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# REIMAGINING HEALTHCARE

Lessons from the Financial Sector  
in Digital Transformation

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He graduated from Monash University in Master Health Service Management & MBBS Medicine and has obtained a Master of Science, Global Finance from New York University.



## The future is **already** here

When “*The Jetsons*” cartoon show first aired in 1962, it was supposed to be merely a children’s cartoon that imagined what the future would bring.

The show centred around a family – George Jetson and his wife Jane, with their children Judy and Elroy, as well as Astro the dog and Rosie the robot maid – who lived in Orbit City in the year 2062. It was all about life in the Space Age, where the world ran on futuristic inventions, science, and technology.

But those technologies that used to be seen as ahead of their time are no longer far out in the future – they are here.

In [one episode](#), George goes for a physical check-up. The doctor tells George to swallow a Peek-A-Boo Prober Capsule – “You just swallow it and it [transmits pictures](#) to a TV screen,” he explains – which travels around the inside of George’s body, showing the doctor how his various organs are holding up.

Today, capsule endoscopy (where a patient swallows a pill-sized capsule containing a wireless camera that take images of his or her digestive tract) is a diagnostic procedure that is widely used, as is telemedicine, which has especially gained traction in these COVID-19 times.

Collectively, the world has made tremendous strides in healthcare and technology over the last few decades. But here, at this point in time, the question remains: What will our future of healthcare look like?

We may not have the Jetsons in 2022, but we can already see glimpses of what life in 2122 will be like, especially when it comes to healthcare. Technology, robots, automation, remote and alternative care models, and integrated systems will be key features of the future of healthcare, among others.

But as Abraham Lincoln once said: “The best way to predict the future is to create it.” And that is why we also envision healthcare to be powered by digitalisation but tempered with care: A healthcare system that is equitable, accessible, and low-cost, or what we call value-care.

# An unprecedented era of change

In recent years, evolving consumer needs, rapid advances in technology, care delivery, and ageing populations have been driving major changes in healthcare. The COVID-19 pandemic has accelerated this.

## WHAT'S CHANGING THE FACE OF HEALTHCARE?



**Evolving Consumer Needs**

Speed and convenience. In this modern age, consumers want to be able to address their healthcare needs quickly and easily. They also want to be in greater control, such as by sourcing for reviews or pricing of healthcare providers on the Internet or by using self-management tools such as wearables. Cost is a top consideration as well.



**Technology**

Rapid advances in technology have brought huge improvements to healthcare, be it with new methods, more effective practices, or less painful procedures. One of the biggest breakthroughs in recent history is human genome editing, which has the potential to treat and cure diseases. Technology is also what has both spurred and fulfilled the demand for speed, convenience, and safety in healthcare delivery.



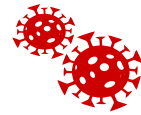
**Care Delivery**

In the shift towards digital transformation, care delivery is moving beyond the hospital into the community. Such alternatives to hospitalisation, enabled by technologies like AI, are helping to drive costs down without compromising the quality of care.



**Ageing Population**

Asia's population is on track to becoming one of the world's oldest, with its elderly population expected to reach nearly [923 million by 2050](#). This will put more cost pressures on healthcare demands. In Singapore, over a third of the population is projected to be 65 years and older by then.



**COVID-19**

As the COVID-19 pandemic imposed the need for remote healthcare delivery, the use of telemedicine and other digital health tools have taken off. The trend towards self-care has also deepened.

But unlike in previous pandemics such as the Spanish Flu, H1N1, or even SARS, we have technology on our side. And technology is proving to be a huge enabler of this change. Technology is doing for healthcare what it has already done for banking and finance – democratising access and lowering costs.

## Spotlight: Telemedicine

Once on the fringes of medicine, telemedicine is increasingly gaining acceptance among patients and doctors alike. In certain situations, such as during lockdowns or in rural areas where access to medicine is limited, it has become an absolute necessity.

The global telemedicine market is forecast to surge to [US\\$460 billion by 2030](#), according to Statista – more than nine times the US\$50 billion in 2019. In Southeast Asia, telemedicine apps are quickly gaining traction as they help to ease the COVID-19 load on hospitals while addressing longstanding problems of unequal access and healthcare standards across the region.

Take **Viettel Telehealth**, a telemedicine programme by Vietnam's biggest telco Viettel Telecom, which is expected to benefit some [70 per cent of the population](#) who live in rural Vietnam.

In Singapore, telemedicine start-ups like **Doctor Anywhere** and **WhiteCoat** have emerged to cater to consumer needs. The country's public healthcare cluster has also joined the bandwagon with **OneNUHS**, its first app with a teleconsultation feature.



# Respond, not react

Consider how the global healthcare and pharmaceutical industry has had to bring innovations to market at speed as it grappled to contain the pandemic, from test kits to vaccination rollouts and even COVID-19 mortality risk calculators. That players adapted and pivoted quickly allowed all of us to protect ourselves and keep going in the fight against the virus.

But as the pace of change picks up, healthcare faces three key challenges.

## 3 KEY CHALLENGES FOR HEALTHCARE PROVIDERS

1

### LEGACY

Widespread change can be difficult for an industry that has been trained to be conservative and bound to legacy systems. But healthcare is facing disruption more than ever, and this is a mentality the industry needs to retain going forward.

2

### SPEED

At the same time, the digitalisation of healthcare is taking place at such a rapid pace that it risks missteps, which could derail the much-needed transformation of the industry.

Industry players need to be thinking further by responding to the fundamental shifts that are taking place, rather than reacting to developments as they unfold.

3

### COSTS

The biggest need that must be addressed is rising costs. The factors behind this range from larger spends for ageing populations, like Singapore's, new treatments backed by medical advancements, and higher operational costs.

But at its heart, the focus in healthcare must go back to keeping costs affordable and accessible for the consumer.



## Spotlight: Alternate Care Systems



The availability of out-of-hospital alternate care systems that are powered by technology has been in place for a while now. Singapore's upcoming **Woodlands Health Campus (WHC)**, for instance, has been designed to rely heavily on [smart technology](#) to improve patient care in homes, rather than within the hospital.

Set to be the city-state's first acute and community care hospital when completed in 2022, it will tap technology – such as wristbands – to allow doctors to monitor the health of their patients remotely, including tracking vitals, medication times, and holding remote rehabilitation sessions. Within the hospital, robots are expected to manage logistics, housekeeping, and tasks such as delivering food.

Elsewhere, a [pilot trial](#) to bring hospital care into the community, or patients' homes, is under way, led by a partnership between the Ministry of Health Office for Healthcare Transformation and National University Health System (NUHS). Known as the **NUHS@Home**, the programme caters to patients with acute conditions who would otherwise require hospitalisation for intravenous treatment and monitoring.

NUHS@Home taps tele-consultations, portable investigations, and multi-disciplinary home visits in place of hospital care. It is also unlike traditional home care, where a professional attends to the patient in person. Here, remote monitoring systems, including wearables, transmit real-time vital signs to a consolidated dashboard, allowing the care team to monitor patients round the clock. They are thus able to respond quickly and effectively to any changes in the patients' conditions, maintaining the overall quality of care.

Over 70 patients have been enrolled in the pilot to date. The benefits are manifold, catering to those who feel more comfortable staying at home than at the hospital, especially the elderly. NUHS@Home has also brought down medical costs by about 20 per cent compared to hospitalisation rates, raising the affordability of care for patients.

Backed by technology, home care not only optimises treatment for patients, but also helps to ease the workload of healthcare workers, ensuring a more sustainable healthcare system overall.

# Key lessons from banking's digital journey

Overcoming these challenges requires a rethink of the role digitalisation can play in healthcare. To this end, financial services provide several key lessons.

For DBS, the journey to digitalise banking had started back in 2009, and it continues even till today. It has not been without its bumps.

We look at **four key areas** where banking can offer lessons in digital transformation:

## 1 Organisational Change

A strong need to ensure the right processes and protocols must be in place. In other words, the entire culture must shift, starting from the top and then filtering down all throughout the organisation. Large organisations must be prepared to experiment, test, fail and try again.

Take blockchain as an example. With **blockchain solutions**, many fintech companies have broken through legacy barriers to revolutionise financial services and how they are delivered. We knew that we had to be in the space because we were no longer competing with other banks but new technologies that disrupt.

As a result, we decided to experiment with blockchain technology a few years ago, partly out of the potential it promised. It was not easy because we had to acquire expertise and adapt our existing services.

But the work has paid off, allowing DBS to ride on the wave of blockchain-enabled payments. Blockchain technology has enabled atomic settlement, or the synchronised transfer of assets, at any time of the day. Our new initiatives include a newly minted joint venture with JP Morgan and Temasek Holdings known as [Partior](#) to develop a wholesale blockchain-based payment network targeted at cross-border transactions.

Partior harnesses blockchain to enable next-generation, programmable value transfer in real time. This allows banks and their clients to carry out instantaneous settlement of payments for various types of financial transactions, overcoming the limitations of traditional cross-border payments, where funds travel through a network of correspondent banks based on a time-consuming and often costly "hub and spoke" model.

***Healthcare will face its own share of disruption. Rather than be disrupted, it must adopt the mentality and agility of a start-up.***

Where banking has been using blockchain for payments, for example, healthcare can tap the technology to securely transfer medical records or

manage the hospital/pharmaceutical supply chain – turning opaque and fragmented systems into interoperable, seamless ones.

Blockchain-based technologies are highly secured and provide enhanced visibility. In essence, they allow healthcare providers and participants in the pharmaceutical supply chain to track every step of the journey, including details of the shipping and storage conditions in real-time. Such records are impossible to falsify, while prompting timely responses to problematic variations.

Blockchain technology can also play a part in ensuring traceability and authenticity of pharmaceuticals, with aided tools developed to help with demand planning in the supply chain. The technology also allows for democratising of medical records, while enabling permission-based sharing of such recorded data to relevant parties.

## 2 Interoperability

The need for interoperability is another key lesson that we have learnt in meeting evolving customer demands. The developments in open banking – where customers' financial data held by banks can be accessed and used by regulated providers in a collaborative and secure ecosystem – epitomise this.

In healthcare, the sharing of electronic health records, as we do with financial data today, will allow doctors to access a patient's most updated medical history easily and efficiently, and better see to the patient's needs, especially with telemedicine and out-of-hospital arrangements where medical data needs to be made immediately available.

While Singapore's National Electronic Health Record (NEHR) system does consolidate patient records on a shared database, the take-up rate by medical practitioners has been [poor](#), with many citing worries over security and technical issues such as the lack of interoperability in supporting and migrating data across systems.

The Ministry of Health (MOH) has implemented [two financing innovations](#) with the objective of creating



impetus for healthcare providers to come together to deliver integrated care for patients that is affordable and sustainable. One is a “bundled payments” initiative, where funding is tied to a patient’s entire care episode, including across multiple healthcare settings or attendances. The other is a “Pay for Performance” framework that incentivises clusters to improve clinical outcomes in a cost-effective manner.

These are steps towards better health outcomes and a more sustainable healthcare system in the long run – but more can be done.

***Perhaps there are legacy data processes or “sacred cows” that the industry will have to re-examine to bring this to fruition, but the end-goal – to benefit consumers – must be the focus.***

When DBS migrated our workloads, applications, and internal operations into the cloud, it opened up the 24/7 availability of banking services, reshaping the way customers banked for the better.

At the same time, the bank offers more than 260 open **APIs (Application Programming Interfaces)** that can be combined and customised to suit varying client needs. Beyond implementing payment options seamlessly and securely, this can also drive creative collaboration.

Take Singapore-based rubber franchise Halcyon Agri Corporation, which has used DBS’ API connectivity to create an [online marketplace](#) where farmers, rubber producers, and tire manufacturers can transact and track prices and supply information. For an industry that was heavily reliant on paper processes and opaque pricing mechanisms, the result was a digital platform that inspired greater transparency, confidence, and efficiency – a more sustainable market for the long term. The same can be done for healthcare.

By tapping DBS’ API open banking platform, there is potential for participating healthcare institutions to draw on the data to facilitate seamless payments or even to access medical records for a more holistic and effective approach to treating or managing a patient’s medical needs.

## 3 Cybersecurity

Technology is an enabler. But we must also be prepared for the problems that arrive with it – in particular security, or cybersecurity. This must be a key priority and requisite for healthcare systems to share data or interoperate.

The [WannaCry ransomware attack](#) in 2017, which crippled the National Health Service in the United Kingdom, is a well-documented, costly example. No hospital can afford downtime today, should it be hit by a similar attack.

The readiness of healthcare systems to introduce and adopt new technologies quickly while having appropriate levels of data security in place, as banks do in the safekeeping of customer data, remains critical to sustaining progress.

Cybersecurity is a priority at DBS. We have implemented **multi-layered defences** that predict, deter, prevent, detect, and respond to such threats, with help from new technologies like browser isolation and automated processes. We also hack ourselves, conducting periodic phishing and social engineering exercises to translate theoretical knowledge into day-to-day applications for our employees.

## 4 Empowering the Workforce

“Technology processes and workplaces don’t change themselves – [it is the people](#),” as DBS CEO Piyush Gupta said.

***“Having a team that takes the digital strategy and turns it into a serious transformation programme across the bank is a key ingredient for success.”***

*- Piyush Gupta, DBS CEO*

As digital trends and adoption picked up pace in the financial services sector, DBS was quick to see that the bank would only be able to respond to disruption if our workforce was equipped with the skills and mindsets to do so. It was also critical to ensure that no one was left behind.

With job disruption set to continue in the new normal and employees having to embrace new ways of working, we accelerated efforts to transform employees to be relevant and future-ready through continual [upskilling and reskilling](#) opportunities.

In November 2020, we announced that over 7,300 employees will be upskilled across the next few years and in 2021, more than 3,600 employees have begun their upskilling journey. The bank offered over 290 programmes covering data and digital, functional, people and leadership skills so that employees can be equipped with the necessary skills to be future-ready.

In the same vein, building the future of healthcare will not be possible without its people – the healthcare workforce at the heart of the system. This means building a more resilient workforce, especially amid the pressures of growing manpower needs. It is about using technology to empower the workforce, whether it is by reducing the burden and time spent on repetitive tasks and moving people into higher-value roles. The human touch will remain a critical and indispensable element in healthcare, as it is in banking.

# An ecosystem of **collaboration**

Regulations will play a big part in driving the successful digitalisation of the healthcare industry.

But equally important is collaboration – stakeholders must align their interests to work for a shared outcome.

The good news is it is already happening. Where healthcare delivery used to involve clearly defined roles between regulators, pharmaceutical companies, financiers (such as banks and insurance companies) and the enablers such as doctors and healthcare practitioner, these industry boundaries are blurring. In some cases, they have already been dismantled.

## Spotlight: **Precision Medicine**

Breakthroughs in gene editing are pushing the development of precision medicine, which allows drugs to be customised specifically to a patient's genetic make-up. Big pharma is buying into **genetic testing through collaborations**.

In 2019, Novartis joined forces with Microsoft to apply Artificial Intelligence across the Swiss pharmaceutical company's value chain, from manufacturing to finance, as Novartis Chief Executive Vas Narasimhan highlighted that [AI holds promise](#) in personalised medicine.

The collaboration between what used to be seen as two unlikely partners in healthcare signalled the churn in the industry and more importantly, the way forward.

A new ecosystem is emerging – one that is driven by interconnected systems, partnerships, and a shared vision for better outcomes. With digital technology and Artificial Intelligence transforming healthcare business models, all players are going to be playing more than one role.

# Shifting from healthcare to value-care

The parallels between the banking and healthcare extend beyond a low tolerance for error. Powered by data and digital transformation, both industries are embracing innovation and change in legacy approaches to work.

As organisations grapple with the ongoing COVID-19 pandemic and rapidly shifting operations without compromising the standard of care towards patients – working instead to uplift them – a culture shift is key.

Perhaps the future of healthcare lies in value-care – where doctors and hospitals take on greater accountability and harness technology to deliver healthcare solutions that are focused on patient outcomes rather than consumption, taking care of everything from cost to quality.

To do this, industry players must think of innovative ideas to bring costs down, while aligning their interests. Beyond that, they must evolve, transform digitally to harness the power of data, and find partnerships even in the most unlikely of places to position themselves for new opportunities and the future of healthcare.



## Healthcare and Pharmaceuticals, DBS Bank

With an extensive Asian network and insights on the region's healthcare sector, DBS offers critical connections and dedicated coverage across all segments of the industry. Present in 18 markets, we are well-represented in Asia to support our clients in the region.

The sectors we cover include healthcare service providers, healthcare asset owners (REITs), medical devices, pharmaceuticals, Traditional Chinese Medicine (TCM), and healthcare distribution.

Our solutions span Financing, Advisory, Treasury, Transaction Services, and Capital Markets.

Learn more [here](#).



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