Katalis Market Insight

IA-CEPA ECP
KATALIS
Indonesia-Australia Growing Together

A Prescription for Prosperity

Building a Collaborative Digital Health Future Between Australia and Indonesia

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Contents

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EQUITY ECONOMICS

IA-CEPA ECP Katalis (Katalis) is a unique, five-year (2020-25) government-backed business development program unlocking the vast potential of economic partnership between Australia and Indonesia.

Introduction

Digitalisation has significantly disrupted traditional industries, including commerce (e.g. e-commerce), financial services (e.g. buy-now-pay-later apps) and travel (e.g. ride sharing apps). Large digital start-ups have been born in both Indonesia and Australia. Now, technology is substantially disrupting healthcare (e.g. through telehealth and digital health records), with continued change and growth anticipated as these industries continue to grow.

The COVID-19 pandemic accelerated the adoption of digital health solutions in both Australia and Indonesia, driving a fundamental change in healthcare delivery and patient engagement. For example, Australia experienced rapid development and widespread use of telehealth services in 2021 during the pandemic, with the Australian Government introducing telehealth as a permanent feature of the country's universal health system, Medicare. By 2022, just over half the Australian population used telehealth for general practitioner (GP) services, accounting for 23% of GP consultations.[1] Similarly, Indonesia also witnessed a surge in digital health technology adoption during the pandemic, with online consultations (such as telehealth) and online pharmacies increasing in popularity, particularly in remote areas with limited access to traditional healthcare services. A 2021 survey estimated that telemedicine users in Indonesia increased sevenfold from 11% in 2019 to 76% in 2021.[2]

Despite growth, digital health is a relatively new industry, with limited market and trade data. This report is designed to provide useful information to Indonesian and Australian digital health businesses, training providers and others looking to expand their bilateral trade and investment opportunities in this exciting industry. It includes:

- an introduction to digital health;
- a comparative snapshot of the Indonesian and Australian digital health sectors;
- key opportunities for collaboration and growth between Australian and Indonesian digital health providers;
- a review of digital health skill needs and opportunities;
- an explanation of how digital health innovation can support inclusion;
- current industry trade statistics; and
- an overview of the current regulatory environments for businesses seeking to enter the Australian or Indonesian markets.

What is digital health?

Digital health is a broad term that encompasses the use of digital and mobile technologies to support and deliver healthcare. It includes technologies such as mobile healthcare, telehealth, wearable health devices, electronic health records and the use of artificial intelligence (AI).

There is no universally agreed definition of digital health; the industry spans and overlaps a wide range of sectors, including healthcare (e.g. health services, medical technology, biotechnology, medical devices and pharmaceuticals), manufacturing, technology (e.g. software development, technology hardware and equipment) and communications.

Neither Indonesia nor Australia appears to have a single, official definition of digital health, but both governments have outlined broad definitions. For Indonesia, specific terms related to digital health are used in regulation.

1 Australian Government (2023), 'Does using telehealth affect our healthcare', accessible at: https://www.health.gov.au/news/MRFF-does-using-telehealth-affect-our-healthcare.

2 Deloitte (2022), 'Digitalising Indonesia's health care sector', accessible at: https://www2.deloitte.com/id/en/pages/life-sciences-and-healthcare/articles/id-tmt-lshc-digitalhealth-2022.html.

For example, in Decree No. 46/2017 on the National E-Health Strategy, Indonesia's Ministry of Health defines e-health as the utilisation of information and communication technology to improve health quality service, efficiency, and effectiveness.[3]

For Australia, the Australian Department of Health and Ageing defines digital health as *'[the use of] technology to improve the healthcare system for providers and patients alike'*[4] while the Australian Institute of Health and Welfare (AIHW) states that digital health has broad scope and *'is an umbrella term referring to a range of technologies that can be used to treat patients and collect and share a person's health information.'*[5]

Overall, digital health comprises many different components, including:[6]

Health information and communication	Interaction between components	Emerging and advanced technologies	Health in different settings
• Electronic health records • Clinical systems • Secure messaging • Big data and informatics	• Internet of Things • Cloud technologies • Interoperability	• Artificial Intelligence • Advanced robotics • Augmented reality • Automation • Genomics • Precision machine • 3D printing	• mHealth (mobile health apps and devices) • Virtual health (telehealth and telemedicine) • Wearables and implantables

The World Health Organization (WHO) classifies digital health solutions by the targeted primary user. These include:[7]

Clients	Healthcare providers	Health system or resource managers	Data services
Members of the public who are potential or current users of health services, including health promotion activities. Caregivers of clients receiving health services are also included in this group	Members of the health workforce who deliver health services	Members of the health system who are involved in the administration and oversight of public health systems, including managerial functions related to supply chain management, health financing and human resource management	Crosscutting functionality to support a wide range of activities related to data collection, management, use, and exchange

3 Health Intervention and Technology Assessment Program and Ministry of Public Health (2022), 'Navigating the landscape of digital health. A country report: Indonesia', accessible at: https://www.hitap.net/wp-content/uploads/2023/09/Indonesia-landscape-review-of-digital-health_Feb2023_14092023.pdf.

4 Australian Department of Health and Ageing (2022), 'About health technologies and digital health', accessible at: https://www.health.gov.au/topics/health-technologies-and-digital-health/about.

5 AIHW (2022), 'Digital health', accessible at: https://www.aihw.gov.au/reports/australias-health/digital-health.

6 Australian Digital Health Agency (2020), 'The national digital health capability plan', accessible at: https://www.digitalhealth.gov.au/sites/default/files/documents/national-digital-health-capability-action-plan.pdf.

7 World Health Organization (2018), 'Classification of digital health interventions 1.0', accessible at: https://iris.who.int/bitstream/handle/10665/260480/WHO-RHR-18.06-eng.pdf;jsessionid=9B04434A5BADDFED45C309BDEE28C56D?sequence=1.

Comparing the digital health landscape of Indonesia and Australia

Despite their diverse healthcare systems, Indonesia and Australia are welcoming digital health solutions at an accelerated pace. Each country has distinct strengths and weaknesses, which frequently complement one another. Indonesia's digital health market was valued at USD726.2 million in 2022,[8] fuelled by an increasingly tech-savvy, but geographically dispersed, population with pressing needs for innovative consumer products that address fundamental infrastructure and logistical challenges, including shortages of healthcare professionals. By contrast, Australia's digital health industry, valued at USD1.3 billion in 2019,[9] is built on a highly developed health system, and consequently focuses on advancements to improve user experience and streamline processes to increase operational efficiency.

The Indonesian digital health landscape

> **Indonesia's strength in healthcare technology stems from its population's digital mindset and openness to adopting new technologies.**
>
> *– Jonathan Sudharta, CEO, Halodoc, interview with Katalis.*

Indonesia's healthcare system serves over 270 million people across over 17,500 islands (over 6,000 inhabited) and faces significant challenges due to its relatively undeveloped infrastructure and limited resources. With a shortage of medical professionals and inadequate physical infrastructure, Indonesia has only 0.7 doctors and 1 hospital bed for every 1,000 people, compared to Australia's 4.1 doctors and 3.8 hospital beds.

To address challenges with health access, in 2014, the Government of Indonesia introduced a National Health Insurance scheme *Jaminan Kesehatan Nasional (JKN)*. The new scheme aims to provide universal healthcare across Indonesia. The Government also recognised the potential of digital health to expand universal healthcare, and implemented a range of regulations around telehealth and developed a roadmap for the digitalisation of Indonesian healthcare in its 2024 Digital Health Transformation Strategy. The strategy aimed to create a national health program and a nationally integrated health exchange data platform (*SatuSehat* – originally *PeduliLindungi*), including by creating a unified health information system, establishing a standardised and interoperable electronic patient health records system, increasing digital literacy of marginalised groups, digitally integrating health information, and expanding and improving digital health infrastructure (such as internet connectivity). In 2022, the Government released regulation requiring all healthcare facilities to implement electronic records and integrate with *SatuSehat.*

Within Indonesia's geographically dispersed population and developing healthcare system, Indonesia's digital health sector has prioritised entrepreneurial initiatives that tackle fundamental infrastructure and logistical barriers. Telemedicine, for instance, has expanded access to healthcare particularly in remote and underserved areas. Telehealth in Indonesia is typically conducted via messaging, compared to video conferencing in Australia.

8 Frost & Sullivan (2018), 'Digital Market Overview: Indonesia', accessible at: https://www.frost.com/files/3115/2878/4354/Digital_Market_ Overview_FCO_ Indonesia_25May18.pdf.

9 InvestVictoria (2023), 'Melbourne – Australia's Digital Health Centre', accessible at: https://www.invest.vic.gov.au/__data/assets/pdf_file/0005/696740/Invest-Victoria-Digital-Health.pdf.

Examples of leading digital health businesses in Indonesia include:

ALODOKTER	**Alodokter:** Established in 2014, the Alodokter healthcare app provides online doctor consultations, prescription delivery, health information resources and laboratory tests to Indonesian consumers. Launched in 2014, the service currently has over 40 million monthly active users with 45,000 doctors and 1,500 hospitals and clinics.[10]
halodoc	**Halodoc:** Similar to Alodokter, the Halodoc platform provides a wide range of services, including 24/7 telemedicine consultations, prescription delivery from almost 5,000 pharmacies, health information resources and laboratory tests. Established in 2016, it currently has over 20 million monthly active users, 3,300 hospital partners, 20,000 licensed doctors and 28 insurance providers. [11]
klikdokter	**Klikdokter:** Established in 2008, Klikdokter is another leading Indonesian healthcare platform that offers online consultation, prescription delivery and other services and tools such as vaccination services.
riliv	**Riliv:** Riliv is a mental health platform that provides services such as online counselling, meditation, self-help resources and an employee assistance program for employers. Launched in 2015 as part of Telkom Group, the app has more than 100 professional psychologist partners and has been downloaded over 900,000 times across Indonesia.[12]

Indonesia also has a range of other platforms providing online consultation services, healthcare delivery and health information directly to consumers such as KlinikGo and PT Global Urban Esensial.

klikdokter

An Indonesian success story

Launched in 2008 as a health education platform, KlikDokter has become a leading Indonesian digital healthcare platform. It connects users to a vast network of over 5,000 registered doctors, 1,000 clinics and hospitals, and 2,000 pharmacies across Indonesia. Initially focused on connecting individual consumers with healthcare providers (B2C), KlikDokter has recently shifted its strategy towards serving businesses and insurance companies (B2B). This expansion reflects a growing market trend where companies are increasingly offering workplace healthcare access to their employees. Katalis caught up with KlikDokter CEO Hendra Tjong.

Katalis: Tell us the story behind KlikDokter.

Hendra Tjong: We've been established for quite some time now. We were set up by dr. Doddy Partomihardjo, Sp.M as a health education portal back in 2008. In 2016, KlikDokter was acquired by Kalbe Farma with Emtek as their co-investor. I joined KlikDokter in September 2021 to help enhance its operations. By November 2021, Kalbe Farma had become the sole shareholder. Initially, the focus of the business was on B2C telemedicine, pharmaceutical sales and providing health tools and information to consumers. About six to seven months ago, we transitioned to a B2B model, aiming to enhance

10 Akamai (2023), 'The largest Indonesian digital healthcare platform available anywhere, anytime', accessible at: https://www.akamai.com/resources/customer-story/alodokter.

11 Amazon (2023), 'Halodoc brings holistic healthcare to more than 20 million Indonesian users using AWS', accessible at: https://press.aboutamazon.com/aws/2023/6/halodoc-brings-holistic-healthcare-to-more-than-20-million-indonesian-users-using-aws.

12 EastVentures (2023) 'Riliv transforms mental health access in Indonesia for all', accessible at: https://east.vc/ev-dci/riliv-transforms-mental-health-access-in-indonesia-for-all/.

efficiency for corporations, third-party administrators (TPAs) and insurance companies. The reason being is that people are more inclined to use insurance provided by their employers rather than paying out of pocket.

Katalis: How have you evolved since the COVID-19 pandemic?

Hendra Tjong: When I joined in September 2021, it was during the COVID-19 pandemic. The service was purely B2C and centred on consultations, after which customers could purchase prescribed medicine from our partner pharmacies. We have around 2,000 pharmacies in our network. The prescribed medicine usually gets delivered to the customer within 30 minutes to an hour. Based on the consultation, if deemed necessary, the doctors could also refer the customers to a hospital or clinic. However, recently, we've found it to be more financially advantageous to work with corporate clients and insurance companies.

Katalis: Why is B2B a sustainable revenue model for KlikDokter and is this a sweeping trend across the digital health industry in Indonesia?

Hendra Tjong: I believe B2B is the right approach. If you look at the trend, especially in Singapore, many companies are transitioning to B2B because that's what works. Customers with access to workplace insurance are most likely to use our services as they would be covered. At the same time, we help corporates and insurance companies by introducing efficiencies, as conducting online consultations costs less than face-to-face consultations. For each online consultation, including prescribed medicines, the cost is typically USD10 less than the cost of face-to-face consultations.

Katalis: In what specific areas of digital health do you think Indonesia is a leader, from which other countries could learn?

Hendra Tjong: What makes Indonesia interesting is the vast network available in this country, not only in Java, but also in other regions. For example, we have strong collaborations with major pharmacies like Kimia Farma and K24. In Singapore, similar companies manage their own inventory, which has its pros and cons. If we ran our own inventory, of course, the margin would be higher, but it comes with the risks of goods being lost or unsold. By working with pharmacies, the margin is lower, but we reduce those risks. At the same time, we benefit from the vast network of our partners, say for example Kimia Farma, which has outlets almost everywhere in Indonesia. We're still contemplating going into inventory, but for sure we'll continue to work with pharmacies. Our corporate clients are spread out across Indonesia, even in remote areas like Merauke, Papua. We look forward to expanding our network of clients and partners.

Katalis: Are you looking at Australia as a potential market?

Hendra Tjong: I'm not familiar with Australia's healthcare system, but I would be interested to find out if it's financially viable and if it offers opportunities. At the moment, we're doing due diligence with a Singapore-based strategic investor. We're keen to expand to other countries in Southeast Asia. While we may use other brands in other countries, but for Indonesia, we'll stick to the KlikDokter brand.

The Australian digital health landscape

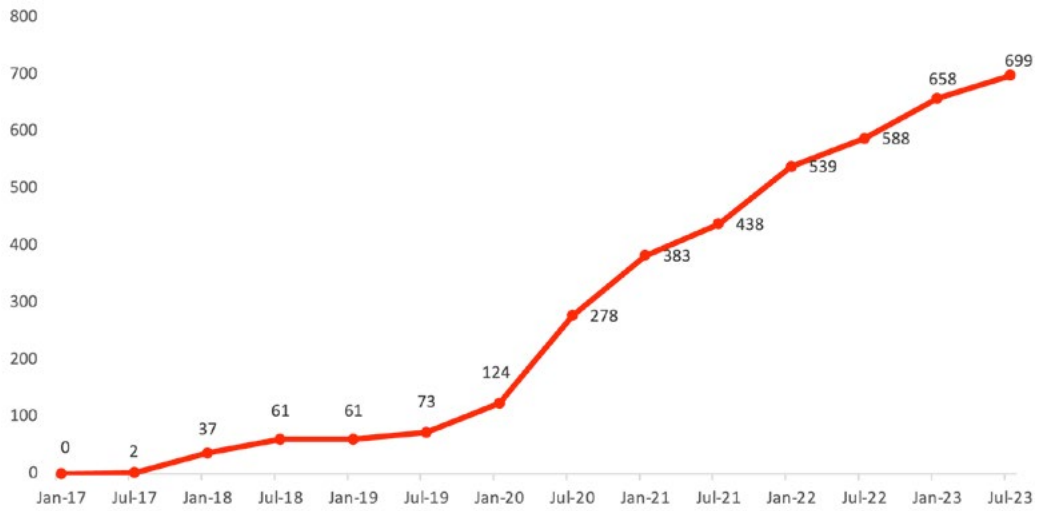
Australia's digital health industry rests on a well-established healthcare infrastructure and a highly developed technology sector. Australia's universal health care system, Medicare, provides free or subsidised health services to all Australians. In 2020, the Australian Government announced AUD669 million in funding to expand Medicare to cover telehealth.

However, despite its strengths, Australia's health sector continues to grapple with challenges such as a highly fragmented health landscape with many providers competing in niche areas,[13] accessibility gaps in rural areas and uneven adoption of digital health initiatives. Concerns surrounding data privacy, particularly in the national electronic health record My Health Record, further complicate this transition.

Digital health innovation in Australia has focused on niche technologies that increase efficiency and user experience, as well as business-to-business services, including data analytics, interoperability, and innovation. Most digital health companies in Australia list health practitioners as their primary end user (36%), followed by patients or consumers (19%), administrators (12%) and researchers and lab workers (8%).[14]

There are currently around 700 digital health companies in Australia (as estimated by the ANDHealth digital health pipeline), more than double the number of companies in 2020 (see Figure 1).[15] While many are small businesses, there is significant appetite for expansion. For example, a survey of 101 Australian digital health companies found 70% have 10 or less full-time employees, but almost all (90%) plan to expand in the next six months.

Figure 1: Growth in digital health companies in the ANDHealth pipeline, Australia (2017-2023)



Source: ANDHealth (2023)

13 Euromonitor (2023), 'Passport: Consumer Health in Australia'.

14 ANDHealth (2020), 'Digital health: the sleeping giant of Australia's health technology industry', accessible at: https://www.andhealth.com.au/insights/insights-andhealths-industry-reports.

15 ANDHealth (2023), 'Commercialising Digital Health in Australia: FY2023 Industry Sentiment Survey', accessible at:https://www.andhealth.com.au/insights/industry-sentiment-survey-reports.

This rapid growth is accompanied by a positive trend towards gender diversity. Of digital health companies surveyed, 54% have one or more female founders, 78% have at least one woman at the executive level and 38% have a female CEO or managing director.[16] Similarly, a December 2021 survey of people working in digital health in Australia found 30% of the 287 respondents were men (87 people), 68% were women (195), and 2% were non-binary (5). However, the small sample size is unrepresentative, and both men and women in the survey indicated they believe there are more men than women in digital health. The survey also found that women are underrepresented in leadership positions and anecdotally found women are also under-represented in highly technical positions.[17]

Similar data is not available for Indonesia.

Examples of leading digital health businesses in Australia include:

ALCIDION	**Alcidion:** Founded in 2000, Alcidion develops innovative information technology solutions for hospitals, including clinical decision support, AI and real-time visualisation tools. For example, Miya Precision (a next-generation healthcare analytics platform) and Smartpage (a secure clinical communication and collaboration platform). The company's solutions are used by healthcare organisations across Australia, New Zealand and the United Kingdom.
harrison.ai	**Harrison.ai:** Founded in 2018, Harrison.ai develop AI tools to support clinical diagnosis. This includes Annalise.ai, an AI-powered clinical decision support system for chest X-rays, and Franklin.ai an AI-powered diagnostic tool for pathologists.
healthengine	**Health Engine:** A leading Australian consumer healthcare platform that connects patients with healthcare providers. Founded in 2007, HealthEngine now facilitates over 30 million bookings annually.
seer	**Seer Medical:** Established in 2017, Seer Medical is a digital health company transforming the diagnosis and management of epilepsy. Its flagship product, Seer Home, is a video monitoring system that uses AI and machine learning to detect seizures, allowing patients to be monitored from home.
SMILING MIND	**Smiling Mind:** A not-for-profit web and app-based meditation program developed by psychologists and educators to improve mental health through mindfulness techniques. The Smiling Mind app has been used by 7.7 million people globally since 2012 (including 5 million people and 75% of teachers in Australia).[18]
Health	**Telstra Health:** Provides software products, solutions and platforms to connect health information, clinicians and consumers. Their products include clinical and administrative systems, health data analytics, population health statistics, information exchange solutions and a virtual health platform. In 2023, over 540 hospitals in Australia used Telstra Health software and the company managed over 16 million records globally.

16 ANDHealth (2023).

17 Australian Institute of Digital Health et al. (2022), 'Understanding gender diversity in Australia's digital health sector', accessible at: https://digitalhealth.org.au/wp-content/uploads/2022/04/Understanding-gender-diversity-in-digital-health-Special-Report-2021-22.pdf.

18 Smiling Mind (2022), 'Smiling Mind: Celebrating 10 years of impact', accessible at: https://info.smilingmind.com.au/hubfs/Annual%20Report/SmilingMind-AnnualReport-2022.pdf?__hstc=21858660.32162da19d26e5d81592c02f43aebb75.1675036800412.1675036800413.1675036800414.1&__hssc=21858660.1.1675036800415&__hsfp=898865667.

5 Five Faces

A case study of Australia and Indonesia partnering to solve critical health problems

Established in 2010, Five Faces is an Australian company providing digital customer experience solutions in the healthcare industry, including patient portals and digital front doors, patient flow and queue management, telehealth appointments and smart forms. In February 2024, Katalis aired a podcast with Nicole Nixon, CEO of Five Faces, and explored its potential expansion into Indonesia.

Katalis: Could you tell us a little bit about Five Faces?

Nicole Nixon: Five Faces works with complex service organisations. We're trying to make service delivery for patients as easy as ordering Uber Eats, or watching a pizza being delivered, because consumers these days have that expectation that everything that they do should be simple, and it should be digital. We're really putting the patient at the front and centre of how they access health care. A lot of organisations are focused on how clinicians service patients with health care but Five Faces very much focuses on the patient experience. We had an amazing pivot through COVID, where we started really focusing on the patient experience. And there were things that we did through COVID, where we built solutions in 20 days that were servicing something like 14,000 patients in a day, which is an amazing feat. The company has really transitioned, and we've learned so much through that time to realise that we just want to be patient-focused, and really try and provide them with the small things that make a difference to how they interact with an organisation.

Katalis: You have spoken a bit about the 'digital front door'. Why is it so important in the consumer experience?

Nicole Nixon: Yeah, it's interesting, everyone has a little different concept of what the digital front door is. At the moment, you can imagine that for patients to be able to access healthcare, there's a myriad of ways- sometimes a fax machine, or waiting for paper to come in the mail, or calling up on the phone. We like to think that we can help digitise that process, so that patients can fill out their paperwork prior to the date of appointment, they can help schedule their appointments. And they can even use the digital front door to be able to upload some medical records from their GP to cross those silos between the general practice and the public hospital sector. Giving them that platform where they own the data, they own the patient information that empowers them because they know if they can control when their appointment is, what information they're sharing, what questions they can ask, when it suits them to ask. It just gives them a lot more confidence in the health system that they're dealing with.

Katalis: Five Faces is currently looking at expanding into overseas markets, including Indonesia. Could you explain to us your thinking and goals when it comes to Indonesia as, patient wise, it is a much larger market than Australia?

Nicole Nixon: Five Faces is very much in the exploratory phase of working with Indonesia. I personally believe that there is a big opportunity to improve the patient experience for patients in Indonesia. We're partnering with Privy ID- they're an Indonesian organisation providing digital identity and digital signature solutions. And I think that this is a really great fit for Five Faces, because we can provide that digital identity, that digital consent digital signature within our solution, and we can collaborate with them and provide a really great patient experience solution for patients so that they're identified and they can give consent, and we can use that national identity number to be able to do that, we can then easily integrate that into the patient journey. For us, the Indonesian market just makes sense. It's on the cusp of being the largest universal health care provider. And it's got so many different disparate health organisations across the country. If we try and break down those silos of health care across those hospitals, that would be a really big win.

Unlocking value through business cooperation and trade

There is a significant opportunity for both Australia and Indonesia to harness their combined strengths to develop cutting-edge solutions, fostering mutual benefit and shaping the future of healthcare. The Indonesia-Australia Comprehensive Economic Partnership Agreement (IA-CEPA) ignites this collaboration, paving the way for a thriving digital health partnership between Indonesia and Australia. It does this by introducing rules on privacy protection and cybersecurity, reducing barriers on digital health services and investment and supporting freer flow of data (see the section 'Open for Business' for more detail on current regulations).

Opportunities for Australian digital health providers

The scale and growth of Indonesia's digital health landscape and population presents a massive opportunity for Australia digital health businesses. Australian businesses can not only take advantage of opportunities to directly invest in Indonesian digital health companies, but also partnerships and expansion. Australia has a strong reputation in both health and technology which can be leveraged when entering the Indonesian market.

Some areas of potential collaboration include:

1. Interoperability and digital health standards
2. New digital Assistive Technology (AT)
3. Supporting Indonesia's international competitiveness
4. Using behavioural science to increase the uptake of digital health

Interoperability and digital health standards

The healthcare landscapes of Indonesia and Australia are a complex mix of different providers, services and technologies. This complexity is compounded by challenges of incompatible and siloed information systems, and differing standards and terminology. This creates challenges not only for information sharing between providers (such as sharing patient data) but also the interoperability of systems within a single provider.

One of the largest challenges Indonesia faces in implementing digital health is fragmented data and systems, and a lack of interoperability of systems.

> **For us, the Indonesian market just makes sense. It's on the cusp of being the largest universal health care provider. And it's got so many different disparate health organisations across the country. If we try and break down those silos of health care across those hospitals, that would be a really big win. Australia and Indonesia have a desire to be working together more collaboratively. And we're seeing that with the close collaboration of the governments which is wonderful.**
>
> *– Nicole Nixon, CEO, Five Faces, interview with Katalis.*

The Government of Indonesia's Blueprint of Digital Health Transformation Strategy[19] estimates there are over 400 health applications developed by central and local governments in Indonesia alone, and that incomplete, inconsistent and inaccurate data recording is the main factor affecting the quality of health services in Indonesia.[20]

The *SatuSehat* platform was launched to address this and integrate all health information technology nationwide. However, underlying challenges persist in the form of diverse data infrastructure, inconsistent processes, and varying electronic record systems within heath systems. A recent PERSI survey starkly reveals this reality: only 16% of hospitals possess robust systems, while a staggering 52% struggle with weak and insufficient ones.[21] This disparity is further amplified by infrastructure constraints faced by health centres in remote areas.

Interoperability is a challenge faced by healthcare providers globally. For example, a global survey of 757 people in healthcare found while 94% of respondents agree data-driven healthcare creates new opportunities, almost half (43%) reported one of the greatest inhibitors of organisations becoming more data-driven is disconnected or incompatible system and data.[22] Using common standards makes it possible to transfer information between or within systems or digital health products. Australia is making headway on interoperability with development of its national healthcare interoperability plan and a Digital Health Standards Catalogue by the Australian Digital Health Agency.

Australian businesses are also supporting interoperability of health systems and databases for health providers. For example, Telstra Health provides a range of solutions to support healthcare providers integrate their systems, including comprehensive digital hospital platform Kyra, which can connect patients, clinicians and technology within the hospital eco-system. It also integrates with other hospital systems and third-party applications to ensure seamless data exchange, supports industry standards to facilitate communication between providers, and provides an open application programming interface (API) so developers can create applications that integrate with the platform.

In this context, Australian businesses have a significant opportunity to partner with Indonesian digital health providers and hospitals to build more efficient and interoperable health ecosystems in Indonesia.

Potential collaborations include:

Integrating existing software
Australian software developers can collaborate with Indonesian partners to build integrated platforms for managing patient data and interfaces between existing software systems

Standardisation
Australian businesses (and government) can contribute to the development of digital health and data standards and interoperability frameworks both nationally and within hospitals and larger healthcare providers

Data analytics for operational efficiency
Australian expertise in data analytics can be used to develop tools to increase the operational efficiency of hospitals and larger healthcare providers

19 Indonesian Ministry of Health (2021), 'Blueprint of digital health transformation strategy 2024', accessible at: https://dto.kemkes.go.id/ENG-Blueprint-for-Digital-Health-Transformation-Strategy-Indonesia%202024.pdf.

20 Data privacy and security was also identified as a major challenge, which is covered in the following section.

21 GovInsider (2023), 'Indonesia makes health data available at one's fingertips', accessible at: https://govinsider.asia/intl-en/article/Indonesia-makes-health-data-available-at-ones-fingertips.

22 Harvard Business Review (2023), 'Innovation in Data-Driven Health Care', accessible at: https://diagnostics.roche.com/global/en/news-listing/2023/new-opportunities-and-persistent-challenges-revealed-as-organisations-attempt-more-data-driven-approaches.html.

halodoc

A leader in strategic collaboration and ecosystem development

Halodoc is an Indonesian digital health ecosystem connecting more than 20 million patients with licensed doctors, insurance, laboratories and pharmacies through a mobile application. In July 2023, Halodoc raised USD100 million in a Series D round, bringing total external fund raising to USD250 million by November 2023, marking the highest health tech investment in Southeast Asia in Q3 2023.[23] Katalis recently caught up with Halodoc CEO Jonathan Sudharta.

Katalis: What's the story behind Halodoc and how has it evolved post-COVID-19 pandemic?

Jonathan Sudharta: The Indonesian archipelago is the fourth most populous nation in the world. Yet, we still fall short of the WHO recommended physician density of 2.5 per 1,000 population, currently standing at a dire 0.6 per 1,000, becoming the third lowest in ASEAN and highlighting a critical healthcare access gap. Witnessing these problems first-hand inspired me and our Co-Founder Doddy Lukito to build Halodoc. In 2016, Halodoc was launched, prompted by a true calling to simplify healthcare access in Indonesia. During our first years, telemedicine was in its nascent stages. Telemedicine was still a novel concept. When COVID-19 pandemic hit, it became a 'moment of truth' for all of us to simplify access to healthcare. Hence we are grateful that back then Halodoc had the opportunity to take part in helping and responding to customer needs to overcome tough challenges in terms of healthcare access. Halodoc kickstarted many initiatives from the COVID-19 chatbot, which was accessed over 12 million times during the pandemic, to providing free teleconsultations for the ISOMAN program, and facilitating COVID-19 vaccination centers as well as appointments across 590 locations. During those times, I must say that we are so humbled and proud to witness the true strength of Indonesia lies in the spirit of Gotong Royong (mutual cooperation). One of the real examples is how Indonesia, as a nation be it health workers, industry players, regulators, healthcare providers, as well as all stakeholders, came together to handle the COVID-19 pandemic. We also saw how Indonesia swiftly embraced technology in many sectors, including healthcare. An example is the launch of PeduliLindungi contact tracing app, which later evolved into Satu Sehat, a national integrated health platform, which showcased a commitment to the digital transformation in the country. Moreover, Indonesia's strength in healthcare technology stems from its population's digital mindset and openness to adopting new technologies.

Katalis: Success in the space for some players has meant integrating physical offerings with that of practice management software. What's your plan to scale up?

Jonathan Sudharta: Today, Halodoc has been well known as a digital health ecosystem which not only focuses on curative health care but also as a companion in continuously improving health care for our users and their loved ones. By collaborating with strategic partners including healthcare providers (such as health facilities, labs, hospitals, and insurance), we've also made more innovations and healthcare services more accessible for our users. Some services widely used by our users are Home Lab, which facilitates users to access various lab test services, vaccinations, or vitamin injections comfortably and privately from home. Through technology, Halodoc facilitates users in finding the healthcare services they

23 As reported by Deal Street Asia (2023) accessible at: https://www.dealstreetasia.com/stories/healthtech-investments-se-asia-370578

need, and medical personnel will come to the home to collect samples, which are then taken to our laboratory partners, and the results can be obtained directly through the Halodoc application.

There's My Insurance, which facilitates users to access healthcare services with the costs covered by their insurance seamlessly and cashless in one single app. This is convenient not only for individual users but also for corporations, as it can provide additional benefits to their employees through cooperation with insurance partners connected to Halodoc. In addition, corporations can also claim administration processes and obtain interesting insights related to healthcare benefits that suit the needs of their employees. Our Mental Health service facilitates users to consult with licensed clinical psychologists or psychiatrists according to their needs. Skin Health provides a service highly sought after by the younger generation, especially for skin health issues such as acne. This service greatly facilitates users to consult with dermatology specialists without having to spend time queuing or leaving the house. We also have a feature named Clinical Nutritionist, which facilitates users to consult and obtain information about balanced nutrition with affordable costs.

However, we believe that there is still room for improvement. We are also very aware that to make our dream come true, it is crucial for all industry players, regulators, and all stakeholders to work hand-in-hand. In terms of the factors to drive next-generation healthcare, we anticipate more innovations to arise driven by at least two points: 1) technological advancements such as the implementation of artificial intelligence (AI) in a wider space; 2) Government support through collaborations with industry players to expand digital infrastructure strengthening digitalization in society, bolster health literacy, and equip Indonesian talents to compete globally and adopt latest tech development that will facilitate the community.

Katalis: How are you looking to incorporate product innovation into your vertically integrated digital healthcare ecosystem?

Jonathan Sudharta: Innovation is ingrained in our DNA. Hence our mantra in pursuit of innovation remains the same: "Falling in love with the problems not the solution". The milestones, which have been achieved and will be in the future, are made possible by the dedication of all the team and HaloSquad. As an organisation that thrives on innovation and problem-solving, all of HaloSquad and teams are passionate about solving patient problems and excel at overcoming barriers in connecting people. Our culture fosters a bias for action, encouraging swift execution and calculated risk-taking for continuous improvement. We also challenge conventional thinking with data-driven insights and believe in the growth of abilities over time and through experience. Halodoc through its approach to technology has integrated health services for the community. Currently, Halodoc has connected more than 20 million monthly active users, with over 20,000 licensed partner doctors, 3,300+ health facility partners, 4,900+ pharmacies, along with 30+ leading insurance partners. The usage of Halodoc outside of Java is increasing, such as in Maluku, Riau Islands, Kalimantan, Bangka Belitung, East Nusa Tenggara and Papua.

Katalis: What areas of your business do you think might benefit most from cooperation and shared learning with Australian digital healthcare providers?

Jonathan Sudharta: Our focus remains on solving patients' pain points in Indonesia while bringing innovation to provide more relevant products and services within our ecosystem. We are open for collaboration with strategic stakeholders, including Australia, to continue making healthcare access more inclusive and accessible for everyone. We will be very grateful if one day our solutions can help and be adopted in other countries.

Digital Assistive Technology

Assistive Technology is a product, such as a piece of equipment or software program, that improves or maintains the functional capability of people with disability. Examples of digital AT include wearables that monitor various health metrics for people with disability, speech-to-text or text to speech software, augmentative or alternative communication apps, cognitive assistive tools and telehealth for people with mobility limitations. For example, Cochlear is an Australian company and world leader in implantable hearing solutions. Cochlear has entered the digital health market with the introduction of telemonitoring for patients with cochlear implants. It is now working towards opening a Jakarta Ear and Hearing Centre in MiKa Kelapa Gading Hospital, providing a one-stop shop for Indonesians with hearing loss.

Previous research by Katalis on opportunities for enhanced bilateral trade between Indonesia and Australia[24] found that a growing population, the rollout of the JKN and higher consumer healthcare spending is leading to an increased demand for medical devices and assistive technology.

Consultations with industry stakeholders revealed strong demand for digital AT support, especially to address a gap for apps with Indonesian language and content. There is a huge opportunity for Australian AT providers to extend their products to be suitable for an Indonesian market.

Supporting Indonesia's international competitiveness

Around a million Indonesians travel overseas (particularly to Malaysia, Singapore and Thailand) for medical treatment each year, with medical tourism becoming a popular option for those seeking high-quality healthcare. Indonesians spend nearly USD11.5 billion on medical services abroad every year.[25]

Indonesia is working with world-class healthcare and education providers from Australia to help revitalise Indonesia's health service offerings. This is intended to not only to encourage Indonesians to seek treatment locally, but also to attract foreign health tourists. Katalis is supporting these efforts, such as by funding a recent study to map commercial opportunities for Australian businesses in Indonesia's nascent medical tourism industry (particularly in Bali).

There are significant opportunities for Australian digital health providers to support Indonesia's ambitions to become an internationally competitive health destination and reduce the number of Indonesians travelling internationally for health services.

For example, Indonesia's recently passed Health Bill (which allows foreign medical specialists to practise in Indonesia) was introduced with an aim of reducing the number of Indonesians travelling abroad for medical treatment.[26] This potentially opens further opportunities for Australian digital health professionals or businesses seeking to enter the Indonesian market.

24 Katalis (2023), 'Market demand and trade in medical devices: opportunities for enhanced bi-lateral trade between Indonesia and Australia'.

25 Hospital Management Asia (2022), 'How Indonesia plans to win over medical tourists', accessible at: https://www.hospitalmanagementasia.com/tech-innovation/how-indonesia-plans-to-win-over-medical-tourists/.

26 Allen & Gledhill (2023), 'Indonesia passes Health Bill that allows foreign doctors to practice in the country', accessible at: https://www.allenandgledhill.com/sg/publication/articles/24992/indonesia-passes-health-bill-that-allows-foreign-doctors-to-practise-in-the-country.

Other opportunities for collaboration include:

Making quality health more accessible via digital consultation
Australian businesses can support Indonesian medical professionals and businesses adopt and adapt technology to provide access to reputable specialists via digital platforms (such as telehealth and online platforms) at a more affordable cost.

Enhanced patient experience
Australian businesses can leverage their reputation to increase trust in services provided in Indonesia, and leverage digital health solutions to personalise healthcare experiences (e.g. patient portals, real time updates).

Digital diagnostics
Australian businesses can increase access to, and use of, remote diagnosis using AI-powered tools.

Remote monitoring and follow-up support
Australian and Indonesian businesses can collaborate to develop wearable devices and mobile apps to help people track their health, allowing access to remote healthcare providers and providing online follow-up support.

Using behavioural science to increase the uptake of digital health

For digital health technology to be successful, it needs to be designed with an understanding of human behaviour, so that people (whether they be clinicians, patients, or service staff) choose to engage with it. Behavioural science can be applied in all phases of digital health, from design to implementation. Including behavioural science in digital health is already happening; a survey of 346 behavioural scientists in the United States found 77% already participate in digital health projects.[27] Behavioural science has been used to optimise wording on computer pop-ups for GPs, increase uptake of digital apps (such as COVID-19 tracking apps), improve electronic prescribing, and increase medication compliance and organ donation registration via digital messaging.

In 2018, the New South Wales Government reduced the number of people missing appointments at St Vincent's Hospital in Sydney by 19% by rewording reminder text messages using behavioural techniques.[28] Cochlear has also applied behavioural science to increase adoption of cochlear implants amongst children with profound hearing impairment in Asia.[29]

27 Sucala M, Cole-Lewis H, Arigo D, Oser M, Goldstein S, Hekler EB, Diefenbach MA. (2021) 'Behavior science in the evolving world of digital health: considerations on anticipated opportunities and challenges'. Transl Behav Med, 11(2).

28 NSW Government (2019), 'Reducing missed hospital appointments with better text messages', accessible at: https://www.nsw.gov.au/departments-and-agencies/behavioural-insights-unit/blog/reducing-missed-hospital-appointments-better-text-messages.

29 The Behavioural Architects (2023), 'Using Behavioural Science to improve conversion to receiving cochlear implants', accessible at: https://www.thebearchitects.com/our-work/case-studies/using-behavioural-science-to-improve-conversion-to-receiving-cochlear-implants/.

Digital service providers are also using behavioural science-informed design techniques to address and leverage cognitive biases, such as:

Default bias
People tend to stay with the default choice or choose inaction rather than action. Australia's 90% uptake of digital health record MyHealth has been largely influencedby requiring people to opt-out, rather than opt-in.

Intention-action gap
People often fail to do what they intend to do. Reminders (e.g. text messages for hospital appointments in NSW) help people overcome this bias.

Social norms
People tend to follow what other people are doing in making their decisions. Making other people's positive behaviour more visible can influence people's behaviours e.g. sharing activity on fitness trackers.

Despite adoption of digital health, only 28% of Indonesians are confident or very confident about diagnosis received from telehealth, presenting a clear opportunity for applying behavioural science techniques to improve understanding and trust.[30]

Australia has a number of world leading behavioural science firms as well as universities that specialise in behavioural economics. There is huge potential for Indonesian digital health service providers to partner with Australian behavioural science expertise to improve uptake and effectiveness of their products and services. Australian behavioural science companies and universities could also assist Indonesian telehealth providers to improve beliefs and confidence, increasing uptake and reliance on telehealth services.

Opportunities for Indonesian digital health providers

Indonesia's digital health landscape is brimming with potential, but navigating the complexity and fragmentation requires innovative solutions. The dynamic and entrepreneurial spirit of Indonesian digital health startups has led to the development of unique consumer-centric solutions that differ significantly from those in Australia. Indonesia's startups have also shown significant adaptability and agility in developing and deploying digital health solutions in response to changing healthcare needs, which would be valuable in the Australian market.

Examples of potential cooperation include:

1 | Alternative models of customer engagement

2 | Integrated services (e.g. digital pharmaceuticals)

3 | Data privacy and cybersecurity

30 Deloitte (2022).

Alternative models of customer engagement

Indonesia has a unique perspective and approach to business-to-customer innovation. This gives Indonesia distinct strengths and as a result it can offer valuable insights and potential solutions for Australia. For example, Indonesian telehealth services predominantly use messaging services (such as WhatsApp) due to limited internet access and cost-effectiveness. By contrast, in Australia, telehealth is primarily delivered via video conferencing and phone calls, with message-based services (such as SMS) primarily focused on reminders and education messaging.

Many Australian industries (such as financial services, telecommunication, energy, retail and information technology support) are increasingly and successfully integrating digital customer service and support via SMS and online live chat support. Around 68% of businesses in Australia used SMS messaging in some form in 2020.[31]

Video conferencing is likely to remain preferred for consultations given it facilitates non-verbal communication and visual examination. However, message-based telehealth has many advantages, including:

- Convenience, by allowing asynchronous communication that can more easily fit the busy schedules of both health providers and patients.
- Increased transparency and accountability through providing record of communication.
- Greater comfort for patients who may feel uncomfortable discussing sensitive topics verbally, and can feel more private and less invasive. It also allows for more discreet consultations without patients having to worry about being overheard or observed.

While video conferencing is likely to continue to dominate telehealth in Australia, the advantages of SMS and other message-based telehealth should not be overlooked. Indonesian companies can play a crucial role in unlocking the potential in Australia.

In addition to message-based telehealth through apps such as WhatsApp, Indonesian start-ups are also leading the way in improving healthcare service using chatbots and AI. For example, Kata.ai is an Indonesian conversational AI company specialising in AI-powered chatbots and virtual assistants (through SMS and mobile apps), including for healthcare applications. It uses AI to help patients check for early symptoms, book appointments through chat apps and provide outpatient care.

Indonesian startups have demonstrated how messaging apps and other technology can be better leveraged for more than just reminders and educational messaging. They have proven the effectiveness and broad applicability of this technology for customer service, consultations, chronic disease management, and mental health support. Their experience in developing innovative solutions tailored to diverse user needs and a cost-conscious population provides valuable insights for Australia's evolving digital healthcare ecosystem.

31 Swift Digital (2022), '24 Must-Know SMS Marketing Statistics For 2023', accessible at: https://swiftdigital.com.au/blog/sms-marketing-statistics/

Integrated services (e.g. digital pharmaceuticals)

Many of Indonesia's leading telehealth services integrate telemedicine consultations, online medicine delivery and health information resources. As a result, digital pharmacies in Indonesia have experienced rapid adoption, with platforms like Halodoc and Alodokter servicing millions of Indonesians every month by integrating online delivery of pharmaceuticals into a broader health offering.

The success of digital pharmacies in Indonesia has been driven by high smartphone penetration, cheap medication, high uptake of digital transport technologies and regulation that allows pharmacies to distribute medicine through an electronic system with third-party delivery services (and protects from fake medicines). These companies use user-friendly mobile apps to provide convenient and quick access to medication. It is not uncommon for Indonesians to order medications or health products online via an app and have them delivered within a couple of hours.

While digital pharmacies in Australia offer online medication purchases, they haven't replicated the widespread adoption seen in Indonesia. This can be attributed in part to a stricter regulatory environment and higher delivery costs, along with limited integration with other healthcare services like telemedicine. However, significant opportunities exist for collaboration between Indonesian and Australian businesses. For example, Indonesian companies can share expertise in driving digital pharmacy adoption by collaborating with Australian providers to offer more integrated services, and in combining online medication purchases with telemedicine and other e-commerce and healthcare offerings for a more seamless user experience.

Data privacy and cybersecurity

The rapid expansion of digital health means data and cybersecurity has become paramount to ensuring the privacy, integrity and reliability of sensitive patient information and the protection of critical health infrastructure and systems. Data breaches and cyberattacks can have devastating consequences for both patients and healthcare providers. The digital health sector has become a prime target for cyberattack, with increased threats and compromised systems.[32] For example, in 2022, Indonesia had 11 million cyberattacks, 22% more than the previous year.[33] In 2021, a lack of protocols in Indonesia's COVID-19 test and trace app potentially exposed the personal information and health status of 1.3 million people.[34] Australia has seen the same trend, with calls to the Australian Cyber Security Centre increasing 23% in 2022-23, and the average cost of cybercrime increasing 14% to AUD71,600 for large businesses, AUD97,200 for mid-size businesses and AUD46,000 for small businesses.[35]

Data privacy is a particular issue for women and other minority groups. While digital health data can collect data to disaggregate by sex or other demographics to better identify health disparities and inequalities, it also creates challenges in terms of data security. For example, women are disproportionately targeted for online harassment, making them particularly vulnerable when data is leaked. Data collection and algorithms can also perpetuate existing gender biases, leading to discriminatory outcomes.

32 Australian Digital Health Agency (2023), 'Cyber security fundamentals', accessible at: https://www.digitalhealth.gov.au/healthcare-providers/cyber-security/cyber-security-fundamentals.

33 United States International Trade Administration (2023), 'Indonesia cybersecurity', accessible at: https://www.trade.gov/market-intelligence/indonesia-cybersecurity.

34 Reuters (2021), 'Indonesia probes suspected data breach on COVID-19 app' accessible at: https://www.reuters.com/technology/indonesia-probes-suspected-data-breach-covid-19-app-2021-08-31/.

35 Australian Department of Defence (2023), 'Release of the annual Cyber Threat Report 2022-23' accessible at: https://www.minister.defence.gov.au/media-releases/2023-11-15/release-annual-cyber-threat-report-2022-23.

Cybersecurity is not only important in terms of ensuring the privacy of sensitive health data, but also for preventing unauthorised access, use, disruption, or destruction of health-related infrastructure and computer systems. For example, hospitals rely on a wide range of medical devices connected to the internet, which are potentially vulnerable to cyberattacks and disruption of critical systems.

Cybersecurity is a key area of cooperation between Australia and Indonesia, as outlined in IA-CEPA, with both countries recognising the importance of:

- building and maintaining the capabilities of their national entities responsible for computer security incident response, including through exchange of best practices; and
- using existing collaboration mechanisms to cooperate to identify and mitigate malicious intrusions or dissemination of malicious code that affect the electronic networks of both countries.

IA-CEPA also included provisions for data privacy, including the requirement for both countries to adopt or maintain a legal framework that provides for personal information protection.

In September 2021, Australia and Indonesia signed a refreshed and expanded bilateral Memorandum of Understanding (MoU) on Cyber and Emerging Cyber Technology Cooperation, committing to share information and best practice, build capabilities (including through training, workshops and Masters/PhD scholarships), and a cyber dialogue.

On this supportive foundation, Australia and Indonesia both have significant expertise in cybersecurity that can be instrumental in addressing security challenges and open avenues for fruitful bilateral collaboration and cooperation, including:

Commercial opportunities

Companies in both countries can collaborate to develop new cybersecurity products and services that are tailored to the needs of the other's markets. For example, Privy, an Indonesian digital identity company established in 2016 is revolutionising digital services by eliminating complicated registration processes and improving customer experience. It is successfully providing a range of services across a variety of sectors, including healthcare, where its services include digital identity verification for patient registration, personal data protection, enterprise document handling solutions and digital signatures to minimise the risk of fraud. While Indonesia remains Privy's core market, it has already expanded to Australia, receiving support from Katalis to undertake a market entry report that facilitated and de-risked this expansion.

Shared research opportunities

Australia has a strong track record in cybersecurity research and innovation, with world-class universities and institutions active in this field. This expertise can be shared with Indonesian digital health companies through partnerships between Indonesian and Australian researchers and universities such as joint research initiatives and knowledge exchange programs.

Cybersecurity research and training

Australia is a global leader in training for cybersecurity specific to digital health. For example, The Australian Digital Health Agency provides free resources and webinars, as well as Digital Health Security Awareness eLearning on its online learning portal, for both healthcare providers and the public. Australian universities and Technical Vocation Education and Training (TVET) providers also have world leading cybersecurity programs, including half year online Cyber Security Bootcamp courses offered by universities such as the University of Adelaide and Queensland University of Technology. Australia could work with Indonesian digital health providers to establish training centres and virtual training programs in cybersecurity training and certification relevant to digital health. In addition, basic online cybersecurity awareness training could be developed for Indonesian health practitioners to support safe use of digital health solutions like telehealth.

Unleashing potential: Government strategies for stronger Indonesia-Australia business cooperation

Government support can foster the opportunities identified for Indonesian and Australian digital health businesses, creating the conditions to unlock mutual prosperity and increase economic connections. Government catalysts for collaboration include:

- **Shared learnings:** Though Australia boasts a more advanced healthcare system, it still faces hurdles in its digital health journey, mirroring some of Indonesia's struggles. For example, both countries face accessibility gaps in rural areas and consumer concerns regarding data privacy, and have had challenges in rolling-out digital health technology (such as Australia's low adoption rate of the COVID-19 tracing app and Indonesia's challenges with interoperability and the uptake of *SatuSehat*). These experiences offer valuable learning opportunities for both nations and highlight the need for sharing best practices and successes.
- **Upgrading the digital trade provisions of IA-CEPA:** Digitally delivered services are estimated to increase 2.3% for every additional digital trade provision.[36] Australia and Singapore have negotiated cutting-edge trade rules and signed a series of MoUs to reduce barriers to digital trade and to build a trade environment that fosters cooperation. There is opportunity for Australia and Indonesia to follow suit and uplift their commitments on digital trade to further promote business cooperation.
- **Prioritising digital health in bilateral skills and training efforts:** Programs like the IA-CEPA Skills Development Exchange Pilot could be expanded to include and facilitate knowledge transfer and build workforce capabilities in digital health.
- **Bilateral Industry Fora:** Building on the Australian Embassy in Indonesia's forum on Benefits and risks of digital disruption in the health services sector and Katalis' Digital healthcare skills for the future webinar, regular missions and business-to-business fora could be organised to connect digital health businesses and explore partnership opportunities.
- **Supporting new commercial trade opportunities:** Governments can continue to identify and support commercial trade opportunities in digital health through mechanisms like Katalis.

36 Swift Digital (2022), '24 Must-Know SMS Marketing Statistics For 2023', accessible at: https://swiftdigital.com.au/blog/sms-marketing-statistics/

Training Indonesia's digital health workforce

As demand for digital health goods and services in Indonesia grows, so too does demand for digital health skills. Digital health skills range from broad digital literacy for those working in the health sector through to expert credentials and competencies for those specialising in digital health. Specialist digital healthcare skills cross-over with a range of other expertise including non-digital health capabilities, information and technology skills and software development skills.

Basic digital literacy

Basic digital literacy skills for all workers in healthcare (clinical, non-clinical, support and administration)

Digital health capabilities

More advanced skills for people working in, or with, digital health, including data and analytics, communications and support

Specialist competencies

More specialised skills for people specialising in digital health, such as health and clinical informatics, clinical digital applications, and ethical standards

Digital literacy for health professionals

Continuous professional development of healthcare workers is needed to drive successful implementation of digital healthcare solutions in Indonesia, particularly for digital literacy.[37] Health professionals increasingly need a range of digital skills to perform their job. However, many Indonesian health professionals currently do not possess these skills. This challenge has already been recognised by Indonesian medical practitioners, with 72% of medical professionals surveyed for a 2022 study self-reporting the need for additional training to deliver telemedicine services more effectively.[38]

Examples of digital literacy skills needed by healthcare professionals include:

- Basic digital literacy skills, such as basic computer literacy and proficiency in commonly used software applications (email, spreadsheets, internet browsers), data entry and management, telehealth and video conferencing.
- Advanced digital skills, such as health informatics, data analysis and interpretation, e-learning and online resources, cybersecurity and data privacy.
- Specific software and program skills for digital health, such as electronic prescribing programs, telehealth, and practice management software.

Australia's TVET sector is world-leading, and has made significant progress in equipping Australian healthcare professionals with digital health literacy skills and developing frameworks, standards and regulations for digital health training (see case study below). Many Australian education providers already offer digital literacy courses specially tailored to people working in the health industry (including some free courses such as the telehealth short course offered by Torrens University). IA-CEPA affords considerable ability for Indonesian digital health providers to tap into Australia's education system for digital skills training for healthcare practitioners and other staff.

37 Katalis (2022), 'Empowering healthcare professionals key to digital healthcare success in Indonesia', accessible at: https://iacepa-katalis.org/empowering-healthcare-professionals-key-to-digital-healthcare-success-in-indonesia/.

38 Deloitte (2022).

Collaboration has already begun. For example, in 2023 24 representatives from Indonesia's Ministry of Health and Digital Transformation Office and other Indonesian health representatives participated in a short course on digital health run by the University of Queensland, supported by Australia Awards Indonesia. The course showcased telehealth, health informatics and digital healthcare including lectures, workshops, site visits and peer-to-peer mentoring.

Specialised digital health capabilities

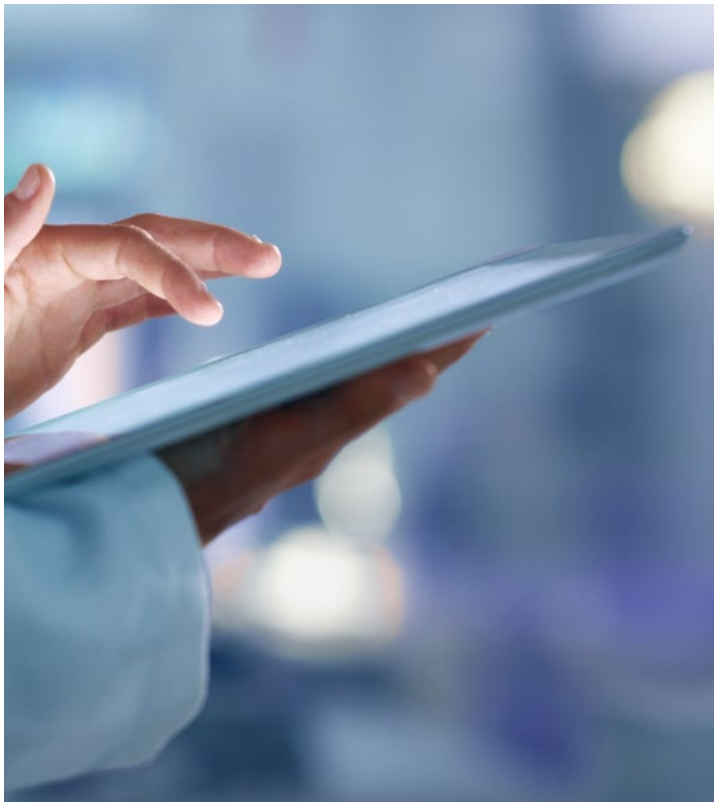
In addition to general digital skills shortages, there is growing demand for more specialist skills in digital health. As digital health blends healthcare and technology, the specialist digital skills needed in the healthcare industry are also in demand more generally across the economy, including:

- Product management
- Data science and informatics
- Software engineering
- Product design (UI/UX)
- Business skills and commercial expertise
- Product engineering

Many of the skills shortages faced in digital health are reflective of Indonesia's digital skills gap more generally. The World Bank estimates Indonesia will need 9 million additional people in the digital workforce by 2030 to support its technical development[39] (see Katalis's digital skills report for more information).[40]

The digital skills gap presents a critical challenge and, conversely, a significant opportunity to attract, equip, and empower more women in the Indonesian digital health workforce. While skills shortages mirror broader trends, the digital health industry has a unique potential to close the gender gap in technology and unleash the collective talent of a diverse workforce.

Facilitated by IA-CEPA, there is a large opportunity for Australian universities and technical skills training providers to assist Indonesian digital health providers to build workforce capability, including co-creation of programs specifically designed to attract and upskill women. Katalis can connect Indonesian digital health businesses with Australian TVET providers to help close the skills gap.



39 World Bank (2018), 'Preparing ICT Skills for Digital Economy: Indonesia within the ASEAN context', accessible at: https://blogs.worldbank.org/sites/default/files/preparing_ict_skills_for_digital_economy-revised_7mar2018.pdf.

40 See Katalis (2022) 'Training Indonesia's digital workforce', for an overview of the demand and supply of digital skills in Indonesia.

Case study: Leveraging Australia's experience building national digital health capability

Although digital health is rapidly transforming healthcare delivery in Australia and globally, limits on the digital capabilities of health professionals represent a significant roadblock to progress. For example, a global survey of over 3,000 healthcare leaders across 14 countries in 2021 found the top barrier impeding Australian healthcare providers' ability to prepare for the future was worker's lack of experience with new technology (43%). This was viewed as a greater challenge than financial or budgetary constraints (39%), staff shortages (29%) or organisational silos (25%). A 2020 survey found just under half (47%) of younger Australian healthcare professionals didn't know how to use digital patient data to support patient care.[41]

Recognising this challenge, the Australian Digital Health Agency and the Australasian Institute of Digital Health developed the National Digital Health Capacity Action Plan in 2022 and identified priority actions needed to build digital health capacity across the health workforce.[42]

The plan included a road map for key digital health workforce enablers including:

- **Developing frameworks and guidelines** to support consistent digital health capabilities and practice nationally, including building foundational digital health capabilities, digital health readiness for organisations, and digital health practice guidelines.
- **Education and training** to enable the health workforce to upskill and adopt digital opportunities, including resources for education and training; specialist digital health career pathways; and experiential learning (such as internships and mentorships).
- **Regulation** to require the inclusion of digital health in regulated health education, including specialist digital health courses; to embed foundational digital health capabilities into regulated health course requirements; and to formalise digital health learning as a Continuing Professional Development activity with professional bodies.
- **Collaboration** to promote a shared digital culture and continuous learning, such as providing a user-friendly and interactive web-based platform as a central depository for digital health workforce development material.

The Australian Digital Health Agency and the Australasian Institute of Digital Health are already working to deliver the foundational pieces of the plan. Several digital health capability frameworks and the workforce capability website have already been delivered (an online hub for knowledge and learning on digital health).

Indonesia stands to benefit significantly from learning from and collaborating with Australia in building its own national digital health capacity. With similar challenges in digital literacy within the healthcare workforce, Indonesia can leverage Australia's experience and expertise to:

- Develop national frameworks and guidelines tailored to the Indonesian context, ensuring consistent and standardised digital health practices across the country;
- Adapt and adopt Australia's educational and training resources to upskill its workforce and equip them with the necessary digital skills for effective use of digital health solutions; and
- Explore collaborative initiatives that promote knowledge exchange, joint research, and capacity building programs to foster a shared digital health culture and continuous learning within the Indonesian healthcare workforce.

41 Philips (2021), 'The Digital Health Skills Gap', accessible at: https://www.philips.com.au/a-w/about/news/archive/standard/news/press/2021/20211021-the-digital-health-skills-gap.html.

42 Australian Digital Health Agency (2020).

Spotlight on digital health and inclusion

Both Australia and Indonesia grapple with significant health disparities. Across both nations, factors like gender, disability, parental background, socioeconomic status, location, and access to housing heavily influence health outcomes and healthcare access.[43] While commercial cooperation between Australia and Indonesia presents exciting opportunities, the true potential lies in harnessing digital health to actively reduce these inequalities.

Empowering women through digital health

Digital health holds immense potential to empower women and advance gender equality in health outcomes through increased and easier access to healthcare, higher health literacy, improved empowerment (through better understanding of individual health and health data) and reducing barriers for face-to-face healthcare, such as childcare and household responsibilities.[44] For example, Nona, an Indonesian feminine care brand established by two Indonesian women passionate about improving menstrual care and education, has released the free Nona Woman app that helps educate women about their menstrual cycle and other women's health issues.

A 2021 study of Australian women's use of digital health technologies found that:[45]

- 100% of women participants in the study accessed both online and face-to-face sources of health information regularly.
- Women who used health and fitness self-tracking apps and wearable devices felt they had better knowledge of their own bodies.
- Pregnancy and parenting apps help women cope with the demands and challenges of caring for their children.
- Women play a key role not only in their own health, but in providing advice and healthcare for friends and family members. Consequently, targeting digital health applications to women impacts a much wider audience.

Digital health also provides opportunities for women experiencing domestic or gender-based violence to access health services more discretely.

However, many digital health tools do not address women's health needs and priorities.[46] Encouraging higher levels of women's participation in the digital health workforce, will foster innovation more tailored to women's unique needs and perspectives.

There are significant opportunities to skill both Australian and Indonesian women in digital health. Despite limited data on women's representation in digital health, a 2021 Australian survey revealed a striking finding: 90% of women in the industry believe progress towards gender equality is necessary. To address this gap, several programs and networks have emerged in Australia, including Brilliant Connected Women in Digital Health (a platform for idea sharing through events and speakers) and the Women in Digital Health Leadership program (a six-month initiative that empowers female leaders at all stages of their careers).[47] These initiatives demonstrate the potential for bilateral collaboration in similar efforts.

43 Including:
Aizawa, T. (2022) 'Inequality in health opportunities in Indonesia: long-term influence of early-life circumstances on health', BMC Public Health, 22, 1334.
Flavel J, McKee M, Tesfay FH, Musolino C, Freeman T, van Eyk H, Baum F. (2022), 'Explaining health inequalities in Australia: the contribution of income, wealth and employment', Aust J Prim Health, 28(6), pp 474-481.
Laksono AD, Wulandari RD, Rohmah N, Rukmini R, Tumaji T. (2023), 'Regional disparities in hospital utilisation in Indonesia: a cross-sectional analysis data from the 2018 Indonesian Basic Health Survey', BMJ Open, 13(1).
Mulyanto, J, Kringos, D., and Kunst, A. (2019), 'Socioeconomic inequalities in healthcare utilisation in Indonesia: a comprehensive survey-based overview' BMJ Open.

44 Figueroa, C. et al. (2021), 'The need for feminist intersectionality in digital health', The Lancet Digital Health, 3(8), E526-E533.

45 Lupton, D., (2019), 'The Australian women & digital health project: comprehensive report of findings', accessible at: https://www.canberra.edu.au/research/faculty-research-centres/nmrc/publications/documents/Australian-Women-and-Digital-Health-Project-Report.pdf.

46 Figueroa et al. (2021).

47 Australian Institute of Digital Health et al. (2022).

Digital health can also assist women already working in health. Digital health isn't just about attracting more women to the industry; it also offers significant benefits for those already working in healthcare, particularly women. By providing empowering tools and automation, digital health can help relieve high workloads, particularly for lower status healthcare workers.[48]

> **I believe healthcare systems are under an enormous amount of pressure… there are staffing issues to find really highly qualified people to work in the healthcare system. So as technologists, we're trying to find ways that we can reduce the administrative burden for the clinician, so they can spend more time with their patients, doing what they're supposed to be doing and providing those great health outcomes.**
>
> *– Nicole Nixon, CEO, Five Faces, interview with Katalis.*

There are significant opportunities for Australian and Indonesian digital health providers to collaborate to develop digital health applications that benefit women. For example, digital health offers a way to link expecting and new mothers in remote and rural areas to ante- and post-natal care or midwives that may be otherwise difficult to access. This may include tele-midwifery as well as online communities for new mothers, breastfeeding apps, and online antenatal classes.

By joining forces, Australia and Indonesia can unlock the immense potential of collaborative programs, paving the way for a flourishing digital health sector that celebrates and leverages the talents of women across both countries.

Transforming access: A revolution for disability inclusion

For people with disability, accessing healthcare can often present additional challenges. However, the rise of digital health offers unique opportunities to bridge this gap and improve access to essential services.

Digital health can empower individuals through:

- **Telehealth and AT.** Digital health eliminates many barriers encountered in physically accessing healthcare, and apps like speech-to-text or sign language translation tools can break down communication barriers between patients and healthcare professionals. It can also support individuals with disabilities to self-manage their conditions and actively participate in their own well-being.
- **Inclusive systems.** Integrating accessibility features into all digital health apps (e.g. alt-text descriptions) can help ensure platforms can be used by anyone, regardless of disability.
- **Data analysis.** Data from digital health platforms can be used to develop valuable insights into specific health needs and challenges of people with disability, informing the development of targeted interventions.

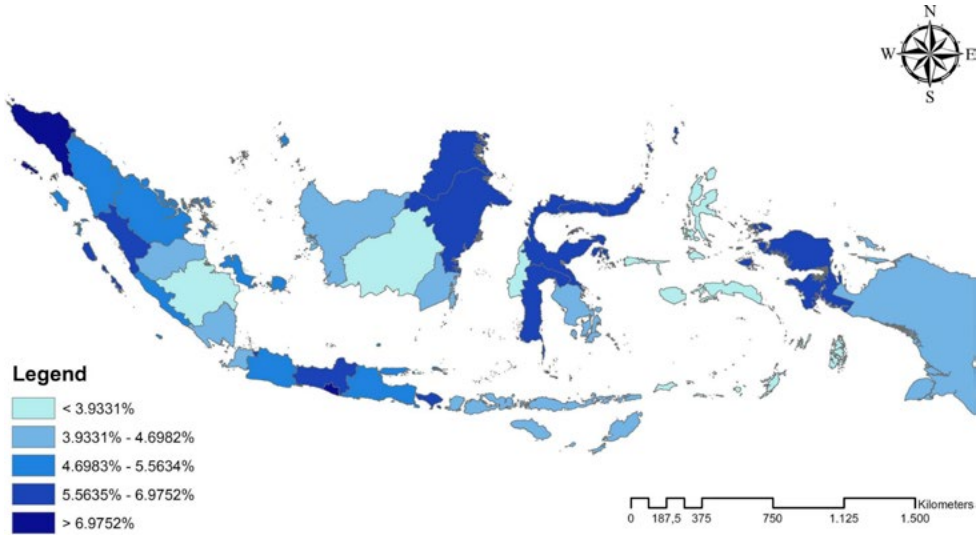
The section on Digital AT provides an example of Australian and Indonesian collaboration in digital assistive technology and opportunities for collaboration. More information can also be found in Katalis's study '*Inclusion is the Future: Opportunities for Enhanced Bilateral Trade and Investment between Indonesia and Australia in Medical Devices and Assistive Technology'.*

48 Figueroa et al. (2021).

Increasing health coverage in rural remote communities

Geographic inequalities are significant. In Indonesia, government-run community health centres (*Pusat Kesehatan Masyarakat* or *Puskesmas*) and auxiliary health centres (*Puskesmas Pembantu* or *Pustu*) are more likely to be in urban areas than rural areas, and people are less likely to have access to, or use, hospitals in rural areas compared to urban areas (see Figure 2).[49] Private GPs and clinics are also more likely to be located in urban areas.[50] It is not only access to clinics that is challenging; even where facilities exist, the availability of amenities needed to provide basic medical care (e.g. water and sanitation, electricity, internet etc.) is significantly lower in *Puskesmas* located in rural areas (72%) than those in urban areas (80%).[51]

Figure 2: Regional distribution of average hospital utilisation by province in 2018 (% of population)



Source: Laksono AD, et al. (2023)

Like Indonesia, Australia also faces geographic health inequalities, with those living in rural and remote areas having shorter lives, higher levels of disease and injury, and poorer access to and use of health services compared to people living in metropolitan areas. For example, on average, people in regional and remote areas of Australia are 10 times less likely to see a GP, specialist or health professional when needed due to a lack of physical access[52] and people in remote and very remote areas live on average five years less than their counterparts in major cities.[53]

Universal health coverage has helped address health inequality. While Australia has had universal healthcare in the form of Medicare since the 1980s, health financing in Indonesia has changed considerably since the introduction of universal health coverage (the JKN) in 2014. The JKN covers about 80% of Indonesians, and households with JKN are far less likely than other uninsured Indonesians to pay out of pocket for healthcare. Government health spending (as a share of current health expenditure) has almost doubled from 25.7% in 2010 to 49.3% in 2018 (about USD49 per person). As a result, out of pocket spending has also reduced from 59% of current health expenditure in 2010 to 34.8% in 2018, reaching 31.8% in 2020.[54] People in the poorest two

49 Laksono AD, et al. (2023).

50 Haemmerli, M., Powell-Jackson, T., Goodman, C. et al. (2021), Poor quality for the poor? A study of inequalities in service readiness and provider knowledge in Indonesian primary health care facilities. Int J Equity Health 20, 239.

51 WHO and Ministry of Health Indonesia (2017), 'State of Health Inequality: Indonesia', accessible at: https://iris.who.int/bitstream/handle/10665/259685/9789241513340-eng.pdf?sequence=1.

52 PriceWaterhouseCoopers (2018), 'Digital Health in rural and remote Australia tackling the inequality of geography', accessible at: https://www.pwc.com.au/health/digital-health-in-rural-2018.pdf.

53 AIHW (2018) 'Australian Burden of Disease Study', accessible at: https://www.aihw.gov.au/getmedia/5ef18dc9-414f-4899-bb35-08e239417694/aihw-bod-29.pdf?v=20230605164208&inline=true

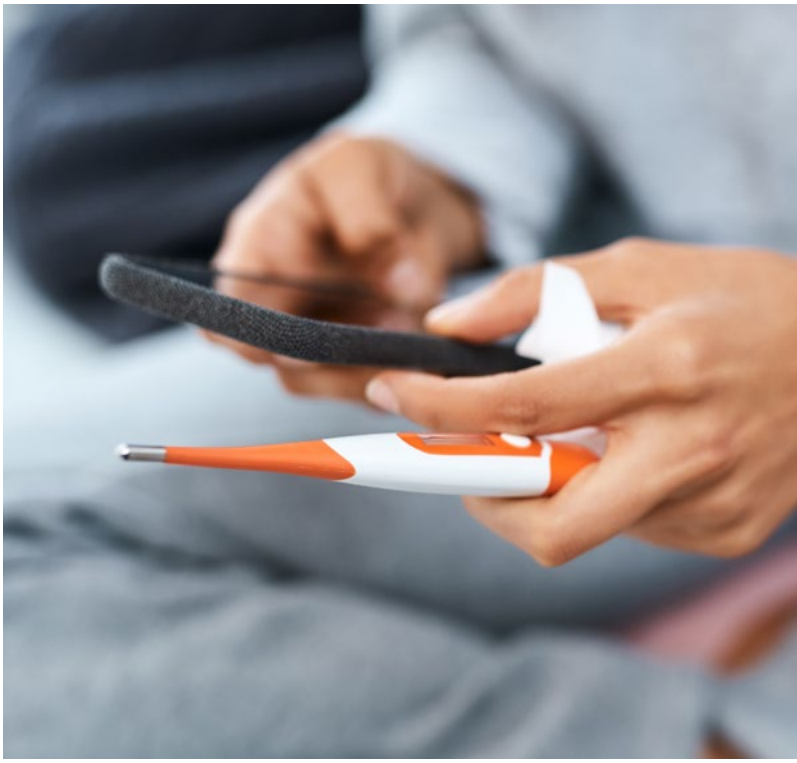
54 Asante, A. et al (2023), 'The benefits and burden of health financing in Indonesia: analyses of nationally representative cross-sectional data', Lancet Glob Health, e770-80.

quintiles have a higher probability not to incur any out-of-pocket costs for healthcare, as do those in rural areas, as a result of the introduction of JKN.[55] While universal health coverage has helped reduce health inequalities in Indonesia, addressing geographical factors such as service accessibility and availability may be as important as improving compositional factors like health insurance.[57]

Digital health is already helping overcome many of the challenges of healthcare access in regional areas of Indonesia. Technology such as telemedicine, mobile health apps and electronic health records can be leveraged to help overcome geographic barriers. Indonesia is already making significant progress on digital health in regional areas, with almost all *Puskesmas* already familiar with SMS and WhatsApp based technology, and many implementing telehealth capabilities.[58]

Australian rural health systems are also pushing the boundaries of what is possible with digital health care. To address geographic challenges, the Australian Government introduced a Communities of Excellence program as a collaboration between local communities, governments, organisations and healthcare providers to improve healthcare in regional and rural areas using digital health. This included developing a toolkit to help communities build digital health capabilities, and improve the integration and use of digital health know-how.[59]

Australia is also using digital health technologies to improve health outcomes for disadvantaged Indigenous communities, often in remote areas. For example, the AIMhi Stay Strong App is an innovative tool for addressing the mental health and wellbeing concerns of First Nations Australians, by assisting service providers to deliver cost-effective, evidence-based wellbeing interventions.[60]



Australia and Indonesia share significant geographical challenges in healthcare delivery, but their unique experiences in leveraging digital health solutions to address these challenges present a valuable opportunity for collaboration and cross-pollination. Opportunities include:

- **Sharing best practices and knowledge:** Both countries can learn from each other's experiences and adapt and adopt successful strategies to their specific contexts.
- **Developing joint initiatives:** Collaborative projects could focus on areas like remote monitoring, telehealth training, and data sharing platforms for rural healthcare.
- **Sharing of resources and new technology:** Collaboration can accelerate the implementation of digital health solutions in both countries by leveraging combined resources and expertise.

55 Maulana, N. et al (2022), 'How Jaminan Kesehatan Nasional (JKN) coverage influences out-of-pocket (OOP) payments by vulnerable populations in Indonesia', PLOS Glob Public Health, 2(7).

56 E.g. see Anindya K, Lee JT, McPake B, Wilopo SA, Millett C, Carvalho N. (20200, 'Impact of Indonesia's national health insurance scheme on inequality in access to maternal health services: A propensity score matched analysis.' J Glob Health, 10(1)

57 Mulyanto, J, Kringos, D., and Kunst, A. (2019)

58 UKAID (2021) 'Telehealth and Digital Inclusion in Indonesia', accessible at: https://www.heart-resources.org/wp-content/uploads/2022/01/Telehealth-and-Digital-Inclusion-in-Indonesia-Full-Report.pdf

59 Australian Digital Health Agency (2023), 'Communities of Excellence' accessible at: https://www.digitalhealth.gov.au/healthcare-providers/initiatives-and-programs/communities-of-excellence

60 Menzies School of Health (2023), 'The AIMhi Stay Strong App', accessible at: https://www.menzies.edu.au/page/Research/Projects/Mental_Health_and_wellbeing/Development_of_the_Stay_Strong_iPad_App/

A booming industry set for global growth

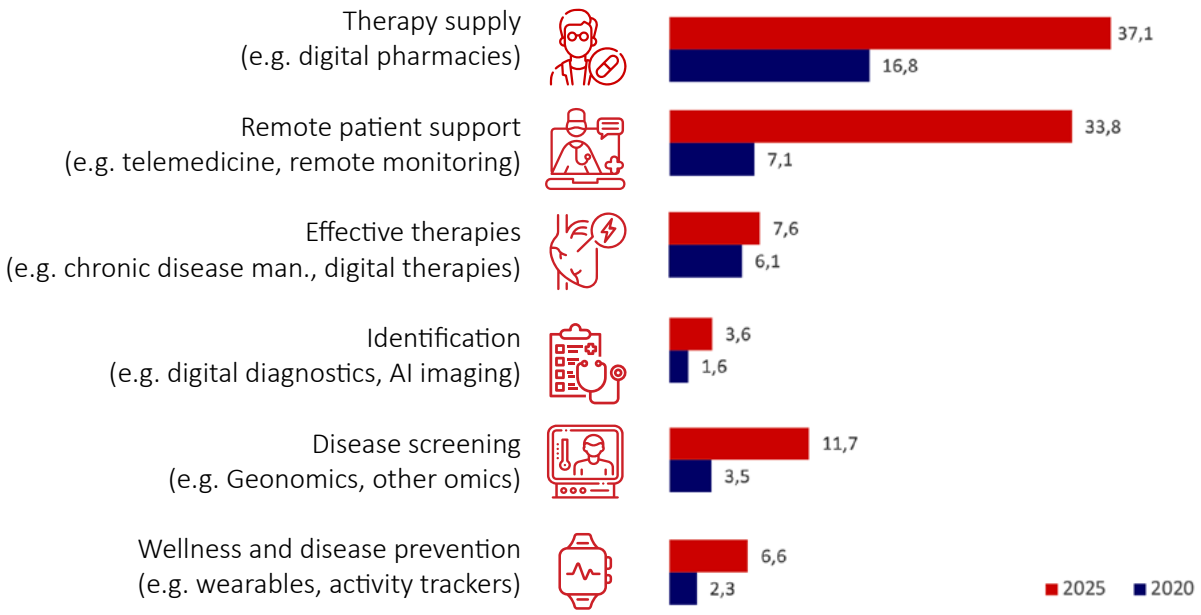
Global demand for digital healthcare is expected to reach USD1.6 trillion by 2032, up from USD 217 billion in 2022. This expansion will be driven by a compound annual growth rate of 25% from 2023 to 2032.[61]

A waking giant: Digital health in Asia

Emerging digital health platforms are estimated to already impact more than a billion lives in Asia, with almost 1.5 billion registered users on platforms such as China's AliHealth (390 million monthly active users), India's Practo (300 million users) and Indonesia's Alodokter (40 million users).

Digital health in Asia was estimated at USD37 billion in 2020, with remote patient support such as telemedicine (USD16.8 billion) and digital pharmacies (USD7.1 billion) the largest sectors. Growing populations and higher incomes will underpin continued growth, with digital health in Asia predicted to grow 21% annually to USD100 billion in 2025. The highest growth is expected in digital pharmacies (37%), disease screening (28%) and wellness and disease prevention (23%) (see Figure 3).[62] Further future growth is also anticipated, at around 26.5% between 2022 and 2030.[63]

Figure 3: Estimated market size of digital health categories in Asia (2020 & 2025)



61 Acumen Research and Consulting (2023), 'Digital Health Market Size- Global Industry, Share, Analysis, Trends and Forecast 2023-2032', accessible at: https://www.acumenresearchandconsulting.com/digital-health-market.

62 McKinsey & Company (2021).

63 ResearchandMarkets.com (2022), 'Asia Pacific Digital Health Market Size, Share & Trends Analysis Report 2022: Tele-healthcare, mHealth, Healthcare Analytics- Forecast to 2030', accessible at https://www.researchandmarkets.com/reports/5561861/asia-pacific-digital-health-market-size-share-and.

The vast potential of digital health in Asia is leading to significant venture capital investment. Between 2015 and 2020, venture capital/private equity investment in digital health in Asia grew at 38% annually, and in 2020, Asia comprised 44% of global venture capital/private equality investment in digital health (USD6 billion of USD14 billion globally).[64]

Countries in Asia are already seeing the potential of regional cooperation. For example, in 2011 the Asia eHealth Information Network (AeHIN) was created as a collaboration of digital health advocates from South and South-East Asia to promote interoperability for better health.[65] AeHIN is building digital health capacity in the region by supporting countries to develop and implement national digital health strategies through conferences, general meetings, certification training, and access to knowledge.

The explosive growth of digital health in Asia presents a unique opportunity for Australia and Indonesia to collaborate and capitalise on this burgeoning market. By working together, Australia and Indonesia can leverage their respective strengths to become key players in Asia's digital health landscape. Such collaboration could improve healthcare access, affordability and outcomes while contributing to the overall economic prosperity of the region.

Digital health continues to grow in Indonesia and Australia

Digital health is expected to continue to grow rapidly in Australia and Indonesia, as health practitioners and consumers become more aware of, and familiar with, digital services. For example, 63% of Australian healthcare leaders report telehealth is one of the digital health technologies they are most heavily investing in, and 77% say they would like their hospital or healthcare facility to invest in AI.[66] In terms of AI technology, the most heavily invested technology aims to optimise operational efficiency, followed by integrating diagnostics, predicting outcomes and supporting clinical decisions.

Like many countries globally, Indonesia and Australia have many factors driving a digital disruption of the healthcare sector and increasing demand for digital health, including:[67]

- Growing and ageing populations
- Skills shortages in the health and wellbeing industries
- Increased consumer demand for health and wellbeing
- Rising chronic disease, and
- Continued technological innovation.

64 McKinsey & Company (2021).

65 AeHIN (2023), 'About AeHIN', accessible at: https://www.asiaehealthinformationnetwork.org/about_aehin/.

66 Philips (2021), 'Future health index 2021: A resilient future Healthcare leaders look beyond the crisis'.

67 Various sources, including:
Australian Bureau of Statistics (2023), 'Population projections 2017-2066', accessible at: https://explore.data.abs.gov.au/.
AMA (2022), 'AMA report confirms staggering undersupply of GPs in next two decades', accessible at: https://www.ama.com.au/media/ama-report-confirms-staggering-undersupply-gps-next-two-decades.
AIHW (2023), 'Chronic conditions and multimorbidity', accessible at: https://www.aihw.gov.au/reports/australias-health/chronic-conditions-and-multimorbidity.
Katalis (2023), 'Market demand and trade in medical devices. Opportunities for enhanced bilateral trade between Indonesia and Australia'.
McKinsey & Company (2021), 'The future of healthcare in Asia: Digital health ecosystems', accessible at: https://www.mckinsey.com/industries/healthcare/our-insights/the-future-of-healthcare-in-asia-digital-health-ecosystems.
Oddo et al (2019), 'Risk factors for nutrition-related chronic disease among adults in Indonesia', accessible at: https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0221927&type=printable.UNFPA (2013), 'The 2010 – 2035 Indonesian Population Projection', accessible at: https://indonesia.unfpa.org/sites/default/files/pub-pdf/Policy_brief_on_The_2010_%E2%80%93_2035_Indonesian_Population_Projection.pdf.
WHO (2023).

Figure 4: The fundamental forces driving the demand for digital health

Larger and older populations

Indonesia's large population is expected to reach over 300 million by 2025, with the fastest growth for those aged over 65 years of age, whose numbers are expected to increase by 20.5 million (173%).

In Australia, the population is expected to almost double by 2066, with the number of people aged over 80 years of age growing three-fold, an increase to almost 8% of the population (compared with 4% in 2023).

This change in demographics will increase the demand for health services, as well as the relative supply of working aged people delivering care.

Skills shortages

Indonesia has a shortage of doctors (particularly in regional areas). With only 0.7 doctors per 1,000 people, Indonesia has less than the OECD average (3) and the East Asia and the Pacific average (1.9). While Australia has more doctors (4.1 per 1,000), it is still facing a shortage of more than 10,600 GPs by 2031.

Shortages of healthcare professionals increase demand for efficient digital health care solutions as an alternative to in-person consultation.

Increased consumer demand

Consumers are spending more on health and wellness. For example, health expenditure per person in Indonesia has grown from USD86 in 2010 to USD133 in 2020, of which 32% is out of pocket. In Australia, it has grown from USD4,975 to USD5,901, of which 14% is out of pocket.

Indonesia has a growing middle class that is driving demand for healthcare. The number of Indonesian households with disposable income greater than USD25,000 is expected to overtake Australia in 2030. This is fuelling increased expenditure on health alongside heighted awareness of preventative care.

Rising chronic disease

The prevalence of chronic disease is increasing in Indonesia and Australia. In 2020-21, nearly half of Australians (47%) had one or more chronic conditions. In Indonesia, chronic disease is the leading cause of death (nearly 75%). By 2040 health expenditure is expected to triple largely due to the increasing prevalence of chronic disease.

Technological innovation

Technical innovation is rapidly transforming healthcare, driving an exponential increase in both the supply and demand for digital health.

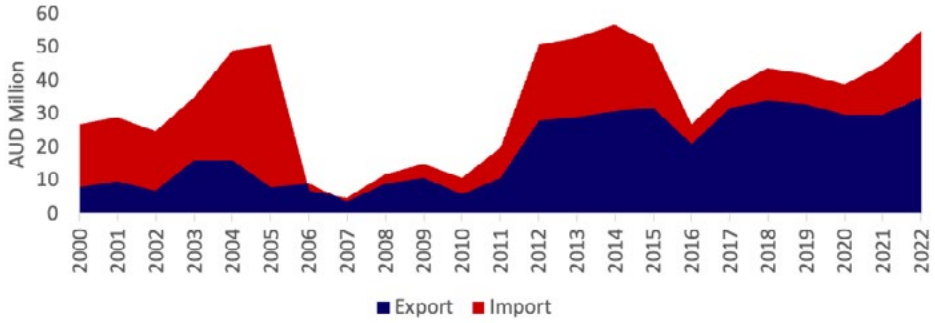
As new technology is developed, healthcare professionals can offer a wider range of services remotely. Growing consumer awareness and familiarity with the benefits of digital health is also fuelling increased demand for services.

Trade statistics on digital health

Trade statistics on digital health imports and exports are not available for Australia or Indonesia, and more data is needed. However, Australia collects data on its international trade in services, including other personal, cultural and recreational services. Within health, this includes services such as those rendered abroad by doctors. While this is broader than just digital health services and would also exclude a lot of digital health trade, it does provide some insight into Australia's imports and exports of digital health.

Equivalent data is not available for Indonesia or trade between Australia and Indonesia.

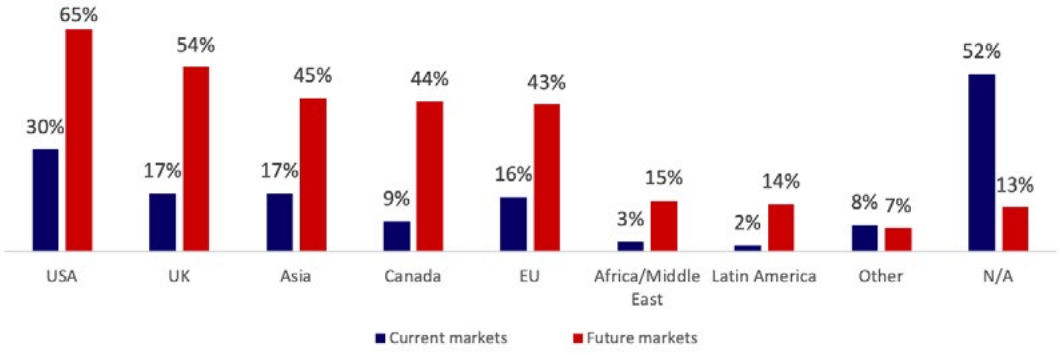
Figure 5: Australian global imports and exports of health services



Source: Australian Bureau of Statistics (2023).

While trade data on digital health is limited, Australian digital health services companies report that the United States is their priority international market for Australian. Figure 6 shows that 30% of Australian companies that participated in a 2023 survey are currently active in the United States and 65% have the United States as a short-term international target market.[68] The United Kingdom is the second most mentioned market (with 17% of companies currently active, and 54% viewing it as a future target market). However, there is interest in Asia, with 17% of Australian digital services companies indicating they are currently active in Asia and 45% flagging it for future expansion.

Figure 6: Key international markets for Australian digital services companies



Source: ANDHealth (2023)

68 AndHealth (2023)

Open for business

Indonesia: Telehealth and online pharmacies lead the charge in the changing digital health regulatory landscape

There are no specific restrictions on foreign investment and trade in digital health services in Indonesia. Digital health services are generally treated as web services/ digital platform providers, rather than healthcare and these have no restrictions on foreign ownership and allow for foreign private electronic system operators to conduct business in Indonesia. However, as digital health overlaps with traditional healthcare, which has limits on foreign ownership, clarity is needed to avoid regulatory hurdles for foreign investors. For example, while pharmaceuticals are open for foreign investment, investors are only allowed to engage in business activities categorised as large-scale enterprises with an investment value exceeding ten billion Indonesian Rupiah (approximately USD650,000), excluding the value of land and buildings.

Regulation of digital health in Indonesia is spread across various entities, including the Ministry of Health (for telemedicine services and health information systems), the National Agency of Drug and Food Control (for pharmaceuticals and digital therapeutics) and the Ministry of Communication and Information (for data protection and cybersecurity).

Clear and uniformed regulation on telemedicine is needed

For telemedicine, regulation falls under the jurisdiction of two different ministries: the Ministry of Health (MoH) and the Ministry of Communication and Information Technology (MOCI). The MOH supervises the overall digital health eco-system while the MOCI is responsible for issuing electronic system provider business licencesUnder MOH Decree 20/2019, telemedicine must be provided by health workers who hold a practice license in an organising health service facility *(fasilitas layanan kesehatan or fasyankes).* This means that telemedicine cannot be provided independently without a registered host *fasyankes*.

However, existing regulation is still set within the context of the COVID-19 crisis, including definitions for permissible activities like consultations, diagnoses, and prescriptions. Recent revocation with no replacement leaves uncertainty for investors, particularly around operational limitations for telemedicine and e-pharmacy services.

Telemedicine in general is not included as a benefit of the JKN, and services not in cooperation with JKN are not eligible for benefits. The exception is for regions where qualified health facilities are not yet available.

Online pharmacy sales and delivery are allowed, but with nuances depending on the type of entity involved

For e-pharmacies, pharmaceuticals for human consumption are open for international investment, but businesses need to obtain a Pharmacy Electronic System Provider *(Tanda Daftar PSEF)* registration certificate from the MoH.

Wholesalers and pharmacies are permitted to distribute medicine through an electronic system. However, while pharmacies can engage a third party to provide the system, wholesalers must use their own system. Pharmacies are allowed to deliver medicine to patients independently or engage a third party to do it. There are some requirements and limitations when distributing certain drugs and cosmetics online, including for some prescription-only medicines, medicines containing pharmaceutical precursors, medicines for erection dysfunction, injection preparations (except for insulin), implant preparations, narcotics and psychotropics, and cosmetics with certain substances.[69] The medicine delivered online must be guaranteed by the industry, wholesaler or pharmacy in terms of safety and quality.[70]

69 Latham & Watkins LLP (2023), 'Digital health: Indonesia', accessible at: https://www.abnrlaw.com/files/document/2023_Digital_Health_-_Indonesia.pdf.

70 Regulation of the Indonesian Food and Drug Authority No. 8/2020

There are few restrictions on data, apart from medical records

For health data, there are no specific rules or regulations in relation to digital healthcare systems, apart from medical records. Therefore, data is covered by laws regarding general data protection for electronic systems.

Until 2019, the Indonesian Government required electronic systems that provide public services be established in a local data centre, but these rules have been relaxed for the private sector. The IA-CEPA also stipulates that Australia and Indonesia must allow the cross-border transfer of information by electronic means (including personal information) for business, and that Indonesia cannot implement any future regulation that requires any Australian party to use or locate computing facilities in Indonesia as a condition of conducting business. This means businesses can choose whether to process or host their electronic systems or data onshore or offshore.

Big data and data analytics are not protected by copyright when they are purely produced by AI or machine learning.

Australia's digital health landscape: A mix of general regulations and self-regulation

While healthcare in Australia is highly regulated, the Australian Government has a relatively light-touch approach to regulating digital health, with no single piece of legislation governing the entire sector. Instead, a patchwork of more general regulation around privacy and data and the provision of medical services, devices and medicine applies. There is also a growing emphasis on self-regulation, with the industry developing its own codes of conduct and best practices, such as the Australian Institute of Digital Health's professional code of conduct and the Digital Health Standards Catalogue being developed by the Australian Digital Health Agency.

In terms of general regulation that applies to the sector, the Therapeutic Goods Act establishes national controls which relate to the quality, safety, efficacy and availability of medicines and other therapeutic goods in Australia (including some digital health technologies). The Act regulates software and apps that meet the definition of a medical device (e.g. its purpose is medical and/or supports clinical decision making or is an accessory to a medical device)[71], and these products are required to be registered. Certain software, such as healthcare practice management or clinical workflow management, is excluded from regulation.[72]

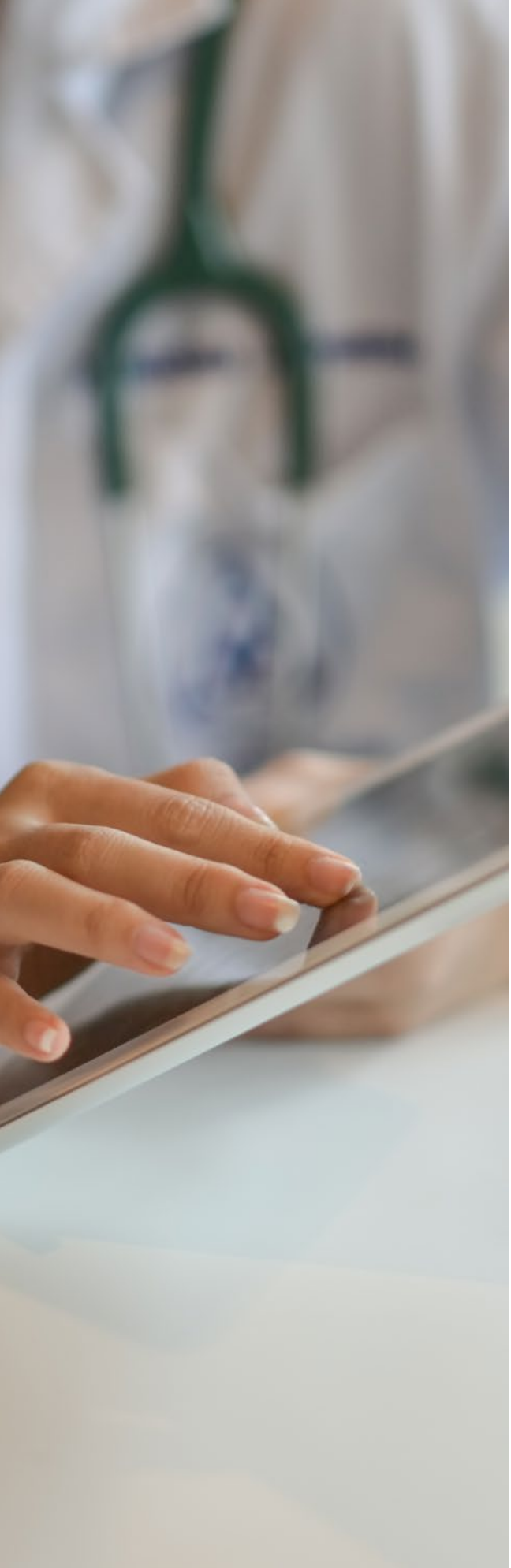
Personal information, such as health records, is regulated under the Privacy Act which requires the display of a privacy policy notifying users that personal information is being collected and how it will be used. Any data in relation to the My Health Records scheme must be stored in Australia and cannot be disclosed to cross-border entities. Some states and territories also restrict the transfer of personal information outside state borders (restricting cloud and offshore storage of data).

Digital health products and services are often covered by the Competition and Consumer Act which ensures customers are not misled restricts anti-competitive practices and enforces product standard requirements. Patent, copyright and IP protection for digital health products is the same as other technologies.

Australia also has kick-back restrictions that limit certain payments between doctors, pathology and diagnostic imaging services, though this area is primarily related to payments through the public healthcare system.

71 TGA (2023), 'is my software regulated?', accessible at: https://www.tga.gov.au/sites/default/files/my-software-regulated.pdf.

72 ICLG (2023), 'Digital Health Laws and Regulations Australia 2023', accessible at: https://iclg.com/practice-areas/digital-health-laws-and-regulations/australia.



What's next?

Major opportunities exist to expand trade and investment between Indonesia and Australia's digital health industries

Despite diverse and different healthcare landscapes, Indonesia and Australia are rapidly embracing digital health solutions, creating an exciting landscape for collaboration. Australia's mature digital health industry offers cutting-edge innovation, while Indonesia's entrepreneurial spirit fuels a rapidly growing sector.

Opportunities for Australian businesses looking to enter the Indonesian digital health sector include supporting Indonesia to have a more standardised, integrated and efficient digital health system; building new digital assistive technologies; using behavioural science to facilitate the uptake of digital health products; and supporting the development of a more internationally competitive health system.

Opportunities for Indonesian businesses include alternative models of customer engagement (e.g. telehealth via SMS), integrated services (e.g. e-pharmacies), cybersecurity, and leveraging the Australian TVET sector to skill the digital health experts of the future.
By seizing these opportunities and fostering closer collaboration, Indonesia and Australia can harness the power of digital health to transform healthcare delivery, improve patient outcomes, and drive economic growth.

For Indonesian or Australian businesses looking to enter the Australian or Indonesian market respectively, **Katalis can help you better understand the respective markets and connect you with strategic partners.** If you are an Indonesian or Australian business looking to enter the Australian or Indonesian market respectively, Katalis may be able to assist you.

For more information please visit: https://iacepa-katalis.org/about-katalis/

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