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# Covid: The Spark for Change

## Investing in digital health post-Covid



Thanks to broad adoption of mobile computing and advances in technologies such as wearables and artificial intelligence (AI), we were already witnessing the beginnings of a revolution in healthcare pre-Covid (see Mangrove's earlier report *Healthcare Reimagined*).

With healthcare rapidly pivoting to a digital-first delivery model, for many in the industry the crisis has now provided a glimpse into the future. The systemic inertia that plagued the industry has seemingly fallen away as organisations are forced to consider how AI will redefine their business, opening up a truly vast opportunity for innovators across the sector.

The corporate market for digital health is also expected to grow rapidly as businesses play a much larger role in supporting their staff. With depression and anxiety disorders costing the global economy an estimated US\$1trillion each year in lost productivity, the corporate market for AI-driven mental health solutions looks set to explode.

Meanwhile, the ever-rising disparity between the Covid containment achievements of basic track-and-trace in Europe and those countries in Asia that have deployed Big Data means that Western governments may be forced to review their privacy-first approach—with significant ramifications for the technology industry.

This report will explore these key themes in the burgeoning digital health sector with supporting insights into consumer attitudes post-Covid.

## Unleashing innovation in healthcare

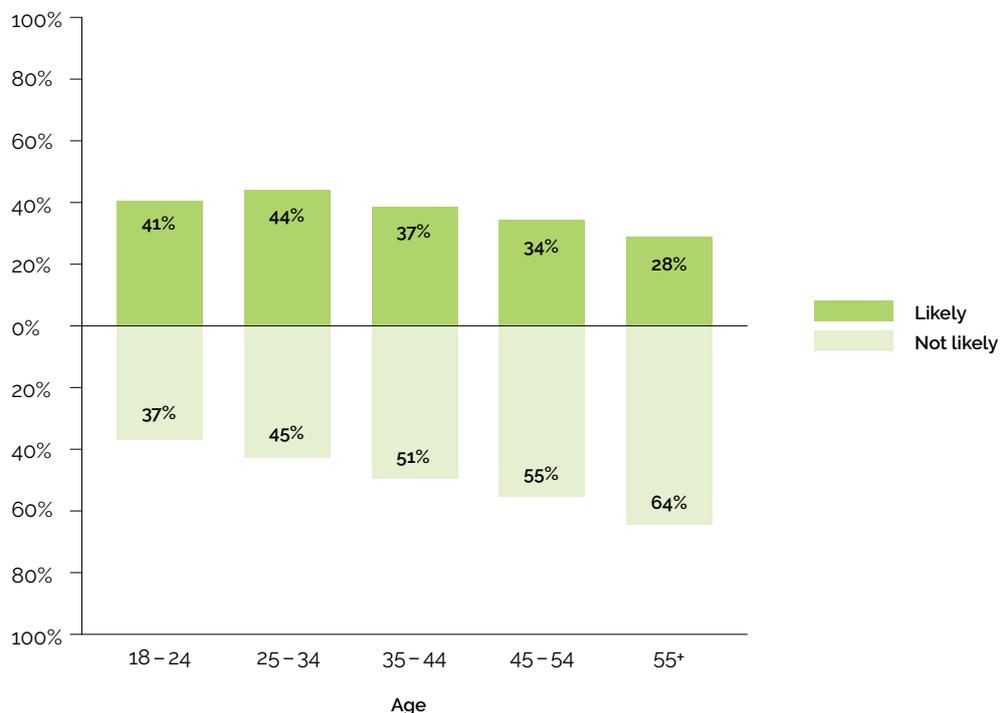
With the majority of consumer-facing industries evolving at a rapid pace over the last two decades, the sleepy advance of healthcare has been ever more apparent. This huge sector—which is expected to make up 19.4% of U.S. GDP by 2027—is characterised by inefficient processes (fax machines!), disconnected patient experiences and ever-rising costs. Paralysed by systemic inertia and conditioned by cultural thinking, it has failed to initiate any meaningful reform despite clear evidence that change is needed.

The Covid-19 pandemic has, almost overnight, forced the healthcare sector to reinvent its age-old bricks and mortar model of treating illness and disease. As well as switching to remote consultations, healthcare providers have launched at-home testing and patient monitoring services. And faced with huge increases in patient traffic, they have been forced to deploy automated symptom-checking and diagnosis tools.

This digital-first model of healthcare has so far proven to be highly effective. Data from NHS Digital showed that in April 2020 72.8% of appointments were delivered either on the same day or the day after they were booked, up from 48.6% in February—the month before lockdown measures were imposed. And according to the British Medical Association (BMA) nine out of ten GPs want to carry on delivering consultations remotely after the coronavirus pandemic has ended.

With healthcare providers benefiting from efficiency gains and patients now enjoying the convenience of at-home healthcare, 'remote-everything' is here to stay. Indeed it is also clear that many consumers are open to further digitisation of healthcare. According to research by Mangrove, a third of UK adults would now be likely to consider using an automated service or 'robot doctor' for a routine health check-up or advice for a minor health issue. This rises to nearly half (44%) of 25 – 34 year olds.

### Likelihood of using an automated intelligent health system via a mobile phone



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But the impact of the pandemic may prove to be far more profound. For many in the healthcare industry, the crisis has also provided a vision of the future—a new reality in which digital underpins every interaction, vast amounts of data are captured and processes are automated. Amid a rapidly evolving landscape and with tech giants such as Amazon entering the sector, incumbents are rapidly appreciating the importance of taking bold action. The majority are now planning new digital offerings, but the most forward-thinking organisations are considering how AI will redefine their core business.

While telehealth is the most obvious beneficiary of the pivot to digital services, the pandemic has in effect set in motion disruptions to long established value chains and business models right across the sector. As well as improving the patient experience and driving efficiencies within healthcare organisations, AI and Big Data will radically change everything from medical research and primary care to drug development and psychological therapies.

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***“The pandemic has demonstrated that healthcare needs to be remote, intelligent and scalable. We now have an opportunity to create a healthcare system that works for consumers and learns from the data.”***

Allon Bloch, Co-founder and CEO at telehealth company K Health

## The post-Covid mental health crisis

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As well as inflicting considerable physical harm and well over a million deaths around the world, the pandemic is also having a huge impact on mental health. According to a report from the World Health Organization (WHO), we now face a looming mental health crisis with a likely upsurge in the number and severity of mental illnesses or depressive disorders.

Many people are distressed by the immediate health impacts and the consequences of physical isolation, while many others are afraid of infection, dying and losing family members. And millions of people are facing economic turmoil, having lost or being at risk of losing their income and livelihoods. Frequent misinformation and deep uncertainty about how long the pandemic will last are also making people feel anxious about the future.

Pharmaceutical companies had already been showing considerable interest in digital therapeutics (DTx)—software-based interventions that are proven to have a direct impact on an illness or disease—in this field. As well as making treatment far more accessible for patients, DTx create diversified revenue streams for pharmaceutical companies at a much lower cost (as software can be distributed much more efficiently than medicines).

DTx will also give pharmaceutical companies access to data they've never had before, which can be used to manage side-effects, drive better R&D and improve patient adherence to treatment.

**According to the World Health Organization estimates as of 2020, more than 264 million people of all ages suffer from depression.**

But businesses will also have to play a role in supporting the mental health of their staff. Many of those working from home have found it isolating. Social connections underpin our working lives and with a vacuum in regular feedback from managers and colleagues, staff are at greater risk of anxiety. Many workers have also struggled to manage their work/life balance and may be at risk of burnout.

The impact on productivity is staggering. Even before the pandemic mental health problems at work cost UK economy £34.9bn annually, according to Centre for Mental Health. Meanwhile a recent WHO-led study estimates that depression and anxiety disorders cost the global economy US\$1trillion each year in lost productivity.

According to research by Mangrove, of those UK adults working from home around a third of respondents were not satisfied with job fulfilment (31%), career progression (32%) or teamwork and social connections (31%) during the pandemic. Furthermore, a third (33%) have not been satisfied with their mental health since working from home. The research also found that nearly a third of UK workers believe their employers are doing too little

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***“We are in the midst of a pandemic and, as a result, all employers need to be in the healthcare business in some shape or form.”***

Mark Tluszcz, CEO at Mangrove Capital Partners.

## The post-Covid mental health crisis

to support the mental health of their staff, rising to 40% of workers aged 18–24.

New technologies are now emerging to help businesses manage mental health risks. These include AI company Yva.ai, based in Silicon Valley, which uses a combination of behavioural analytics and personalized surveys to detect the first signs of frustration among workers—up to a year before a resignation. This technology gives businesses an opportunity to provide

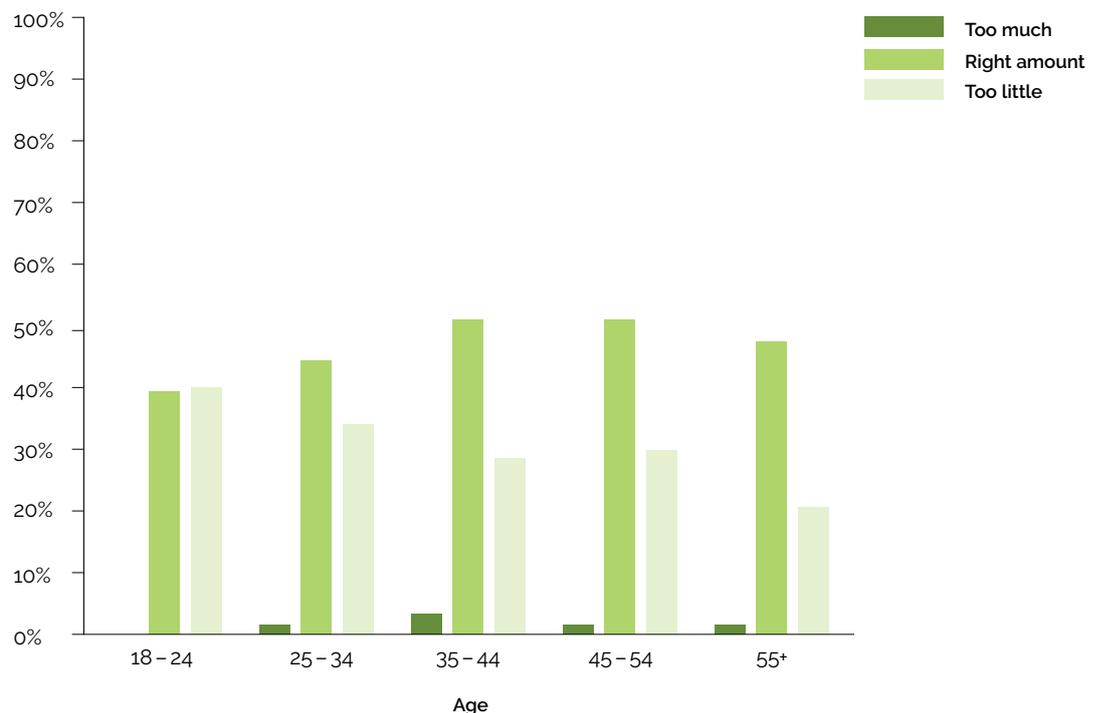
the necessary support before a deterioration in wellbeing or burnout in order to optimise productivity and staff retention.

According to data Yva.ai collected from its corporate customers, during the lockdown workers felt their efforts were more likely to go unnoticed, that cooperation and teamwork had decreased and that their ideas were less likely to be adopted and put to use.

*“We’ve seen an acceleration both in demand and adoption of Yva.ai during the pandemic. Corporates are extremely concerned about the mental health implications of working from home as the pandemic ignites a lot of stress for most employees. Those consequences are especially important if formal or informal leaders are affected by stress.”*

Marta Leman, SVP, Yva.ai.

**Do you think your employer is doing enough to support the mental health of their staff?**



## Track-and-trace

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In the absence of a vaccine and without any sophisticated tools for limiting the spread of the Covid-19 virus, governments were forced to deploy the sledgehammer—enforced lockdowns. Widespread testing and contact tracing have long been billed as the best route out of the pandemic in the short-term and digital contact tracing has certainly proved remarkably effective in Asia.

Taiwan, located off the coast of mainland China, was expected to be hard hit by the coronavirus. However, thanks to its use of Big Data and rapid response, it recorded just a few hundred infections in the first half of 2020. Taiwan used the GPS locations of passengers aboard the cruise ship *Princess Diamond* to track their movements throughout Taiwan in order to determine with whom they had been in contact. Everyone who had possibly been in contact with one of the passengers was placed in a 14-day quarantine to eliminate the virus.

Using Big Data and AI, we could dramatically improve our understanding of the virus and accelerate our way out of the crisis. This technology can analyse vast data sets and rapidly 'connect the dots', uncovering crucial information and patterns that would otherwise be hidden from view. It is already widely used in industry to improve decision-making and accelerate problem-solving—for example by banks to detect fraud and by healthcare companies to identify potential risk factors for disease. It could help governments eliminate emerging outbreaks with the precision of a surgeon's knife and remove the great fog of uncertainty that is clouding their judgement.

Experts believe GDPR rules on data privacy are flexible enough to accommodate emergency measures provided adequate safeguards are put in place—such as anonymising the data or deleting it within a specific timeframe. But a lack of technology expertise, misunderstandings around data privacy and a deficiency of will have severely limited the scope of track-and-trace solutions.

The leading economies of Europe have so far only launched privacy-first apps that simply alert users if they come into close contact with anyone known to be infected. They provide no data or insights that could help governments identify virus outbreaks, places of risk or dangerous behaviours. These apps are also entirely dependent on individuals to self-report symptoms and, if necessary, to self-isolate.

Governments could learn from the cyber security industry, which is highly adept at managing the spread of viruses in the digital world. Indeed, cyber companies are now applying their technology to contact tracing, to help businesses protect employees and company processes as offices reopen.

With governments in Europe still unable to control the spread of the virus, they may yet be forced to review their privacy-first approach. Faced with a choice between economic catastrophe and a temporary expansion of the use of personal data, our research shows that most people would opt for the latter.

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***“Businesses urgently need insight and granular detail about the impact of the virus on their people and processes. We are encouraging our clients to utilise all the data at their disposal, including data they’ve never looked at before. They need to look ahead, look back and look at everything. Pulling together all possible data drives better decisions in times of crisis.”***

Jan-Kees Buenen, founder and CEO at SynerScope

## Attitudes around data sharing

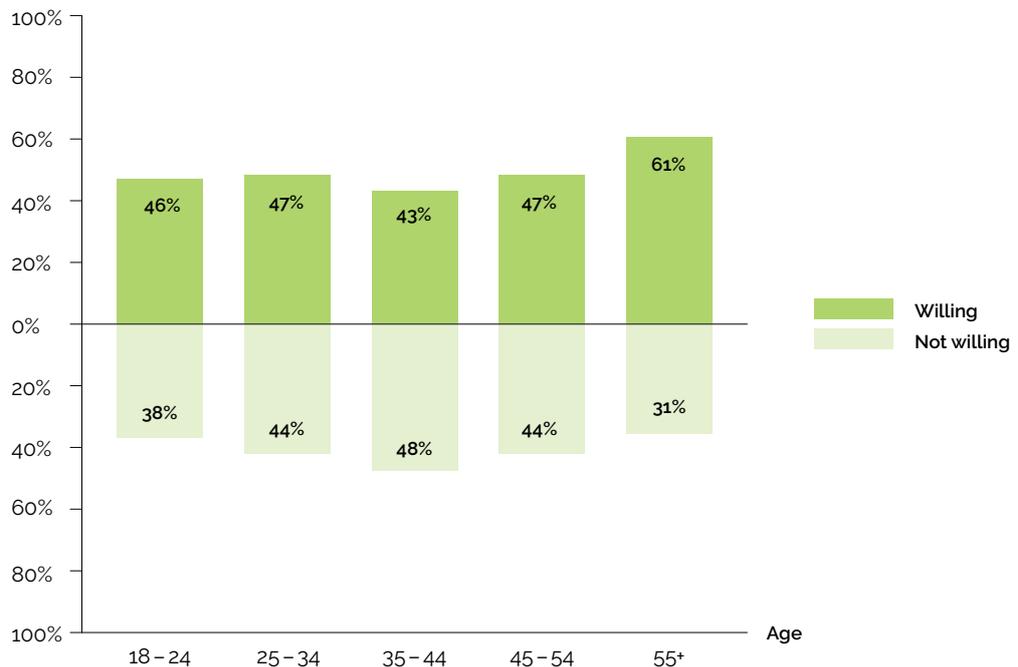
Mangrove conducted our own research to explore attitudes around data sharing for the purpose of track-and-trace. According to our poll, over half of UK citizens would be willing to share their mobile data with the UK Government for a limited time period, if it helped to stop the spread of Coronavirus. This would provide a vast treasure trove of data to authorities which could be used to trace virus expansion and take swift and precise remedial action.

Interestingly, the research also found that those aged 55+ were most open to data sharing with 61% willing to share

their mobile data compared to 43% of 35 – 44 year olds.

The research also suggests that the Government could drive uptake of data sharing with a few simple steps. According to the survey, around half of respondents would be encouraged to share their mobile data with the Government if clear guidance was given on how the data would be used and for how long, if they were reassured that the data would be deleted after the pandemic or if the data were anonymised so their identity would be protected.

### How willing would you be to share your mobile phone data with the UK Government for a limited time if it helped stopped the spread of Coronavirus in the UK?



### What would encourage you to share your data with the Government during the pandemic?

**52%**

Clear guidance from the Government on how the data will be used and for how long.

**51%**

Reassurance that the data would be deleted after the pandemic.

**47%**

Anonymising of mobile data so the identity of the public was protected.

**41%**

Having helpful tools that warn of potential infection hotspots.

**22%**

Nothing would encourage me to share my data with the UK Government during the pandemic.

## Investing in Health Tech

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It is a common misconception that clinicians are best placed to build digital health startups. The basis for this assumption is that only clinicians fully understand the unique complexities

of the industry. However, history has shown that industries are not reinvented by incumbents. And just like any other industry, we believe that healthcare will be revolutionized from outside not from within.

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### Mangrove Health Tech Conviction Ten

At Mangrove we are backing the outsiders that are radically reimagining the industry. We are currently investing in early stage businesses in the following fields:

- 1 Telehealth
- 2 Womens' health
- 3 Mental health
- 4 Digital therapeutics
- 5 Health at work
- 6 Personal health management
- 7 Non-surgical anti-ageing
- 8 Digital twin technology
- 9 Voice-enabled digital therapy
- 10 Digital contact tracing

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*The research featured in this report was commissioned by Mangrove Capital Partners and conducted by YouGov. The sample size was 2,086 adults. The survey was carried out online. The figures have been weighted and are representative of all UK adults (aged 18+).*

## About Mangrove Capital Partners

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Mangrove Capital Partners ([www.mangrove.vc](http://www.mangrove.vc)) is Europe's leading early stage venture capital firm. It works with top entrepreneurial talent at the earliest stages of innovation, with the aim of being the first institutional investor: the firm has

co- created projects and regularly injects funds prior to product launch, often in unproven, unusual or unfavoured technologies. Mangrove manages more than \$1 billion in assets and is headquartered in Luxembourg with offices in Berlin and Tel Aviv.



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