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Life Science in the era of pandemics
Part 3: The great
telehealth experiment

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The great telehealth experiment

Integrating new technology systems into large institutions is notoriously difficult even when it is carefully planned. So how has the rapid roll-out of telehealth during the pandemic altered the risk landscape?

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Before the pandemic struck, healthcare information technology, or telehealth, was already gaining a firm foothold around the world, but COVID-19 has fast-tracked and consolidated its adoption into mainstream healthcare. When the virus took hold and face-to-face appointments became risky for patients and healthcare workers alike, the telehealth sector was there to provide solutions. In the blink of an eye, doctors' appointments were delivered by video, electronic prescriptions became widespread and triage went online. The speed of the pivot to digital services shows that it was not access to technology holding healthcare providers back before.

French telehealth platform Doctolib provides a snapshot of how much this market has grown in 2020. Between January 2019 and February this year, the company hosted just 100,000 video consultations. But between March and August that figure reached 4.5 million.

Aside from the convenience it offers many patients, telehealth has also been creating efficiencies within healthcare systems themselves as specialist services get accessed via video links. "In the UK we're seeing the breaking down of some silos and National Health Service Trusts beginning to figure out how to loan resource out and also receive it, either within or outside their boundaries," says Alex Forrest, Head of Life Sciences – Overseas General, Chubb.

Alongside the roll-out of telehealth in day-to-day care, the technology has been central to strategies for fighting the virus. Contact-tracing apps have attempted to contain the spread of COVID-19, albeit with mixed success. While in France, patient-monitoring app Covidom helps track the condition of people with less serious forms of the virus from home. Patients submit data on indicators such as breathing, heart rate and temperature and the app raises the alarm before a person's condition becomes critical. This supports patients but also keeps less severe cases out of hospital, preserving vital resources. Covidom builds on years of remote monitoring for conditions such as diabetes, kidney disease, a range of mental health conditions and heart failure using home-based tools and apps.

The cross-section of applications for telehealth found during the pandemic hints at the sector's breadth and potential. Indeed, the global healthcare information technology (HealthTech) market is expected to grow by $43 billion between 2020 and 2021 alone, according to Markets and Markets.

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The compatibility challenge

Getting different technology systems to work together effectively can be difficult

With new technologies integrated rapidly during the pandemic, data management failures are a major risk
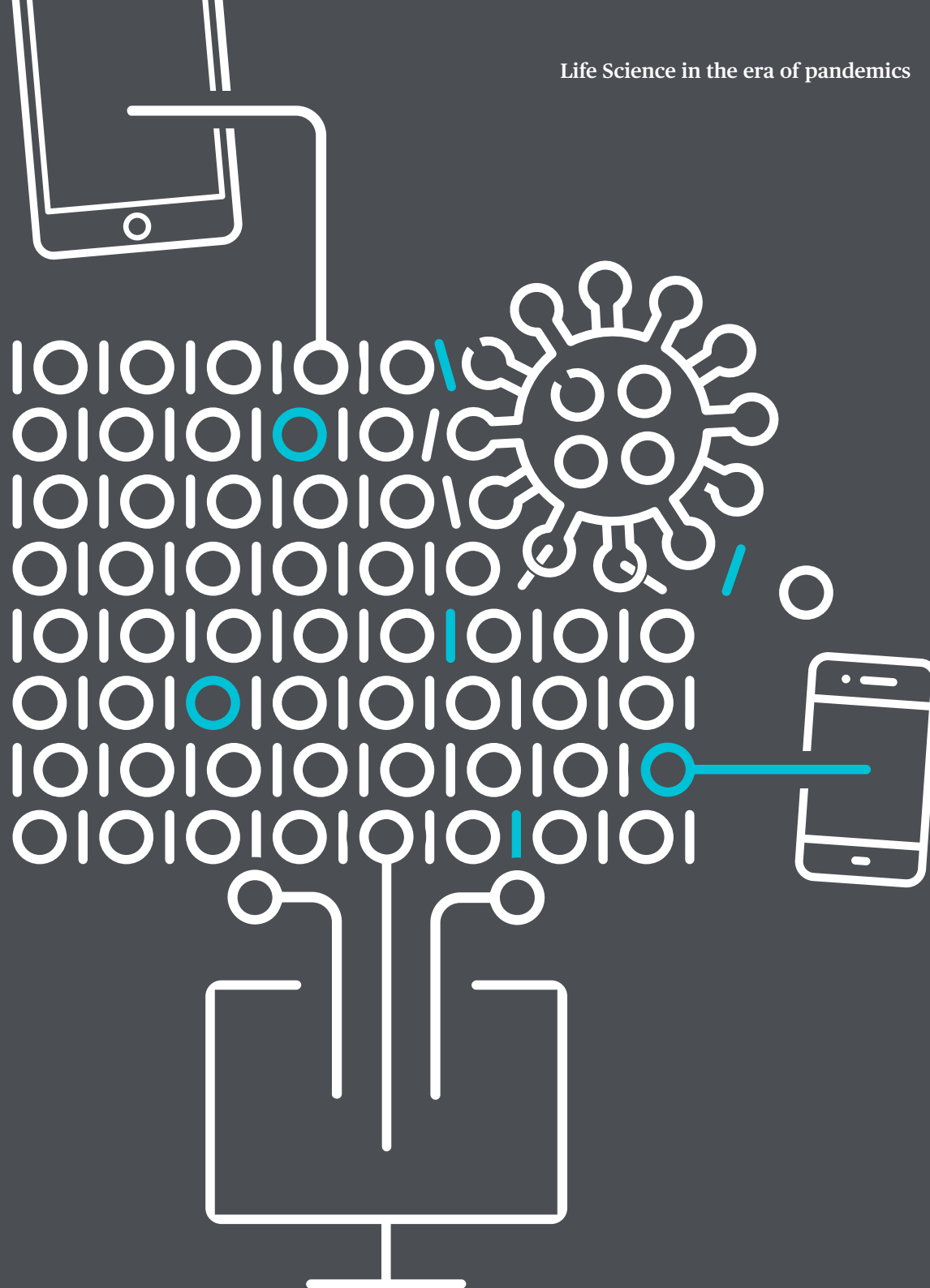
23,000

The number of IT systems used across England's health and social care network

▶ However, the context of telehealth's rise to prominence means that systems have not been integrated as carefully as they would have in normal times. "Some of the procurement barriers have come down for the technology to be adopted at short notice into healthcare systems," explains Forrest. Where large-scale IT projects ordinarily take years to implement, the adoption of telehealth happened in a matter of weeks and months, albeit building on an existing foundation.

All systems go

"After injuries to people and data breaches, I think the biggest risk is managing the healthcare data and making sure the right judgments are being made on the right data," says Forrest. The interoperability of data from one technology platform to another is one major data management concern arising from the rapid roll-out. "Sometimes those wires just don't meet and that can lead to either an incorrect decision or the halting of a process that, when it comes to healthcare, can be quite serious," says Forrest.

Across England's health and social care network alone there are 23,000 IT systems running within 20,500 organisations. Layer on top of that complexity the rapid integration of new telehealth systems and processes and there are bound to be teething problems.

The data itself can also pose problems. "You're only as good as the data that goes in. Simple things like date format reversals can cause issues. Look at the recent spreadsheet issue in the UK and running out of columns. A simple thing that shouldn't have gone

wrong but did," says Forrest, referring to an <u>incident</u> where nearly 16,000 coronavirus cases were missed out of official statistics because of a spreadsheet error. "Those things can percolate when people don't understand how to put the data in correctly. Suddenly what could be a great system turns into a very mediocre one, just because usage of the system isn't perfect."

As remote monitoring of conditions such as diabetes becomes more of a feature in healthcare, how data is used by individuals making clinical decisions also needs to be fine-tuned. "It's not necessarily the case that physicians are having training to interpret data that's coming in at them, and it's specialist data that they need to deal with quickly. It's very important that physicians have data analysis training," says Karishma Paroha, Senior Associate at law firm Kennedys.

Alarm fatigue is another challenge for physicians. "Alarm fatigue is a well-known problem with medical devices in general in hospitals with doctors and nurses becoming desensitised to them," explains Forrest. "Telehealth will drive more data and more alarms, and into the patient's hands not just the doctor's. We've got to plot a course through that via liaison between the healthcare and technology providers, providing feedback and getting the sensitivity of that device to the correct level."

As telehealth becomes more embedded in health systems over time, jurisdictional law issues could also arise for healthcare providers. "You could be in India receiving medical advice from South Africa, if that's where the best ophthalmologist lives," explains Paroha. "But the treatment that's advised to you via telehealth ▶

$43bn

Projected annual growth in the HealthTech market to 2021

▶ might not have been approved in the country where you're going to receive it. People also travel around a lot and could be receiving medical advice from the UK, for example, while they are in France. Going forward there are going to be all sorts of complex governing jurisdiction and law issues that need to be figured out."

Tech risk exposure

From the point of view of technology and health tech suppliers, many are providing software, products and services that enable their customers to maintain the confidentiality, integrity and availability of data and information systems.

Privacy and data breaches are heightened exposures due to the processing, transmitting or storing of patients' non-public personal information or private health information (PHI). Consideration should be given to what sensitive information the company holds, how sensitive the data is and whether there are adequate access controls and protection (encryption) of all sensitive information and mobile equipment. There is a rapidly changing regulatory environment and companies need to be mindful of GDPR compliance and reporting.

Another risk is errors and omissions (E&O) claims resulting from breach of contract (products and services not working as expected or delays, for example). That is true in normal times, but especially when contracts are drawn up under time pressure.

"Healthcare projects exceeding 18 months' development timeframe represent an enhanced exposure for technology companies," says Helen Troman, Head of Technology Practice – Overseas General at Chubb. There are several common causes of project breakdown on the client side, including the healthcare provider not setting out their requirements clearly, not knowing what they really want or their requirements changing over the course of a long contract. On the supplier side, overpromising on the contract or inadequate resourcing are other common causes of breakdown.

"We're talking about large contracts, usually with the government or large institutions, and that dynamic means there's a lot of pressure on delivery. It's also a very new field so promising what you're going to deliver can be tricky," adds Forrest. "Designing systems that operate with each other is probably the biggest risk for companies."

One area of particular focus at the moment is healthcare triage as a way to save resources and try to deliver quicker and better outcomes. "That's where software has come in to create a quicker pathway for patients through digital triage," says Forrest. "However, we've seen companies fail where it hasn't been done in a safe enough way and the insurers or healthcare companies using them have lost faith."

Documenting the contractual terms and conditions between the healthcare provider and the technology company is key to mitigating E&O risk. "When it comes to a claims scenario, the contract is that first line of defence and if things aren't clearly documented or changes aren't captured in the contract agreement, that can cause problems," says Troman. ▶

The risk of errors and omissions claims is higher when contracts are drawn up under time pressure

Common causes of contract breakdown include:

- The healthcare provider not being clear about what they want

- Requirements changing over the course of a long contract

- The supplier overpromising

Artificial intelligence
is better than doctors at detecting certain cancers

▶ With telehealth such a growth area at the moment inadequate resourcing can feed into E&O exposure. "One of the biggest things we see is that people take on more work when they don't have the right resource, whether that's number of people or skillset gaps," explains Troman.

Future telehealth

The pandemic has undoubtedly accelerated digital transformation on a massive scale through one big practical experiment. "Now we're going to go into a process of trying to figure out what works and what doesn't," says Forrest. "Once we've pulled back out of the pandemic era, I think a lot of people will go back into GPs' rooms, and healthcare might return to a more normal position, but some things will stick. Conditions such as diabetes and regular prescriptions I think will be managed remotely because people don't really want to go into their doctor's for something that is just ticking over."

Ultimately, Forrest believes technologies that improve four factors will be successful in the long term: access to healthcare, cost, quality of care and patient experience.

But the telehealth we have seen rolled out during the pandemic is just the start in terms of the sector's full potential. As we move forward, one of the big themes is new technologies giving individuals a greater role in their own healthcare.

"We're becoming more accustomed to taking care of ourselves," says Paroha. "There's a huge increase in focus on mental health and wellbeing, particularly during lockdown, and at the same time we are increasingly able to manage our own health using smartphones and smart devices. In parallel with that is the concept of bespoke healthcare and using connected devices to serve individual patient needs, conditions, diagnosis and treatment."

Forrest thinks this trend will mean more hardware being sold into homes. "Everyone's looking at their health right now and what they can do to improve it. It is a huge psychological shift for a lot of people, but there's going to be some hardware out there that is going to provide a significant level of healthcare data for individuals to manage."

Paroha highlights that the Food and Drug Administration in the US has cleared a mobile ECG monitor. "Within a few seconds you can print off your own ECG to your smartphone," she explains. "We're all going to be taken with it but there will be risks associated with that mystery and excitement as well."

Artificial intelligence

With so many connected devices and so much advanced technology producing data, human judgment will be more important than ever. This is particularly true in relation to artificial intelligence (AI). "The machines are getting so good at diagnosis that there is a concern over whether they are too sensitive. You might get a positive test during a cancer screening, for example, but that doesn't necessarily mean that the cancer's going to develop," says Forrest, referring to the issue of overdiagnosis.

Some detected cancers do not lead to sickness or death, but at present it is not possible to tell which will be fatal and which not. Detecting more cancers ▶

Key takeaways

- **The pandemic has fast-tracked** telehealth into the mainstream

- **Data compatibility issues between** systems can undermine good projects

- **Doctors need training to interpret** all of the data they are now receiving

- **Technology companies need to be** careful when documenting project requirements under time pressure

- **In the future patients will have** more health data at their fingertips and AI will play a big role in diagnosis

Discover more contact

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does, however, lead to more interventions, such as radiotherapy and surgery, that might not be necessary and can themselves cause harm. "When we started screening for breast cancer at a much higher level, statistically it didn't reduce breast cancer mortality (but it can improve the treatment pathway). As technology gets even better at picking things up earlier in the pathology there needs to be close scrutiny of what we do with that information," he explains. Another area of future risk is machine learning, whereby machines learn for themselves by studying data and then make predictions based on what they have learnt. This allows machines to 'think' without the restraint of human preconceptions because they are not told how to approach a problem by programmers. Machine learning therefore gives a different perspective on whatever problem artificial intelligence is applied to. This could be good in removing human error, but also dangerous if there is no check to prevent it going down the wrong road (think stock market crashes using high-frequency trading).

"If you get to the stage where algorithms are making triage decisions, you have to be aware of unintentional bias," says Joanna Manthorpe, Corporate Affairs Lawyer at Kennedys, referring to the problem of AI systems learning human prejudice from the data that they study. "Those considerations will have to be really thought through. These products probably won't be right first time, so there will have to be an ongoing process to make sure that there is no unintentional discrimination taking place."

As machine learning starts to play a bigger role in healthcare decisions it raises the question of who is liable when something goes wrong - the doctor or the software company, particularly when machine learning is in play. "If you've got a doctor who we know may make a mistake 7% of the time versus a machine that makes a mistake 3% of the time, that's clearly a better outcome," says Forrest. "But where technology makes a mistake, it's more likely to lead to a claim. We're a bit more forgiving of people than we are of systems. That's going to be a really interesting battleground over the next few years."

The sudden rise in telehealth services during the pandemic has given patients and healthcare professionals a glimpse into the benefits of digital transformation, along with the risks that must be managed. But as that digital transformation develops and artificial intelligence is embedded into clinical decisions, we will have to ask how comfortable we are with machines making life and death decisions, and how willing we are to forgive them if they make the wrong call because COVID-19 has definitely pushed us a large step closer.

The next report in this series will explore the role of genomics in fighting COVID-19.

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