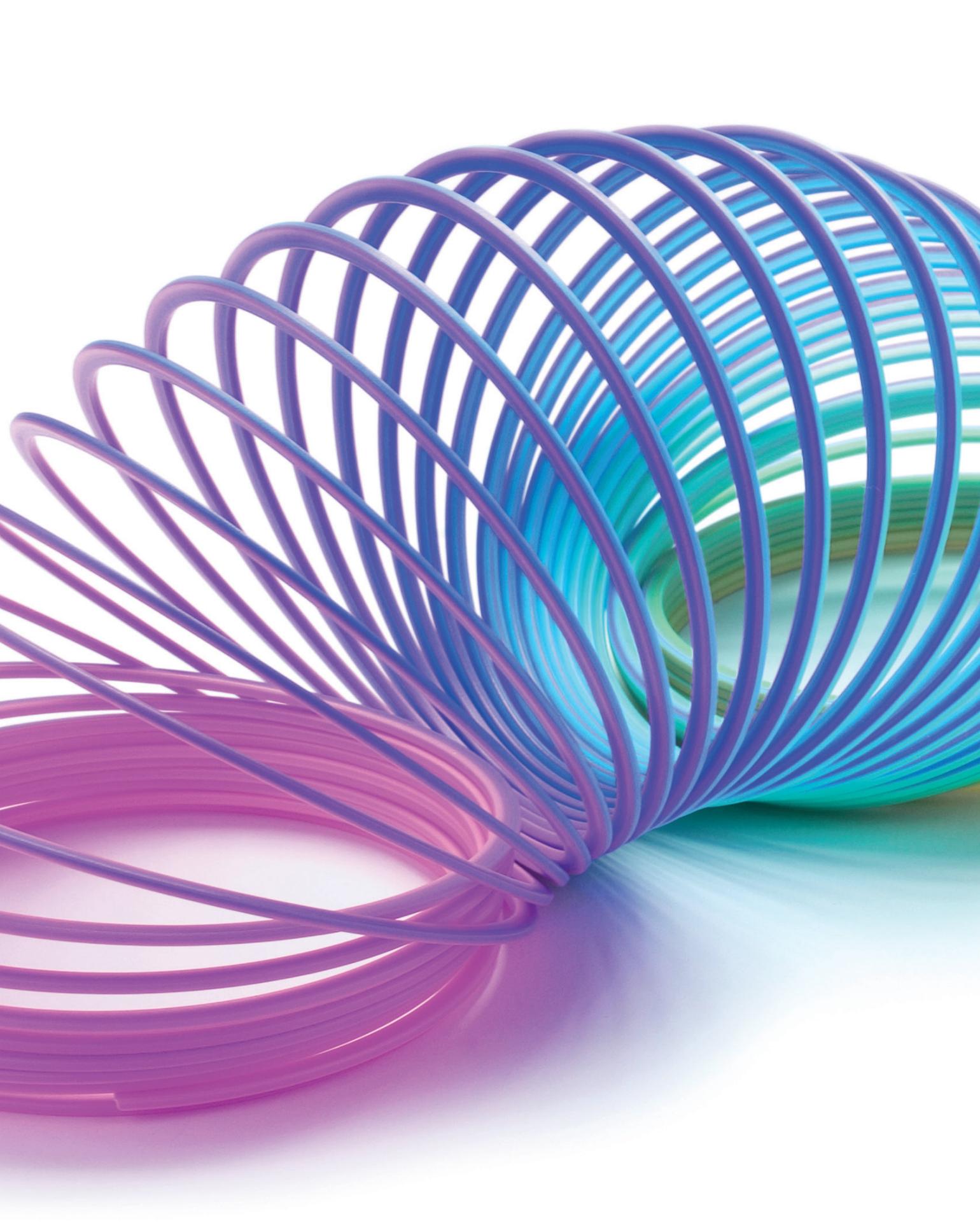


Healthcare Leadership Implications

Patients are at the heart of health and healthcare for now and the future. Combined with this is the availability of vast quantities of data, with ever increasing quality. This provides huge opportunity for individuals to have personalised and effective healthcare – organisations that are able to capitalise on this while demonstrating moral fortitude and data security will flourish. A new approach and mindset is needed to be a leader in this increasingly patient-centric world. As a leader for the present and future, we recommend addressing the following key issues:

- How can we adapt to allow patients to access their data for our benefit?
- How do we capitalise on reputation for data transparency and safety?
- How can we engage with patients, routinely and in the most convenient and effective ways?
- How will we react to a break in trust over data?
- How do we demonstrate capability and develop trust?
- How do we innovate to ensure data and patient security?
- How well do we understand what patient centricity means in practice – not only for the patients but for our people and systems?





Trend Six: Flexible Organisations

New forms of flatter, project-based, collaborative, virtual, informal organisations come to dominate key sectors including health – much is enabled by technology and an increasingly mobile workforce.

Healthcare organisations are already building new staffing models such as supporting remote working for nurses. Over the next few years these will evolve to be the norm and there will be less direct employees per firm: If the current trajectory continues, the top 10 companies in 2030 will be worth twice as much as in 2020 but employ only half the workforce. Simultaneously the professional ‘gig economy’ will grow to account for 50% of some working populations with India and the US at the fore. As the potential employment pool expands to include both ‘on and off-balance sheet talent’ the workforce, workplace and the purpose of work are all set to change. As such, the nature of employment and the role of the organisation blurs: Many of those we consulted agree that *“the future of the company is as much in flux as the future of work itself.”* Successful organisations of the next decade will be increasingly flexible – in structure, and in focus and in business model.

Faced with multiple new sources of competition, more established organisations are striving for faster decision-making and action. With the speed-to-scale progressively shortening for start-ups and corporate ventures alike, building momentum quickly and sustainably around key opportunities becomes a priority. The ability to respond to challenges, pivot around new business models and, within the constraints of a corporate entity, flex both size and focus for greatest strategic impact is therefore destined to become a core source of differentiation for many. This will affect the healthcare as much as everyone else.

For established companies this raises several challenges:

- How is talent retained once an individual’s capabilities become attractive to the wider market? Is the role of the ‘first’ employer to prepare employees for a portfolio career? Does continuous learning become the responsibility of an employer or the employee?
- If corporate boundaries are porous, is it possible to control intellectual property? With over half the workforce of some major companies now contractors and freelancers, all working on a project by project basis, how does the organisation build, retain and protect the corporate know-how?
- Moreover, how do you become the ‘organisation worth working for’ in the Gen-Z mindset? When every company is competing to be simultaneously purposeful, trustworthy, flexible and cool, how does one stand out from the crowd to appeal to an increasingly choosy talent pool?
- And, what will be the unique skillsets that the future company will have to nurture internally? If more capabilities are out-sourced or provided by expert freelancers, what will be kept close to the heart of the organisation – strategy and research maybe, but what about HR, finance and operations?

Driving the organisational changes in healthcare are two key associated issues – rapidly growing Workforce Automation and the need for Deeper Collaboration between firms.

“The future of the company is as much in flux as the future of work itself.”

Workforce Automation



Emerging technologies create new jobs but also render others redundant. Much automation across healthcare allows for greater patient focus and helps augment many roles, but other systems compete with humans.

With faster technology change and the 4th Industrial Revolution building traction, many anticipate an impact on jobs - creating new ones but rendering others redundant. In some sectors, capturing the opportunities associated with the broad range of emerging technologies could be a significant driver of GDP growth in many economies over the next decade. Within healthcare, escalating automation is however raising tension between achieving greater efficiency and the organisation and societal impacts of this. Robots are already performing surgery; AI advisors are supporting GPs; pattern recognition technology is out-performing radiologists.

Debates on the augmentation vs. replacement of jobs is already present in many discussions on the future of surgeons, radiographers, pharmacists and GPs: earlier this year Philips reported that more than 80% of the daily tasks handled by doctors from blood pressure and glucose monitoring to genomics and temperature will soon be done exclusively by technology systems.⁴¹ These are thereby allowing highly trained resources to focus on the more valuable, patient-facing activities. In South Africa we heard from several doctors that *“a core need was to reduce screen time and that the hope was that new platforms could allow them more time for face to face interaction with the patient.”* In London where the typical GP / patient appointment is 10 minutes, moving to a point where half of this time could be away from a screen would be seen to be major progress. In India and China, many doctors have a mere two minutes per patient, and so the impact of AI driven services such as the Ada chatbot platform for diagnosis and prediction will be pivotal.

More automation is, for example, coming to the increasingly digital operating theatre. This is even having an impact on the role of a surgeon. Experts we talked to in Frankfurt believed that, although for the foreseeable future at least, *“surgeons will still be in the mix, but they will act more as supervisors than active participants - ready to step in if needed.”* Effectively their role will become similar to today’s airline pilots who watch autopilot systems fly ‘their’ planes. With machines undertaking the majority of the technical tasks, skilled humans are on hand only to manage unexpected turbulence and emergencies.

“Digital innovation is supporting and augmenting workers, but not yet replacing them.”

Over the next few years the introduction of new automation tech will grow and spread occur across areas of healthcare from research to sales as many traditional roles are replaced or reinvented for the digital economy. Providers will “increasingly seek new opportunities for augmentation and automation in clinical workflows.”⁴² Today *“digital innovation is supporting and augmenting workers, but not yet replacing them,”*. As AI, robotics and cognitive systems all develop and intelligent agents and robots compete with humans, many organisations will face the challenge of balancing effectiveness and impact with the need for human interaction.

Careful policy planning is necessary. A recent WEF Future of Jobs report is cautious about the impact that new technology may have.⁴³ It pointed out that “these transformations, if managed wisely, could lead to a new age of good work, good jobs and improved quality of life for all, but if managed poorly, pose the risk of widening skills gaps, greater inequality, and broader polarization.”

Deeper Collaboration



Major health challenges are addressed by global groups of diverse stakeholders built around increasingly non-financial incentives. Partnerships shifts to become more dynamic, agile, long-term and multi-party collaborations.

The time when one company alone could develop scalable solutions is fast disappearing and, with major issues to address, even traditional cross-industry partnerships are unlikely to have the resources and reach required. Addressing some of the big profound future challenges will rely on deeper and wider collaboration that will no longer be driven solely by intellectual property and value considerations.

According to Philips, over 40% of the Fortune 50 companies have been pursuing major healthcare partnerships for at least the past 5 years.⁴⁴ As more firms enter the health sector, many of the big challenges of healthcare may be best addressed through partnerships which shift to become more dynamic, long-term, democratised, multi-party collaborations. *“New competitor alliances and wider public participation will drive regulators to create new legal frameworks for more open, empathetic collaboration.”* But, reconciling the need for companies to work together globally and locally will also involve making compromises, and we may see a fundamental shift in how we measure success – away from GDP, profits and market share towards a more holistic perspective of progress. As part of this, and key for many working in healthcare, the residual approach to intellectual property creation, ownership and trading is increasingly seen as more of a barrier to collaboration than an enabler. For example, those advocating the Open Pharma movement believe that innovation will occur faster and with wider impact if all know-how is open source.

“Greater collaboration in the future will drive many companies to re-organise themselves to be based more on social networks than traditional functional or business unit silos.” This will change the structure of collaboration as well as the platforms upon which it operates. A range of stakeholders across health ecosystems will see the need to collaborate around a whole-life approach to funding and delivering health care. This means bold partnerships that bridge barriers. The government of Singapore is leading in this area and is already joining together the departments of health, employment, housing, education and transportation on key projects to more easily encourage the adoption of healthier lifestyles by its citizens.

Within this, the role of public-private partnerships seems to be in ascendance in many regions. In India, discussions on improving healthcare, education, transport and food supply all highlighted the potential available when more efficient execution of government ambitions can be achieved through collaboration with faster moving and more flexible private companies. Elsewhere others see that developing public-private partnerships particularly for investing in prevention and wellness will also be key. As was highlighted in Budapest, *“going forward, big problems are seen to require completely different ways of thinking and co-operating and deeper, wider, more meaningful collaboration is for many an important part of the puzzle.”*

“New competitor alliances and wider public participation will drive regulators to create new legal frameworks for more open, empathetic collaboration.”

Healthcare Leadership Implications

Market-leading organisations, and their workforce in particular, are flattening and becoming more agile, working in an increasingly virtual and remote manner, all enabled by ever improving levels of technology. We are already seeing shifts in demographics and generations making informed decisions on their employers and providers of healthcare, health insurance and life cover.



After speed and imagination, flexibility is the third anchor that organisations need to leverage to compete successfully in the future. Embracing flexibility requires a mindset shift from a single planned response to understanding the major trends that are impacting a business and the opportunities provided by a complex, interconnected world. Organisations need to be nimble to compete with new players that have smaller, leaner teams, deeper pockets and different business models.

Leaders and organisations need to think differently about their staffing and partnership models to capitalise on individuals needs and drivers. As a leader for the present and future, it is valuable to address the following key issues:

- How does our leadership become agile and collaborative?
- How do we attract, develop and retain next generational talent?
- How do we become able to attract and embed 'non-traditional' talent?
- What opportunities does automation offer 'us'?
- What new business models can we develop for growth?
- What are the blockers to greater flexibility, and what are the drivers – what does it give us?
- What mindset shifts do we need to see in our people, to ensure greater flexibility?
- How do we become set up for, and known for, disruptive innovation?





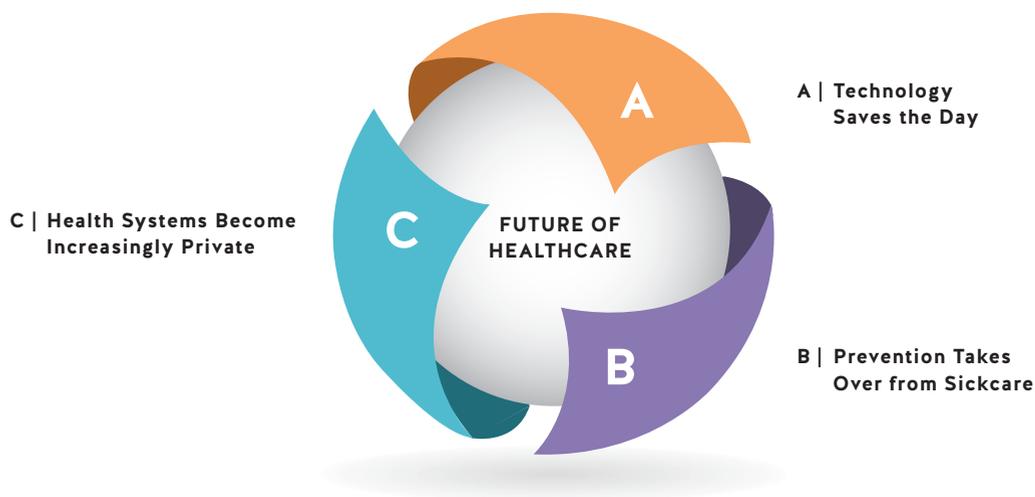
Three Future Scenarios

From the preceding summaries, we can see that there are evidently myriad potential shifts on the horizon for healthcare around the world. Many of the issues highlighted above have momentum behind them individually. However, it is also apparent that there are many interconnections, so progress in one area may well accelerate change in another - or equally offer an alternative future path. While we can, and often do, consider and debate the individual drivers of change in healthcare in isolation, there is often additional benefit in connecting several together to provide a more holistic perspective of how the next decade may play out.

Despite the uncertainty across the future of healthcare, it is therefore useful to collate some of the key options and possibilities ahead and to develop and interrogate a number of scenarios around how things may play out over the next decade. Each of these scenarios should be a credible perspective of how the emerging changes could become manifest around the world and across the varied fields of healthcare. They offer different futures about which we may have preference, and so advocate movement towards. However, as choice of preference of one scenario over another is not an option, in using them equal planning for each should enable us to be prepared for all outcomes.⁴⁵ Not all are necessarily of equal

probability in every region or system, but all are plausible. Organisations should use scenarios to stress-test their strategies and ensure that they can have the best combination of products, services and delivery options for all potential worlds in which they could find themselves in the next decade or so. We therefore propose three future scenarios for the future of healthcare.

These demand debate as a catalyst for consideration and challenge. The key characteristics of each are on the following pages:



A: Technology Saves The Day

The promise from increasing digitisation, automation and integration of healthcare systems bears fruit. We gain from more joined-up health systems and so both improve efficiency and reduce costs.

- AI and wider automation improve overall health system efficiency by 10 to 20% within a decade through significant reduction in back office and knowledge intensive tasks
- Cancer identification is significantly improved and leads to earlier intervention and treatment
- Genetic profiling, gene editing and bespoke treatment all align to enable more individualised medicine
- Smart homes, care-robots and wearables deliver step-change for in-home care for the elderly lengthening stay and delaying entry to hospices
- Big tech entering healthcare improves customer focus and reduces delivery costs through major economies of scale
- Individual patient responsibility for healthcare decisions increases - driven by greater and more personalised information provision
- There is a bridging of traditional data silos through more integration and alignment of systems and datasets that improve insight and impact tracking all leading to enhanced decision making at a system-level
- An expansion of tele-health, mobile-health and use of chat-bots for remote diagnosis and support reduces inefficiencies and improves access to healthcare

B: Prevention Takes Over From Sickcare

The widely called for shift to a preventive approach to health and wellness is realised by an alignment of change in regulation, payer funding priorities and mass citizen engagement for behaviour change.

- Citizens are incentivised to take better care of themselves, their families and friends
- Major payments and funding move from drugs to vaccines development and delivery with associated impact on business models
- Behaviour change is at the fore for many organisations with compelling large scale high-impact engagement driving action
- Integration of health, diet and activity across government policy and industry action occurs with competitor alliances delivering shared impact
- Regulation is increasingly used as a more proactive lever for healthier living including adoption of sugar tax, withdrawal of high fat options and reduction of alcohol consumption
- Cross sector partnerships between food, exercise, insurance and tech promoting healthier lifestyles to prevent illness come to the fore
- More sophisticated wearables are widely used for monitoring health and provide both proxy and clinical data to the health system as well as direct feedback to consumers
- Localised community engagement on health and exercise is prioritised with increased peer-to-peer support, influence of patient groups
- Cities, policy makers and health workers all collaborate to test new urban solutions that encourage more active lifestyles
- Smaller, distributed walk-in health centres are focused on localised diagnosis and support
- National centres of excellence for surgery emerge to provide consolidated mega-hospitals with associated reduction of local surgical provision

C: Health Systems Become Increasingly Private

With few immediate breakthroughs, public healthcare systems facing a funding crisis from growing, ageing populations take major steps to reduce levels of citizen cover and isolate and privatise risk.

- Systemic stress within 5 years leads to a major rethink of public healthcare provision in leading economies and identification of areas for increased privatisation to limit future costs
- Public spend on healthcare for 2030 is limited to 2010 levels
- Non-communicable diseases are responsible for the major of increased cost and liability
- Obesity becomes one of the primary public health issues, exposing public systems and the broader economy to substantial burdens
- We see the end of universal healthcare free at point of use in many systems and introduction of nominal co-payment to access for the majority of society
- Those who can pay, or co-pay, for treatment do so
- As the gap between the rich and the poor increases there is divergence in the level and quality of healthcare - health inequalities match income inequalities.
- Financial and cultural barriers impact the poor the most – especially those with low health literacy, poor education and low incomes – the old, the young and migrants are all impacted.
- There are limitations on the number of healthcare interactions per year for each citizen aligned to a maximum public expense limit
- Coverage for lifestyle diseases from diet, alcohol and inactivity is significantly reduced
- Medicare and Medicaid reimbursement in the US is reduced
- The US government targets drug reimbursement at European levels with greater price transparency
- Healthcare insurance and provision is increasingly commoditised
- End of life care migrates to private hospices funded, wherever possible, by patient assets
- There is a growth in social discourse on changing policy towards euthanasia for the terminally sick
- Deployment of large-scale micro-insurance systems in major economies via mobile partnerships scales
- Decision-making on high cost drugs for public healthcare systems is increasingly transparent
- We see wider renting of aggregated, anonymised public health data sets to private organisations



Issues for Leadership

The issues facing leadership have never been more complex or exciting, offering huge opportunity for organisations and individuals. As we have seen through discussion of the six trends for the Future of Healthcare, there are interlinking priorities and trends, with the ever-increasing impact of technology, digital, AI and automation capability shifts all connecting with external market shifts and changing patient expectations.

At its heart, delivering for individuals, customers and communities are the matters facing leaders and leadership. Without these, there is a limited future and those who are able to address these topics will survive, capitalise and succeed.

The most significant issues for leaders are summarised briefly below.

1. The leadership implications of continuing technological development

The rise of technology continues to be transformative and nowhere more than in the healthcare sector. However, even here, the greatest issues facing leaders are not technological, operational or financial; they are human-centred. Highlighting this point are the leadership and innovation challenges arising from the intersection of data, technology and fast-developing trends. In particular:

- What are the data driven disruptors facing leaders and organisations, how do we as leaders ensure we understand, predict and capitalise upon these current and future disruptors?
- How can we capitalise upon the new data in a thoughtful and trustworthy manner which empowers customers and employees whilst respecting sensitivities around data transparency, storage and management?
- How can we use our expert organisational and individual knowledge to drive and lead innovation for the greater good?
- How can we capitalise on technological advances to create a workplace of the future that attracts and retains the best and the brightest?
- How can data and technology be combined with empathy and an understanding of the changing context and needs to address key issues – for example, the changes resulting from by urbanisation and climate change?
- How can we use data and technological advances to support and drive development of wellness and prevention? Are we positioned correctly to enable this?

2. Talent and changing markets: leading in the new normal

People with the mindset, ability and resilience to thrive in the evolving global healthcare industry are at a premium. They need to be identified, developed, encouraged to build, share and shape the future, and stimulated so that they fulfil their potential. Achieving this in practice requires a

rational, consistent process that clearly engages with each individual's intelligence and their ability to learn and develop. Two other elements are also important: the heart (the need to appeal to a person's passions and intrinsic motivation) and the hands (the ability for an individual to take what they know and control and shape it). Building an environment that encourages these three elements simultaneously and across cultures is a significant, ongoing leadership priority, and one that is indispensable for success. Focusing on some of the issues highlighted below will provide a useful place to start:

- What can we as leaders do to address the shifting focus of both buyers and organisations as they shift East?
- How do we attract and retain talent that understands working in an Asian marketplace?
- How do we learn to understand emergent and emerging markets, their needs, their leaders and their customers?
- How do we extrapolate the need to work with increasing agility using technology?
- Do we understand how our employees and purchasers are changing currently and into the future? If we don't understand them, how do we lead them and our organisations?

These two big meta changes are creating a significant shift in the needs of leaders and organisations. Leaders need to be aware of these and others, surrounding themselves and developing the best talent available so they are able to predict, shape and adapt to changing markets.

A final thought for senior executives working in healthcare who are leading their organisations into the future: to grow and thrive in today's volatile world, organisations must be more agile, adaptive and able to accelerate. Of course, this requires leaders to demonstrate flexibility and mastery across a range of issues – from strategic orientation to customer and patient centricity, operational excellence, and the skills and mindset to orchestrate world-class performance. Above all, succeeding with the challenges outlined in this report requires leaders to develop real clarity about the implications of these shifts and trends, to display curiosity, compassion and courage, and to develop a strong connection with the people and communities they serve.



Further Information

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Future Agenda

Future Agenda is an open source think tank and advisory firm. It runs the world's leading open foresight programme, helping organisations to identify emerging opportunities, and make more informed decisions. Future Agenda also supports leading organisations on strategy, growth and innovation.

Founded in 2010, Future Agenda has pioneered an open foresight approach bringing together senior leaders across business, academia, NFP and government to challenge assumptions about the next ten years, build an informed view and build robust growth strategies focused on major emerging opportunities. We connect the informed and the influential and help to drive lasting impact.

Within healthcare, since its founding Future Agenda has been partnering with leading organisations globally and driving change. As well as designing and running the numerous expert workshops held around the world that inform this report, additional specific tailored support has been provided to multiple healthcare providers, insurance firms, pharmaceutical companies, government and start-ups in three main areas:

- Strategy Development - Working with leadership teams to challenge assumptions, identify emerging growth areas / potential risks and so define and refine ambitions.
- Advisory Input – Providing insight, context, connections and feedback on future priorities for companies seeking to enter new markets and pre-empt disruption.
- Proposition Development – Collaborating with internal teams, research and external organisations to develop major high impact growth platforms for the future.

Duke Corporate Education

Today, exponential change and complexity are stretching organization and leadership models to their breaking points. So, what's next? As business challenges become more intractable, they are also demanding more collaboration and stronger leadership. The demand for leaders and leadership to solve these new kinds of problems is greater than ever. We need a new kind of leadership — the kind that can transform and reshape organizations through rapid experimentation, build in more agility, connect and engage people and infuse more creativity and energy.

Duke Corporate Education (Duke CE) is here to help leaders get ready for this challenging but exciting future — for what's next. Duke CE designs and delivers experiences that activate learning and transform leaders at all levels so they can be catalysts of transformation in their organizations. Transforming leaders today requires more than new knowledge. Achieving the results you want requires adopting new models, approaches, perspectives and mindsets, while also letting go of old ones. With offices in Africa, Asia, Europe and North America, we have a global footprint and diverse set of clients that enable us to bring unique insight to new situations and create and deliver high-quality educational solutions anywhere in the world.

Duke CE has worked with numerous clients in the healthcare industry over the years. For example, Merck recently collaborated with Duke CE on the General Management Acceleration Program to develop leaders who could see, understand and manage the whole business. Duke CE, in partnership with Dignity Health Global Education, also developed the Nurse Leadership Program to equip nurse leaders to make a positive impact on their organizations. The course encourages nurses to build their confidence, knowledge and practical skills to guide their teams, departments and organizations successfully into the future. The Financial Times has ranked Duke Corporate Education in the top 3 in custom executive education globally for 19 consecutive years.

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