CACCI
Health & Education Newsletter
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## Message from the Chairman

As Chairman of the Asian Council on Health and Education (ACHE), I am pleased to present the twelfth issue of the Newsletter of ACHE to all our colleagues in the health and education sectors.

This issue highlights the trends, the latest news and interesting reports on health and education in the Asia-Pacific region. I hope that you will find the articles included in this Newsletter of great value, and look forward to your contribution to the Newsletter in the future.

Since assuming the Chairmanship in 2017, I have found this Council a valuable platform for information exchange and networking for all representatives from the region's health and education industries. Therefore, all CACCI members are encouraged to take advantage of the Council and the Newsletter as channels to voice their opinions and viewpoints.

Arash Anissian, MD
Chairman
Asian Council on Health and Education

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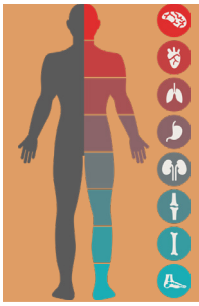
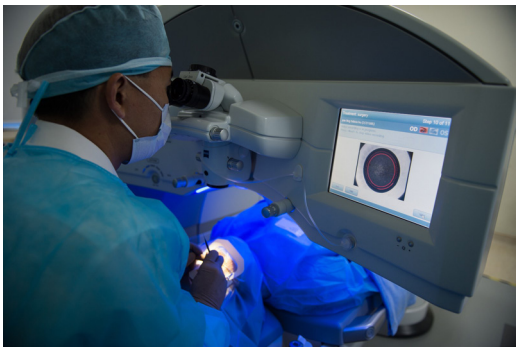


# Part I Health

## How Disruptors Are Shaping the Future of Health Insurance

*By Subhajit Mandal*
*Head of Products at Symbo and Founder & Board Member of the Singapore Fintech Association LumenLab, Singapore*



*Staff members perform a surgery at the LASIK Surgery Clinic in Singapore. In Asia, Singapore is one of the few countries that has a centralized database of digitized health records for all its citizens. Photo: Mohd Rasfan/AFP/Getty Images*

The number of insurtech companies launched every year has been on the rise since 2008. What different innovative ideas are these budding entrepreneurs working on to create new businesses and services? A thorough look all around us provides the answers—the disruptive influence of innovation has started permeating through various aspects of our lives, and insurance is no exception.

To identify the potential for disruptive innovation, we need to look at multiple changes happening simultaneously. Similarly, in the area of insurance, the culmination of changes in disparate areas are coming together to create something completely new.

There are four specific changes happening around the world—and in most parts of Asia—that will have a drastic effect on the insurtech industry: data ownership policy changes, the digitization of health data, blockchain and mobile technology.

### DATA OWNERSHIP

With the recent uproar around data ownership, the EU General Data Protection Regulation has been a focal point in discussions. Countries such as India, which has over a billion people with digital identities, are also working on creating new frameworks of data ownership. These new policies are clarifying the concept of "ownership" of data and reinforcing that customers own their own data.

Although conceptualizing this is common sense, this simple notion that customers own their own data has far-reaching consequences. The most significant impact for insurtech lies around health data. Hospitals, in the absence of this black-and-white rule around data ownership, have not been required to allow customers access to their own data until now.

The cyber-insurance segment of the market has benefited greatly from this new focus on data privacy and is one of the fastest-growing insurance segments. At most times, cyber insurance covers the breach of data, but it is still largely an area with several unknowns. Warren Buffett, for example, is of the view that nobody in the industry really knows the extent of risk involved, and has said, "I don't think we or anybody else really knows what they're doing" when they are writing cyber insurance. However, there are insurtech startups such as Boxx Insurance and At Bay that are braving the unknown and looking to capitalize on this new drive of data privacy and security and its impact on people's need to have some kind of insurance as a safety net.

### DIGITIZATION OF HEALTH DATA

About two decades ago, the U.S. made the digitization of health data a priority. However, this has just started picking up steam in developing countries. In this part of the world, Singapore is one of the few countries that has a centralized database of digitized health records for all its citizens. Without digital health data, the concept around data ownership has no implications. Hospitals had processes in place where consumers could queue up, fill out a form, pay money and retrieve their own past health records. Now hospitals' IT departments are forced to consider systems that will allow customers and other companies (on customer approval) to access customers' health data.

For example, an MRI scan from two years ago, is available for retrieval now. However, customers are still sitting on the fence on this one. They understand that this seamless flow of data between doctors and insurers helps their cause, but they are still unsure about the safety and security of their health information, given that the sector has seen its share of data breaches in the recent past.

It is not surprising, therefore, that data digitization, including security, and insurance is potentially the biggest area of work for startups, with companies such as Innovaccer in the U.S. and Vivant in India active in this space.

### BLOCKCHAIN

Blockchain is particularly great at forcing new

technological architecture. It could result in a scenario where there are no more centralized databases, but a distributed ledger that verifies all transactions independently, thereby reducing fraud.

When it comes to customers, however, addressing concerns of access control mechanisms around their health data is an important key to the changes being seen. Potentially, blockchain architecture could be used to ensure that health data access logs are immutable. Actual health data storage and security will have no blockchain dependability, but time-bound access provided by users to different entities to access user health data could be implemented using blockchain. Needless to say, all insurtech startups are dependent on blockchain.

This area has seen relatively less work compared to others, as the areas of interplay between insurtech and blockchain are still evolving. Notable players in this space are B3i in the reinsurance space and PokitDok.

MOBILE TECHNOLOGY

The mobile phone that fits into a pocket and on which this article is likely being read, has more power than even the computer that helped take man to the moon. Smartphones have become ubiquitous globally—they are as common a sight in the hands of a trader on Wall Street as in those of a "tuk tuk" driver in Cambodia.

The pervasiveness of mobile phones allows for the better understanding of customer behavior through web use and online searches. Applications of all kinds are housed on a single device, providing valuable insight into user habits and preferences. Therefore, the mobile phone, when put together with the above three trends, gives us a peek into what is possible in the future.

THE FUTURE

Now imagine yourself as a user who needs health insurance. All your health records since birth, including from different health care providers, are collated and stored on the mobile phone. Now, the insurer, instead of asking you to fill out a lengthy health declaration form, sends its risk algorithm to your phone. This risk algorithm does all calculations of insurance risk classifications on your phone based on the digitized health data stored on the phone and almost instantaneously provides your risk premium for your insurance policy.

Since all calculations have happened on your phone, data privacy is completely ensured, although whether it is completely secure still depends on whether the phone's security can be breached. Since all calculations were done using the blockchain technology that is part of your mobile phone, the authenticity of the calculation is confirmed, and there is no chance of any fraud. And within seconds, you have a customized risk premium quotation tailor-made for you.

WHEN IS THIS FUTURE DUE?

This future is quite far away, as blockchains don't run on mobile phones yet. Separately, all health data are not digitized, and although privacy policy gives users the right to their own data, health care providers, such as hospitals, are not API-ready just now. That said, we are seeing change at rapid pace, and corporate innovation labs and insurtech startups such as Symbo are trying to push the envelope on some of these pieces.

There is an aphorism in the venture investing world that we tend to overestimate the change that we're going to see in three years' time and have a propensity to underestimate the magnitude of change that we will see in 10. The truth perhaps lies somewhere in between. Given the pace of change being witnessed in technology and in how technology is being used in insurance, it is near impossible to put a timeline to developments. While it may take a few years, this future will be realized, and businesses—startups and incumbents alike—must prime themselves to capitalize on it.

*Brink Asia, February 14, 2019*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# Unlocking the Consumer Health Opportunity in APAC


*By Sumit Sharma, Head of Health & Life Sciences, Asia-Pacific at Oliver Wyman,*
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Today's healthy shopping carts are still dominated by modified versions of everyday goods, with lower levels of fat or sugar or higher levels of protein. But they also contain some new categories: superfoods, supplements, and serums, which often come with aspirational claims and expensive price tags. The marketing of healthy products has evolved beyond general claims, such as a product being "good for you," toward clinical claims that are personalized, quantifiable, and targeted, whether they contribute to weight loss, improved memory, or reducing

carcinogens.

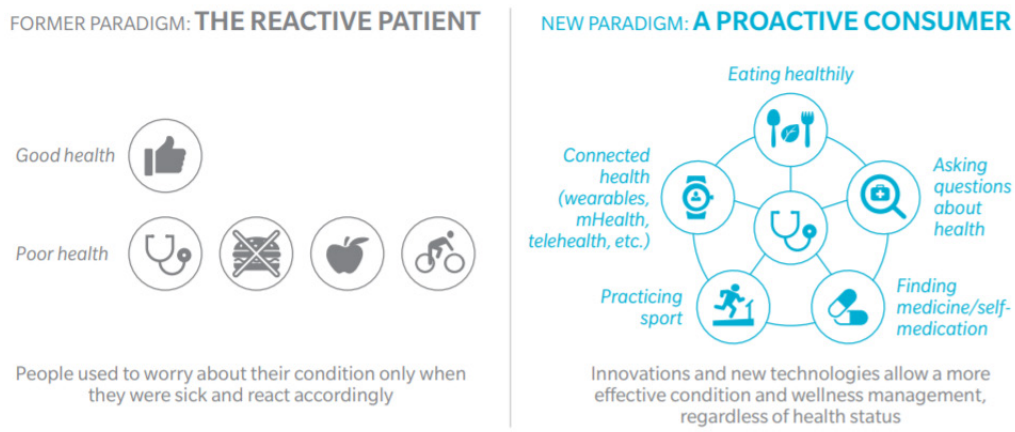
The trend comes as consumers seek more care outside the clinical setting and increasingly self-diagnose, self-medicate, and self-monitor. This has also facilitated the rise of a new industry segment in consumer wearables, apps, and other means of digital engagement in health. All of these movements have resulted in a new paradigm that Oliver Wyman calls "the proactive consumer." These consumers are willing to spend on health benefits and technology and are looking for complements and even alternatives to prescription drugs and over-the-counter (OTC) medicines.

## CONSUMER HEALTH LANDSCAPE IN APAC

The result is renewed interest in the health and wellness business, which generates worldwide sales of more than $700 billion annually. The Asia-Pacific share grew from 19 percent in 2007 to over 30 percent in 2017 as the region's population and purchasing power increased.

Asia is both a source of raw materials and an inspiration for new product lines such as herbal tonics and drinks based on traditional Chinese medicine (TCM). TCM sales have grown 25 percent over the last six years, and the category has expanded out of Chinese medicine halls and into modern supermarkets and pharmacies in its home markets of China and Singapore.

Exhibit 1: Health 2.0 new paradigm: the consumer-driven health market




Source: Oliver Wyman analysis

Numerous Asian companies have also entered the market for vitamins and herbal and mineral nutritional supplements (VHMS), creating new brands or exporting them to Asia from established markets such as Australia and the U.S. This steady growth and increasing activity provide a chance to re-evaluate the opportunity in the Asia-Pacific region.

## GROWTH AND OPPORTUNITY IN CONSUMER HEALTH IN ASIA

These trends make the Asia-Pacific region ready for entry and expansion. Its health and wellness market is expected to grow at an average of 8 percent a year between 2016 and 2020, and key markets such as China and Indonesia show promising potential in both OTC and VHMS products.

The opportunity is not uniform across Asia, and there is variation in the competitive and accessibility challenges—including

Exhibit 2: Consumer Health
Asia Market Outlook

| | TOTAL H&W MARKET SIZE US$ Million, 2017 | MARKET VALUE, 2017 US$ BILLION (Projected CAGR, 2017-2022) | | ATTRACTIVENESS FOR NEW MARKET ENTRANT | |
|---|---|---|---|---|---|
| | | Over-the-Counter Medicines | Vitamins, Herbals, Minerals, Supplements | Competitive Landscape | Market Access |
| China | 108.8 | 13.3 (6.4%) | 20.1 (8.4%) | Medium | High |
| Australia | 12.5 | 1.9 (3.0%) | 2.1 (3.5%) | High | High |
| Philippines | 4.4 | 0.6 (4.4%) | 0.5 (7.2%) | High | Low |
| India | 14.7 | 1.7 (6.9%) | 1.4 (10.0%) | High | Low |
| Indonesia | 9.3 | 1.6 (8.1%) | 1.6 (8.1%) | High | Medium |
| Vietnam | 5.1 | 0.3 (10.8%) | 0.5 (10.6%) | High | Medium |
| Japan | 49.2 | 7.1 (2.1%) | 10.2 (1.8%) | High | Medium |
| South Korea | 6.3 | 0.7 (2.9%) | 4.0 (2.9%) | Medium | Medium |
| Singapore | 0.9 | 0.2 (4.3%) | 0.4 (4.8%) | Medium | High |

High Medium Low

*Oliver Wyman analysis*

regulatory barriers and route-to-market setup—to new entrants and small players looking to grow. China has loosened regulations for online selling, fueling demand for VHMS, particularly from Australia. This has attracted foreign investors—for example, Australia's Swisse brand is now Chinese-owned. India, despite a population almost as large as China's, has lagged in overall value, but the market is expected to grow. In particular, a trend for self-medication is beginning to take hold, boosting OTC market growth to double digits. The popularity of traditional products, such as Ayurveda, has attracted global and regional investors eyeing them for export, even as local price ceilings may hinder margin growth in India. In both China and India, digital infrastructure investment is increasing, and e-commerce has become a key channel of consumer health distribution. Accessing rural populations through localized, lower-cost products is already a key strategy in food and personal care for many consumer-packaged goods (CPG) companies and is now being used for pharmaceuticals in consumer health as well.

Asia is also home to many local conglomerates and domestic CPG companies that have stronger and deeper penetration and footprints than multinational (MNC) players. Furthermore, traditional medicines in Asia have become mainstream opportunities for CPGs and MNCs.

However, there is often no clear winner in consumer health categories. In China, for example, research has shown limited brand awareness and loyalty for VHMS, though there are signs that these factors are increasing as companies delve further into direct selling and marketing. Considerations for new market entry opportunities—based on current size, projected growth, competitive landscape, and regulatory environment—are summarized below:

| MARKET | GENERAL CHARACTERISTICS | OPPORTUNITIES/HIGHLIGHTS |
|---|---|---|
| **Near-term growth opportunities**<br>China, Indonesia | High-value consumer health markets with continued market growth<br><br>Relatively low barriers to entry | Increasing demand for premium VHMS products, both imported and domestic<br><br>Growth of online sales helps to incubate new products<br><br>Local players not yet at global scale |
| **Emerging opportunities**<br>India, Philippines, Vietnam | Potentially large markets but slower consumer uptake<br><br>Some barriers to entry, for instance price ceilings on VHMS products<br><br>Local partnerships needed due to limits on ownership or foreign direct investment | Digitally active consumers<br><br>Mix of Western remedies as well as traditional treatments such as Ayurveda<br><br>Specific health concerns gaining traction, but no widespread awareness |
| **Established markets**<br>Korea, Japan, Singapore, Australia | Slower growth, but significant consumer spending<br><br>Entrenched local players<br><br>Well-established regulation | Tapering demand for VHMS products in Japan and South Korea<br><br>Big domestic players in Japan and South Korea are already at global scale but have promising export potential<br><br>Regulatory barriers, primarily around labeling and permitted activities |

*Oliver Wyman analysis*

KEY TO SUCCESS IN CONSUMER HEALTH

The growth opportunity in consumer health in the Asia-Pacific region is considerable and is attracting both local players and multinational pharmaceutical and CPG companies. Consumer health companies need to re-evaluate their organizational capabilities and form new partnerships to attract the new wave of proactive health consumers.

Given the broad opportunities and the capabilities required, organizations must answer some key questions as they look to enter this space:

***Where to play in consumer health?***

Consumer health covers a wide range of areas, including products in frontline care (for example, OTC medicines), wellness enhancement (such as VHMS), and personal care (aesthetics and correctives). The increasing prevalence of digital solutions and the popularity of local, traditional medicines in Asia expand the range of products and services that players can offer. While players might want to aspire to a broad offering across these spaces, they need to identify specific areas of value and complementarity to effectively leverage their strengths against local competition.

***How will consumer health fit into our current business?***

To build a product line for the consumer health market, players need to evaluate their current offerings and understand their existing capabilities. One way to do this is to look at customer needs and existing business models. These will indicate where natural first

steps might be—whether they're variations on existing product lines or brand-new product offerings. Players will then have to consider how to build capabilities that fill outstanding gaps and build brand recognition and loyalty, in some cases with doctors and key opinion leaders. Strategic partnerships and M&A can help accelerate the development of these capabilities. For instance, CPG companies excel at brand building, while pharmaceutical companies specialize in engaging doctors—so the combination of the two could be very effective.

***Once in the space, how can we build for continued growth?***

An important consideration is how to sustain growth in an often-fickle market that follows health trends and fads. Leading with R&D and new product innovations is an investment-heavy approach. Doubling down on core consumer capabilities, however, also provides a path to sustained growth, by increasing consumer access and ensuring ongoing engagement. Likewise, investment in medical marketing and engagement with key opinion leaders will increase product credibility, while also opening additional distribution channels in hospitals, pharmacies, and doctors' offices.

***What is the appropriate route-to-market?***

The level of local investment, the roles of different partners, legal and regulatory considerations, and brand localization—such as formats, flavors, and packaging size—will all be local-level concerns. Market access, too, will vary considerably. The recognition of certain products—foods for special medical purposes, for example—as health treatments could bring opportunities for funding and reimbursement through health care systems, especially if they are coupled with disease management or lifestyle programs.

CONCLUSION

Unlocking the consumer health opportunity in the Asia-Pacific region is made especially challenging by the range and diversity of markets and cultures. The proactive consumer, empowered by technology and knowledge, will take on a different form in China, India, and Southeast Asia. Tastes, preferences, beliefs and even loyalties vary largely across the region. For a company to succeed, it needs to feel the pulse of the particular market and be able to address the demands adequately, which requires a complicated balance between customization, understanding needs, and good timing.

*Brink Asia, May 15, 2018*

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# What Does 2019 Hold for Health Care in Asia?

*By Sumit Sharma, Head of Health & Life Sciences, Asia-Pacific at Oliver Wyman*
*Matt Zafra, Principal, Health & Life Sciences at Oliver Wyman*

*Doctors perform surgery at a government hospital in Manila, the Philippines. Asia had some big successes in progressing universal health care last year, and 2019 will test how robust these initiatives are. Photo: Jay Directo/AFP/Getty Images*

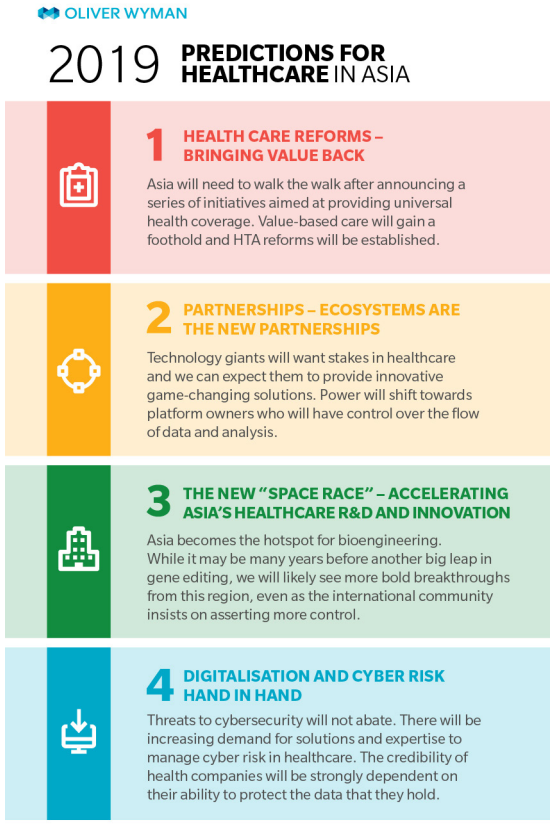
Asian health care made notable strides in many areas in 2018, but much work remains. Looking back at our 2018 predictions, universal health care made significant advances, notably in India, which launched Ayushman Bharat, and Singapore, which increased Medishield Life coverage and introduced the long-term care plan CareShield Life. But continued deficits faced by Indonesia's BPJS, its national health insurance program, show that this is a long journey indeed.

Incumbent players and pharmaceutical companies continued to seek digital partnerships to enter new parts of the value chain—such as Ping An Good Doctor, Grab and Prudential's AI-backed ecosystem—and governments also spearheaded private partnerships. However, it is too early to say broadly what impact these will bring.

M&A activity rose in 2018, with 154 Asian health care deals valued at over $50 million each (up from 141 deals in 2017); notable hotspots were India, Singapore, Indonesia and Malaysia. Regional M&A deals and partnerships remain dwarfed by massive deals in the U.S., such as those between CVS and Aetna and the JPMorgan-Berkshire Hathaway-Amazon partnership.

There was digital acceleration with advances in both public and private sectors: We saw the region's first national electronic pharmacy information system in the Philippines, "AI doctors" gaining traction (WeDoctor, Ping An Good Doctor, Prudential Asia's partnership with Babylon Health), and big digital technology companies (such as Tencent and Alibaba) announce new health care ventures. Investment in digital health totaled $6.3 billion in Asia in 2018.

We believe these themes will continue to have ongoing relevance for the foreseeable future. Here's how we see Asian health care developing in 2019.




### *Reforms Will Shift Value in Health Care*

Asia had some big successes in progressing universal health care last year—such as in India, the Philippines, Thailand, and Singapore—and 2019 will test how robust these initiatives are. Following national elections in some countries, we can expect steps toward some painful but necessary guidelines and legislation that will better define the areas where the public sector is deficient and where private enterprise can provide support.

As the structural reforms of 2018 begin to take effect, a new wave of opportunities will come in implementing and strengthening value-based care in existing systems. Payers—both governments and private insurers—have been investing steadily to prepare for long-term change management in reimbursements. The Philippines has signaled a move toward an evidence-based diagnosis-related group payment scheme across a broader range of services for its PhilHealth social insurance program. Insurers such as AIA have continued to implement pre-authorization and other plan features that place a heavier weight on outcomes to determine eligibility for medical care coverage. A new wave of reforms in health technology assessment in Japan and China will emphasize outcome-driven reimbursements and value-added services, which will impact the profit margins of providers and pharmaceutical companies.

### *Ecosystem Partnerships Will Go Beyond the Health Care Industry*

While not a novel strategy, ecosystem partnerships will be a major theme in 2019 as the consumerization shift reshapes health care as it has done in many other industries. Many pharmaceutical companies and payers have ventured out from their traditional

B2B focus, spending on innovation centers and funds in the hopes of finding and owning the next health care unicorn. However, other players also see an opportunity to take a share of the region's growing health care spending, and the industry is attracting the likes of regional telcos, banks, and the new leaders of Asian tech such as Alibaba, Tencent and Grab. These new stakeholders are piloting new technology, financing products, marketplaces and tie-ups with innovators and incumbents to access new segments of the population. At the same time, we will see an increasing trend in more personalized offerings—in terms of health, wealth and access to information—which has long been a forte of the tech and consumer players, but is now an increasingly important capability for health care incumbents as well.

While these many new parties want a piece of the pie, the eventual winner will be the one that controls the serving dish—in other words, the owner of a platform connecting players to customers that governs when and where cash and data flow. Such a platform could be the key to generating insights with real commercial potential and impact for health care players.

While insurers are well-positioned to act first, they don't currently have access to a broad-enough segment of the mass market and suffer from a relatively low level of consumer trust. However, regional telcos and banks don't necessarily fare better in this regard. This opens the door for regional disruptors such as Grab, CXA Group, or Ping An to expand outside their home markets and offer broadly accessible products to underpenetrated markets in Asia.

***Asian R&D and Innovation Accelerate***

The center of innovation and engineering for medtech and devices is beginning to shift toward Asia. Last year, China developed its first drug-releasing heart stent, and many companies are developing research partnerships with local universities, medtech firms and hospitals. Singapore and China have made massive investments to attract biotechnology to their shores and create new global hubs, such as China's Zhangjiang Pharma Valley.

At the same time, the CRISPR babies controversy that originated in a Chinese university at the end of 2018 has also opened a Pandora's box over the ethics, consent and morality of gene editing. It also showed that some parts of Asia might be prepared to redefine and bend some international norms. If fields like gene editing will be the space race of this generation, we can likely expect key advances to come from the power players in this region, given the large number of research projects combined with looser regulations than in the West.

***Digitization and Cyber Risk Hand in Hand***

Along with the automation and integration that we predicted in 2018 comes a need to invest in cybersecurity. 2018 was a year of leaks and breaches: In the 12 months to October 2018, 27 percent of health care organizations reported a cyberattack. Even Singapore's much-lauded public health care system experienced a high-profile data breach affecting 1.5 million patients, as did Hong Kong. More attacks are likely to occur, and it takes almost five times as long to detect an intrusion for companies in the Asia-Pacific region compared to global counterparts.

Governments are increasingly beginning to understand the risks and how to mitigate them. Singapore, for instance, has responded swiftly and strengthened its health care cybersecurity by introducing several new measures. That will likely trigger a growing wave of hires for cybersecurity roles and technology investment in the region. While larger insurers, hospitals and other stakeholders have gradually built up their cyber resilience, smaller players will also need to make investments in order to retain customers. Public tenders for digital health projects will have lengthy sections assessing risk, given the high-profile nature of these attacks.

***Conclusion***

Even with the global geopolitical climate in its most tenuous and unstable state in recent memory, the pace of health care change will continue steadily: It must, because Asia's populations are growing older and sicker.

*Brink Asia, March 4, 2019*

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# AI Is Enabling Faster Delivery of Health Care to More People in APAC

*By Kayla Matthews, Founder of Productivity Theory, Technology Journalist, and Cryptocurrency Writer*

Of all the industries in which artificial intelligence is staking its claim, its impact on health care could be the most consequential. Many problems tax the world's health infrastructure at once—including rapidly aging populations, doctor shortages, underserved regions and the need for personalized medicine.

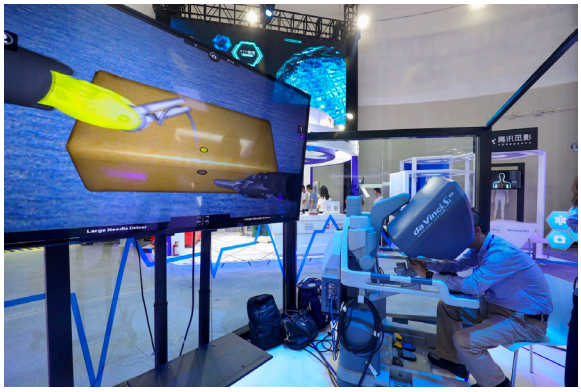
Asia-Pacific's health care systems are finding ingenious uses for AI that meet these needs and more, which could fundamentally alter the health care sector

in the region.

### *Equalizing Care for Vision Problems*

Researchers in China are using AI to tackle discrepancies in health care access between metropolitan and rural areas. This is especially true for vision care, which Jim Wang, CEO of NovaVision Group, says is a problem practically begging for an AI-centric solution.

According to Mr. Wang, China doesn't rely on family doctors and referrals. Instead, large hospitals in cities see continual overcrowding and patients in outlying areas often go without vision care altogether. They expect AI to change this status quo.



*A visitor experiences a robotic surgical system during the World Artificial Intelligence Conference 2018 in Shanghai. Asia-Pacific's health care systems are finding ingenious uses for AI, which could fundamentally alter the health care sector in the region. Photo: STR/AFP/Getty Images*

Mr. Wang says NovaVision wants to equalize access to vision care. Its plan is to empower small practices and increase the speed of care in cities, with what his company calls "algorithm cameras." These cameras can screen for 1,000 eye-related diseases with 97 percent accuracy with just one image-capture session. The result would be a more empowered medical community in rural areas that can meet the needs of the underserved without their traveling to a city for care. It also means doctors in city hospitals could diagnose more patients without sacrificing quality of care, resulting in less crowding.

### *Making Medicine More Personalized and Accurate*

Japan's government is serious about AI in health care and has pledged to increase its investments four times over in nine years. Japan will see its total AI health care market rise to 15 billion yen (over $100 million) by 2025. In fact, Japan's AI efforts in health care has talent coming together from across academia as well as the public and private sectors. The goal is straightforward, yet imposing: curb spending while allowing under-staffed medical centers to see more patients and spend more time with them individually.

Japan hopes to open 10 prototypical AI-infused hospitals across the country by 2022. Some of the work done by these AI assistants involves behind-the-scenes clerical work, such as updating patient files and charts. Employing machines for this work eliminates much of the potential for human error and frees staff to devote more of their time to patients.

The developments get more impressive from there. The companies involved in this initiative are hard at work on AI programs that can pore over endoscopic images, electrocardiograph readings, MRIs, blood tests and even patient DNA records to arrive at meaningful diagnoses and recommend the most useful mode of treatment for each patient. The final diagnosis is still up to doctors, but this kind of technology unquestionably sets them up for success and should help doctors in remoter areas see more patients.

### *Smartphone-Based Intelligence and Whole-Life Care*

India is home to 1.3 billion citizens. According to the World Health Organization, the country trains 50,000 new doctors per year who fall below recognized standards for service accessibility. To close the gap and expand coverage in a way that meets those standards—a 1:1,000 doctor-patient ratio—India needs 2.3 million trained doctors by 2030. Even if India's health care infrastructure doesn't yet reach its whole population, researchers are tapping into something that has virtually pervaded the whole country: access to smartphones.

An app called mFine uses intelligent bots to extend service to areas without reliable access to doctors. The app already facilitates treatment for 15,000 individual cases a month from 800 Indian towns that lack a medical center. The mFine app represents a direct portal between patients and 375 doctors in 20 specialized medicinal fields.

But it's not just a communication tool. The app uses interactive bots to gather information from users, including patient basics as well as more detailed data about their symptoms. These bots allow doctors to consult with far more patients than before, and they help make diagnoses, too, even at a great distance. For instance, patients can cough into their smartphones and diagnostic algorithms in the app can determine if they have a respiratory infection.

Best of all, the app can help families with whole-life care, beginning with pediatrics. Researchers are "training" their algorithms through machine learning to identify various kinds of medical distress, even by listening to the sound of a distressed baby crying.

*Two things differentiate Asia-Pacific's pursuits of AI: company-patient collaboration and meeting current needs while investing in future potential.*

### *Identification and Treatment Planning for Cancer*

South Korea has hit the ground running with Dr. Answer—a state-run initiative to build an artificially intelligent health care apparatus with an emphasis on identifying and laying out personalized treatment models for eight kinds of cancer and other conditions, including breast cancer, colorectal cancer, prostate cancer, cerebrovascular disease, heart disease and dementia.

South Korea's Ministry of Science, along with 19 AI developers and 25 hospital partners, anticipate completing the project by the end of 2020. By then, they will have spent more than 35 billion won ($30 million) on the project, whose closest American competitor is IBM's Watson.

The first stage of the project involves the translation and standardization of patient records into a format that can be read by algorithms. The emphasis isn't just on identifying these conditions in patients—it goes further by diving into relevant genomic data and developing personalized treatment regimens.

Researchers involved with developing the platform remain cognizant of the fact that two patients suffering from the same disease may not respond the same way to the same type of

treatment. They hope that by focusing their efforts on just eight maladies, they can develop truly comprehensive treatments that are effective on a personal level.

***Assistive Robots for a Rapidly Aging Population***

In 2013, Japan's Ministry of Economy, Trade and Industry (METI) outlined a long-term plan for bringing assistive robots into its health care networks. The program is called Robotic Care Equipment Development and Introduction Project, and it is focused on several kinds of AI-focused assistive technologies:

- Intelligent monitoring for nursing home patients
- Bathing and toiletry assistance for elderly patients
- Mobility aids for indoor and outdoor use
- Smarter assistance products to be worn on the body

METI has recognized these as high-priority needs as the country and the rest of the world comes to terms with its rapidly aging population and seeks to improve its care models.

***APAC and U.S. Both Focused on AI in Health Care***

Japan's robotic development program has similarities to an initiative begun in the U.S. in 2016, called the Robotics Roadmap. Both programs share the goal of developing intelligent wearables and assistive robots for the elderly and infirm as well as investigating new avenues for robotic surgery research.

Not surprisingly, AI and its implications in health care have emerged as a mark of national competitiveness. Robotics in health care is part of a larger tapestry of connected tools and assets designed to collect, analyze and distribute meaningful data among shareholders and users. In the U.S., the Internet of Things is on track to become a $19 trillion industry by 2020—and that includes assistive robots, wearables and hospital and clinic infrastructure powered by AI.

There are two things that differentiate Japan and other Asia-Pacific countries' pursuits of robotics and AI—a closer collaboration between companies and patients as well as a stricter focus on meeting current needs versus investing in future potential. By some accounts, this could mean the U.S. is leaving money and potential on the table in the form of abandoned projects that don't have immediate commercial use.

By any standards, however, research into AI in health care is an exciting field that's making waves and improving lives all over the world; and Asian economies are, in many ways, driving this phenomenon.

*Brink Asia, April 12, 2019*

## *About Author*

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*Kayla Matthews is a technology, cybersecurity and automation writer whose work has been featured on VICE, InformationWeek, Computerworld and Digital Trends, among other publications. To read more of Ms. Matthews's writing, please visit her tech blog, ProductivityBytes.com.*

# Taipei Hoping to Add More Muslim-Friendly Certified Hospitals

*By Liang Pei-chi and Evelyn Kao*

*Huang Shier-chieg (center), commissioner of Taipei City Government (TCG)'s Department of Health, is joined by TAH President Huang Hui-ting (third right) and other officials in announcing the collaborative project to boost the number of Muslim-friendly hospitals in the metropolis April 15, 2019 in Taipei City. (Courtesy of TCG)*

The Taipei City government is working with Taiwan Adventist Hospital (TAH) to expand the number of Muslim-friendly hospitals, as part of its ongoing policy to make Taipei a more Muslim-friendly city, an official said on April 15, 2019.

TAH is one of 17 hospitals and clinics in Taipei


participating in a program launched by the Ministry of Health and Welfare to promote the globalization of medical care services and the only to be officially certified as Muslim-friendly, according to Chi Yu-chiu from the city's health department.

In line with the goal of increasing the number of such institutions in the city, TAH will work with the city government to show other hospitals how to apply for certification, Chi said.

From 2014 to 2018, about 8,000 patients a year from Malaysia, Indonesia, Bangladesh, Pakistan and the Middle East visited medical institutions in Taipei, most of whom were Muslims, she said.

In addition, there are about 300,000 Muslims living in Taiwan who have potential medical care needs, she added.

In November 2018, TAH obtained certification from the Indonesian Council of Ulama, that country's main Islamic body, testifying food, drug and cosmetic products provided at the hospital to be Halal, according to the hospital's president, Huang Hui-ting.

Currently, more than 200 types of Halal-certified food items are available at the hospital, he said.

Also, the hospital's health check center has introduced Muslim prayer rooms equipped with Qurans, prayer rugs, and washing facilities, Huang added.

Taipei has been making a greater effort to promote itself as a Muslim-friendly city, including holding Eid-al-Fitr events, promoting halal certified restaurants, and introducing washing facilities at several Taipei Metro stations, according to the city government.

*Central News Agency (CNA), April 15, 2019*

# Korean Government to Reduce Biopharmaceutical Approval Period to Half

*By Choi Moon-hee*

*The Korean government plans to reduce by half the time required for review and approval of new biopharmaceutical products.*

The Korean government plans to reduce by half the current one and a half years of time required for examination and approval of new biopharmaceutical products.

The government will announce its innovation strategy to foster the biotech and healthcare sector in the week of May 20, 2019. The plan will include a 2 trillion won investment in R&D in 2019, relaxation of KOSDAQ listing conditions for biotech and healthcare companies, improvement of exit processes for investors, expansion of the scope of technologies eligible for R&D tax credit, and development of the Osong national industrial complex.

The global healthcare market is booming due to rapid population aging and the Fourth Industrial Revolution. In this context, President Moon Jae-in named the bio-health industry as one of the three promising future industries along with system semiconductor and future car industries.

Market research firm Markets and Markets said that the global healthcare market is expected to grow at an average annual rate of 4 percent to 5 percent and reach US$11.5 trillion by 2020. However, the size of the Korean healthcare industry is still small. In the pharmaceutical industry alone, the global market size reached US$1,104 billion as of 2016, but Korea accounted for US$15.8 billion, which is only 1.4 percent.

To cultivate the bio-health industry as a growth engine as powerful as the semiconductor industry, the government decided to increase the workforce for new medicine screening process at the Ministry of Food and Drug Safety, thereby reducing the approval and review period. At present, the number of cases per one employee in charge of reviewing and evaluating new drug applications in Korea is six times higher than that in the United States. The number of biomedical device examinations done by one examiner is 11 times as many.

Government-level of R&D investment in the bio-health industry is expected to increase to 2 trillion won annually. The government also decided to increase tax support for new technologies in the biotechnology and pharmaceutical fields. An industry official said, "The total amount of R&D investment in the pharmaceutical industry combined with the private sector was less than 2 trillion won per year in 2017. The R&D investment should be further expanded at the national level."

The government plans to ease the requirement to maintain listing on the KOSDAQ in light of the characteristics of the bio-pharmaceutical industry. Considering that drug clinical trials take an average of six to seven years, a KOSDAQ listed biopharmaceutical company will be exempted from designation as an issue for administration for up to seven years. Currently, if annual sales after listing are less than 3 billion won or if there is an operating loss for four consecutive years, it is designated as an issue for administration.

*Business Korea, May 20, 2019*

# Pricey Problems with Medicine

*By Loh Foon Fong*

THERE is a global "war" being waged in the health industry.

Civil societies and several governments in poor as well as rich countries – including Malaysia – are up in arms over pharmaceutical companies setting prices so high that some life-saving drugs are beyond the reach of many.

The concern over astronomically expensive drugs and the lack of accessibility has reached the World Health Organisation (WHO) level, and access to medicines and vaccines is expected to be among the top items on the agenda at the 72nd annual World Health Assembly in Geneva, Switzerland, beginning on May 20, 2019 (the assembly ends on May 28).

Geneva-based Health Policy Watch says that the WHO's

executive board in January 2019 held a lengthy debate on a roadmap for access to medicines, and now it will be put before the assembly.

On February 1, 2019, Italy proposed that the WHO set international standards for drug-pricing transparency. It has asked the assembly to adopt a resolution that would require drug makers to disclose their R&D and production costs, as well as prices charged for medicines and vaccines.

The proposal sent to governments on April 29 had 10 co-sponsors and Malaysia is one of them; the rest are Italy, Greece, Portugal, Serbia, Slovenia, South Africa, Spain, Turkey, and Uganda.

Italy's proposal "has generated significant discussion and may be overshadowing the focus on the WHO roadmap to access to medicines, vaccines and other health products," says Health Policy Watch.

*Killer cost: A patient who wants to be known only as Dolah, 54, says he takes nine-and-a-half pills every morning for his diabetes and related medical conditions. He also has to have two insulin jabs a day. Medication, insulin and specialists visits cost a whopping RM2,000 a month, he says.*

Skirmishes already began on May 7 at informal negotiations ahead of the assembly.

Several developed countries have proposed amendments to Italy's proposal that activists claim will make it confusing, weak and useless in many areas. Some countries have also sought to postpone discussion of the proposal.

Following such resistance, more than 100 civil society organisations and health experts sent an open letter to WHO member state delegates on May 9, urging them to oppose harmful proposed changes to the resolution.

The proposal will give the WHO and national governments a strong mandate to collect and analyse data on drug prices, R&D costs, clinical trial results and costs, the patent landscape, and more, says the letter.

"At a moment when the public is looking to their elected governments to address the crisis in the pricing of new drugs and other biomedical inventions, the WHO has been asked to do something important: improve the transparency of markets for biomedical products and services," says Knowledge Ecology International's (KEI) director James Love on its website.

The International Federation of Pharmaceutical Manufacturers and Associations warns that the Italian proposal could lead to unintended consequences for the capacity of companies to offer preferential pricing to developing countries, and that it must be seen from diverse perspectives.

It urges WHO and its member states "to conduct careful analysis of the potential benefits and risks to patients and to health systems, particularly for less developed countries, in addition to future innovation," the Health Policy Watch reports.

The federation says its industry has responded to concerns raised in the proposal, citing its Principles for Responsible Clinical Trial Data Sharing, and the Patent Information Initiative for Medicines as examples.

***Radical moves that tumbled prices***

In the last few years, some countries have resorted to drastic legal action to gain access to affordable drugs.

Malaysia came to the forefront of this issue when, in 2017, it became the first country in the world to impose a compulsory licence to gain access to the cheaper generic version of the hepatitis C drug sofosbuvir for about 400,000 of patients.

The compulsory licence is provided for under the World Trade Organisation's Agreement on Trade-Related Aspects of Intellec-tual Property Rights. It allows for the generic version of a drug to be imported or manufactured while it is still under patent protection.

Malaysia was placed under a lot of pressure for the move, prompting the Health Ministry, on February 25, to urge the WHO to look into the pricing system of medicine by pharmaceutical companies.

The hepatitis C virus affects about 71 million people globally, over 66 million of whom are not being treated, according to the WHO. This is despite the fact that 95% of people with hepatitis C can be completely cured within two or three months of beginning treatment.

In August 2018, China compelled a pharmaceutical company to withdraw unmerited key patent claims on the sofosbuvir base compound. With 10 million people in China living with chronic hepatitis C, the ruling opens the door to affordable generic treatment ahead of the patent's expiry in 2024. The base compound patent on sofosbuvir was granted in China in 2009.

A nonprofit that specialises in uncovering unfair patents, Initiative for Medicines, Access & Knowledge (I-MAK), estimates that treating just 15% of China's hepatitis C patients with generic drugs would save US$13bil (RM54bil), with a massive US$87bil (RM362bil) saved if all patients are treated.

There is a growing global momentum to challenge unmerited patents to ensure more people can access life-saving treatments, I-MAK says.

Sofosbuvir (400mg) was priced at US$8,939 (RM37,218) for a standard 12-week treatment regimen upon launch in China in November 2017, but generic alternatives are available for US$249 (RM1,037), a potential 98% price reduction enabled by this decision, it says.

China is also overhauling its healthcare system to provide better access to quality drugs and treatment for its population.

In December 2017, news agency Bloomberg reported that the government had asked 11 major cities to band together to buy drugs in bulk through a tender process to bring down prices.

***Patent problems***

It's not just developing or poor countries that are struggling with high drug prices.

In the United States, 18 lawmakers wrote to the US Department of Health and Human Services in February 2018 to consider issuing a compulsory licence for expensive hepatitis C treatments because rationing high cost treatment was harming the country's public health.

On February 5, 2019, President Donald Trump, in his State of the Union address, called on Congress to contain the rising costs of prescription medications, saying it is unacceptable

that Americans pay vastly more than people in other countries.

I-MAK exposed drugmakers' abuse of patent law in the United States in 12 bestselling drugs in 2017.

To protect themselves from competition, drug companies file hundreds of patent applications – the vast majority of which are granted – to extend their monopolies far beyond the standard 20 years of protection granted under US patent law.

I-MAK says the average number of years blocking generic competition are 38, years blocking patent applications are 125 and the average price hike since 2012 is more than 68%.

The US Senate Finance Committee launched a bipartisan probe to examine drug pricing in the United States and the rising costs for consumers and taxpayers.

During the hearing on February 26, 2019, the committee censured a drug company that had, in 2017, spent around US$11.5bil (RM48bil) on dividends, stock buybacks, marketing, sales and administrative costs – roughly triple the amount it spent on R&D.

It also lambasted another company for increasing the price of insulin from less than US$100 (RM416) in 2010 to nearly US$300 (RM1,248) in 2018 (the company raised prices again in 2019).

The committee also said that in 2017, a portion of a CEO's multi- million-dollar bonus was directly tied to sales of an arthritis medication.

"Over six years, the company doubled the price of a 12-month supply from US$19,000 (RM79,000) to US$38,000 (RM158,000).

"Can patients opt for a less expensive alternative? No they cannot," it said, adding that the company protects the exclusivity of the drug like Gollum with his ring (referring to the character in the Lord of the Rings series).

"It is morally repugnant when ailing patients are forced to choose between filling that next prescription or putting food on the table, because they can't afford both. It is morally repugnant when patients are forced to skip doses."

Top executives from the seven largest drug companies were also hauled up before the committee to explain the skyrocketing cost of prescription drugs.

On May 15, 2019, the committee tweeted again, saying: "@HHSGov is starting to look into drug company middlemen that take millions from taxpayers. But more needs to be done to prevent these middlemen from using schemes like 'spread pricing' to take big profits while taxpayers get stuck with the check."

(How spread pricing affects the consumer: a pharmacy benefit manager company pays a pharmacy a minor amount for a drug but charges the health insurer that employs it much higher prices; the insurer in turn will charge its customers higher premiums to cover its costs.)

***The comparison method***

In Europe, issues relating to external reference pricing was reignited by an unprecedented meeting in Brussels in mid-April that brought together national pricing authorities with drug companies, patients, payers, physicians, and civil society.

A decade ago, EU national authorities conceived a scheme known as Euripid to boost their negotiating powers with pharmaceutical manufacturers by exchanging pricing information among themselves. (One country compares the price of a drug in several other countries to derive a reference price that is then used to negotiate the product's price in that country.)

Pharmaceutical companies say this could hinder drug access since companies tend to delay the launch of products in countries with the lowest prices, to counteract the downward pressure in price-comparison baskets. The industry is also pushing back against Euripid's ambitions to shift its focus from list prices to net prices, PharmExec.com reports.

Now, with more countries holding pharmaceutical companies to account, more intense debate is expected at tomorrow's WHO assembly (May 20).

More transparent pricing and a redirection of how medicines are sold is urgently needed.

Buying most products and services is a choice – but you can't choose not to buy medicine, so if you need that patented drug to save your life, you have to find some way to cough up the exorbitant price.

This does not work, especially on a global scale, where millions lack access to the treatment for certain infectious diseases that continue to spread, setting up a vicious cycle. This is a free market failure that must be addressed.

*The Star Online, May 19, 2019*

# New Zealand's World-First 'Wellbeing' Budget to Focus on Poverty and Mental Health

*By Malcolm Foster, Reuters*

*Country claims to be the first to measure success by people's wellbeing*

Child poverty, domestic violence and mental health will be the priorities in New Zealand's "wellbeing budget", the finance minister has announced, with the nation declaring itself the first in the world to measure success by its people's wellbeing.

On May 14, 2019, Grant Robertson said that despite New Zealand's "rockstar" economy many New Zealanders were being left behind, with home ownership at a 60-year low, the suicide rate climbing and homelessness and food aid grants on the rise.

According to predictions by the International Monetary Fund, the New Zealand economy is expected to grow at around 2.5 % in 2019 and 2.9% in 2020. But Robertson emphasised many New Zealanders were not benefitting in their daily lives.

Although comparable countries such as the UK have begun to measure the national rate of wellbeing, New Zealand

*While New Zealand's economy is thriving, many people have been left behind.*
*Photograph: Murdo Macleod/The Guardian*

is the first western country to design its entire budget around wellbeing priorities and instruct its ministries to design policies to improve wellbeing.

"Sure, we had – and have – GDP growth rates that many other countries around the world envied, but for many New Zealanders, this GDP growth had not translated into higher living standards or better opportunities," Robertson said. "How could we be a rockstar, they asked, with homelessness, child poverty and inequality on the rise?"

The 2019 budget will be handed down on 30 May, 2019.

"For me, wellbeing means people living lives of purpose, balance and meaning to them, and having the capabilities to do so," said Robertson.

"This gap between rhetoric and reality, between haves and have-nots, between the elites and the people, has been exploited by populists around the globe."

Robertson cited a cultural rehabilitation program for Māori high-security prisoners, aimed at reducing high rates of recidivism and reoffending, as the kind of project that would be prioritised in the budget.

The opposition National party has criticised the budget as being out of touch with New Zealanders' values, and said what Kiwis really needed to improve their lives was better infrastructure and public services.

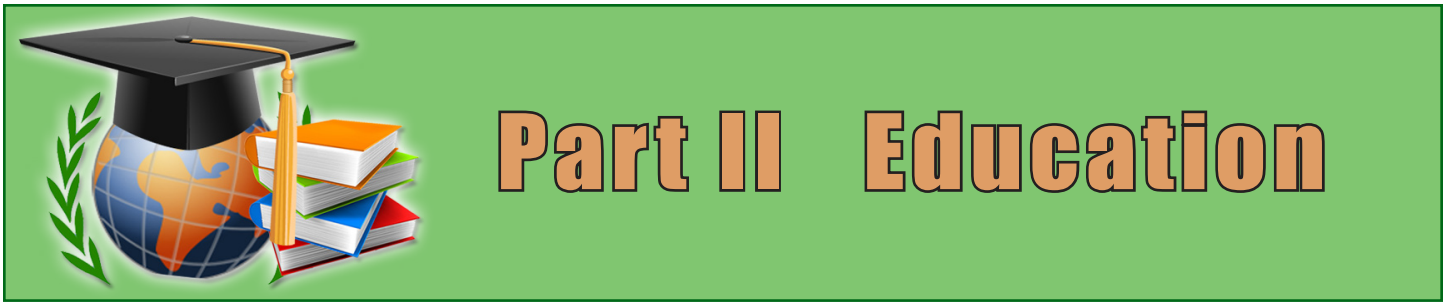
"According to this framework the government's put in place, making a new friend is almost twice as valuable as not having to go to the emergency department," said the National party's spokeswoman on finance, Amy Adams, earlier in 2019.

"Or getting on better with your neighbours is twice as valuable as avoiding diabetes – I just think it starts to become a nonsense."

The Kingdom of Bhutan kickstarted the global wellbeing focus with the introduction of the Gross National Happiness Index in 2008, measuring things such as psychological health, living standards, community vitality and environmental and cultural resilience to inform government policy making.

But despite the index, the country remains a "least developed country" and the unemployment rate is rising. Bhutan also ranks 96 spots below the world's happiest country, Finland, as defined by the UN in its annual World Happiness Report.

*The Guardian, May 14, 2019*




# Taiwan Education Center, and Philippine School Promote Study in Taiwan

*By Emerson Lin and William Yen*

The Taiwan Education Center Philippines, and St. Paul University Quezon City held an event on February 18, 2019 to encourage students and faculty from the university to study in Taiwan and to even apply for scholarships to pursue doctoral degrees.

Lee Cheng-han, the education secretary at Taiwan's representative office in Manila, briefed students and faculty at the event on Taiwan's higher education system and the quality of instruction.

*Photo courtesy of the Taiwan Education Center Philippines*

Whether students want to develop academically or develop practical skills, Taiwan can provide appropriate courses, and scholarships are also available from Taiwan's government, Lee said.

The program's manager, Huang Tse-hsiang, said another purpose of the event was to expose Filipino students to the possibilities and fun of learning a foreign language through Chinese language classes.

The Taiwan Education Center, which is funded by the Ministry of Education, has partnered with other Philippine universities in the past to promote Chinese language learning.

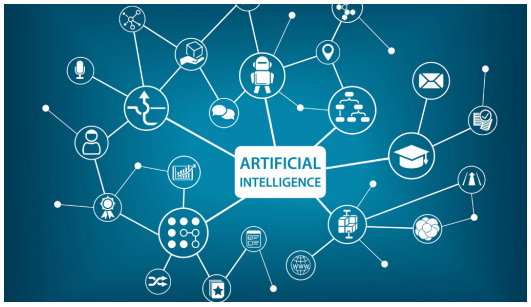
One of them involved setting up a new course on how to teach Chinese at the Polytechnic University of the Philippines for the first time since the university's establishment in 1904.

Operated by Taiwan's National Sun Yat-sen University and commissioned by the Ministry of Education, the Taiwan Education Center Philippines was set up in September 2017 to promote quality Chinese language education in the Southeast Asian country.

The center also offers courses to train local Chinese language instructors and promote educational and cultural exchanges between the two countries.

*Central News Agency (CNA), February 18, 2019*

# Education on AI Proposed for All University and Technical College Students in Japan




JIJI

A panel of experts has called for all university and technical college students in Japan to be given beginner-level education on artificial intelligence.

The proposal is part of a package of AI-related ideas presented by the panel at the day's meeting of the government's innovation promotion council, headed by Chief Cabinet Secretary Yoshihide Suga.

The proposals, released on March 29, 2019, are expected to be reflected in a comprehensive innovation policy package, which will be drawn up around June, and an AI strategy, to be formulated by summer.

In Japan, some 500,000 people graduate from universities and technical colleges every year. The panel called for having all university and technical college students take beginner-level programs on math, data science and AI, and letting half acquire the skills to apply AI to their own fields of study.

It also asked the government to provide working adults with opportunities to learn such AI skills.

Aiming to beef up research and development on AI, the panel proposed the establishment of a related cooperation network with universities and other research organizations. The government was urged to strengthen its support for AI and other researchers.

With regards to areas where AI should be actively used,

the panel cited the health, medical and nursing care sectors; agriculture; disaster resilience and preparedness; transport infrastructure and logistics; and regional revitalization.

The panel specifically hopes AI will be used to reduce the burden on workers in the medical and nursing care sectors, beef up safety of infrastructure at a low cost and promote so-called smart cities.

At the meeting on March 29, 2019, the government council decided seven principles that researchers and others should take into account in establishing an AI society with humans at its center, including respect for fundamental human rights, privacy protection and the creation of an environment to ensure fair competition.

*Japan Times, March 30, 2019*

# EU Envoy Calls on Other Countries to Follow Turkish Lead on Refugees

Ankara's success in handling the overwhelming number of Syrian refugees in the country continues to receive appreciation from all around the world with EU Delegation Vice Chairman Gabriel Munuera Vinals on April 18, 2019 urging other countries to take note of what Turkey has done and follow suit.

"Turkey hosted Syrian refugees with extraordinary success. It has been very generous with the refugees. Turkey has a lot of stories to tell to the whole world. Other countries may take inspiration from Turkey and improve their work," Vinals said in a conference on migration and education.

Saying that Turkey hosts the highest number of Syrian refugees in the world, Vinals underscored that the humanitarian situation in Syria not only concerns Turkey but also concerns all the international community, especially EU.

Pointing out that education poses particular importance for the refugees, Vinals added that EU has allocated 1.5 billion euros ($1.69 billion) for the education of refugees.

Speaking at the same conference, Deputy of Minister of Education Reha Denemeç emphasized that the project of "Promoting Integration of Syrian Children into Turkish Education System (PICTES)," a two-year-program initiated by Turkey and financed by the European Community, changed the lives of several refugee children.

"Looking at the situation from a systematic point of view, the biggest issue that we need to address after the Syrian crisis is the inclusion of the Syrian population, of which half is in the education age or the preschool age, into the education system," Denemeç stated.

Denemeç stressed that 62.5 percent of Syrian children are going to schools while this schooling figure corresponds to 91 percent in primary education, thanks to PICTES. Touching upon future projects to be implemented, Denemeç added the ministry is currently working toward building more than 220 schools in 19 provinces.

The civil war in neighboring Syria has saddled Turkey with the task of addressing challenges stemming from the ongoing crisis. Pursuing an open door policy, Turkey has been hosting over 3.5 million refugees more than any other country in the world. With the aim of meeting the needs of refugees, the country has spent more than $32 billion from its own national resources. Aside from meeting the basic needs of refugees, Ankara has been focusing on providing education to refugee children with an aim of giving them a better future and exerting efforts for the socio-economic integration of refugees within the country.

*Daily Sabah, April 19, 2019*

# ENZ Launches New Futures Campaign to Attract "Free-Thinkers"

*By Anton Crace*

Education New Zealand (ENZ) is aiming to attract international students "who think differently" in a new campaign to promote the country's expertise in educating students for the future of work.

The New Futures Need New Paths campaign builds off the back of 2018's Future Proof drive, which leveraged New Zealand ranking first in the 2017 Worldwide Educating for the Future Index.

"The overarching message of New Futures Need New Paths is that a New Zealand education provides students with a high-quality qualification and the skills required to excel in their future careers, and also create a positive impact in their world," said ENZ chief executive Grant McPherson.

"New Zealand attracts students who think differently, and we expect that this campaign story will resonate with these free-thinkers."


*New Zealand wants students "who think differently" in a new campaign. Photo: Education New Zealand (ENZ)*

While the New Futures campaign will build on the prior work, McPherson told The PIE News the 2019 campaign would have both an internal and external outlook.

"An important difference between New Futures and previous campaigns is that while we are always wanting to attract new audiences, we are particularly focused this time on energising and activating the audiences already on our social communities and in our database," he said.

"Because of this, we are less concerned with introducing New Zealand as an education destination – instead, we are focused most on telling a richer, more emotionally engaging story."

Currently ranked third in the 2018 index, New Zealand was one of only six countries to receive a perfect mark for the importance placed on teaching 21st-century skills within its national education strategy, joining Finland, Canada, Chile, Singapore and Sweden.

The campaign, which will run over eight weeks, leverages its position across three key messages of teaching skills for the future, an unlimited learning environment, and welcoming students who think differently.

"Our teaching style and applied learning approach, as well as our unique cultural values, make us the perfect destination for students who wish to forge their own paths and develop the adaptability and resilience needed to succeed in today's rapidly changing world," McPherson explained.

"We are deliberately trying to carve out a space in attracting students who are looking for a more unique education experience and outcome than traditional pathways provide."

As part of the campaign, New Zealand education providers and ENZ recognised agents will have access to marketing materials and assets, including three videos featuring students who are working towards building a better future.

Aimed at highlighting the work of students in sustainability, areas of research featured include marine biology, renewable energy and climate change, and have so far been well received by industry and audience, according to McPherson.

"I've travelled the world for my research, but I chose New Zealand because of the calibre of marine science being carried out here," said Auckland University of Technology student Alexandra Lischka.

"The old ways of thinking aren't working when it comes to solving some of the biggest problems facing our oceans. I know I need to form a new path if I want to make a difference."

ENZ has been on a roll lately for its marketing campaigns, receiving domestic and international recognition for its work, including top honours at the New Zealand Direct Marketing Awards, Golden Quills, Revvie Awards, and the PIEoneer Awards.

*The Pie News, May 1, 2019*

# Singapore to Roll Out Blockchain-Based Education Certification System Nationwide

*By Terence Lee*

Starting this year (2019), graduates from 18 educational institutions in Singapore will receive digital certificates that are verifiable on the blockchain.

Apart from helping employers weed out doctored certificates, OpenCerts could lead to efficiency gains, better security, and cost savings. Data doesn't have to be kept in one location: each certificate's details are stored in an individual file, and all verifications are done through Ethereum.

*The signing ceremony announcing the nationwide rollout / Photo credit: Ngee Ann Polytechnic*

With this set-up, the cost of maintaining a blockchain-based digital certificate system could be cheaper than building an equivalent on a centralized database.

OpenCerts is an open-source and government-linked project. It's reportedly the largest blockchain-related application of its kind launched globally to date. Once all 18 schools fully implement the system, it could create hundreds of thousands of digital certificates in the coming years.

The project is a collaboration among four organizations: SkillsFuture Singapore, Government Technology Agency, Ngee Ann Polytechnic, and the Ministry of Education.

The certificates are designed to be tamper-proof. Once a certificate is created, its data is converted into a hash – or a string of random letters and numbers – and stored on popular decentralized blockchain Ethereum.

Any attempt to change the certificate data – which is essentially a text file – creates a new hash. This means a tempered certificate can be detected by comparing the new hash with the old one.

OpenCerts can completely eliminate the need for schools to issue paper certificates, and the process of checking a certificate's authenticity is made easier. Instead of ringing an institution to check on each job candidate, employers can simply drag and drop the certificate onto the OpenCerts website and get it

verified quickly.

For graduates who are Singaporeans and permanent residents, they have the additional benefit of accessing their digital certificates in an online government repository called Skills Passport.

Going forward, the consortium is looking to implement this for certificates that have been issued. Also, the open-source nature of the technology means that companies can build upon the code base and commercialize it. For example, the verification of certificates using OpenCerts is manual. A startup could come in and integrate the technology directly into the backend systems of customers.

Foreign educational institutions have also expressed interest in adopting the technology. Possible use cases beyond education certificates are being explored.

Here's a list of the 18 local institutions that will be adopting OpenCerts: Institute of Technical Education

- Lasalle College of the Arts
- Nanyang Academy of Fine Arts
- Nanyang Polytechnic
- Nanyang Technological University
- National Institute of Early Childhood Development
- National University of Singapore
- Ngee Ann Polytechnic
- Republic Polytechnic
- Singapore Institute of Technology
- Singapore Polytechnic
- Singapore Management University
- Singapore University of Social Sciences
- Singapore University of Technology and Design
- Temasek Polytechnic
- Singapore Examinations and Assessment Board
- SkillsFuture Singapore
- Government Technology Agency

*Tech in Asia, May 2, 2019*

# Georgia: Adults Get Second Chance at Education

*This short-term programme aims to train and retrain students in Georgia. Photo: Nino Alavidze/Agenda.ge.*

A new adult education system aimed at implementing short-term programmes to train and retrain students will be launched in Georgia, announces the Georgian Ministry of Education, Science, Culture and Sport.

The programme will be launched with the help of the private sector.

As a result of the programme:

- Graduates will receive education certificates recognised by the state;
- Private companies will be able to obtain the right to implement short-term programmes for the development of the adult education system;
- The state will fund priority areas that will be recognised as a field of high employment potential;
- Programmes will be implemented in practical teaching format (work-based training).

Georgian Prime Minister Mamuka Bakhtadze presented the government initiative 'Education - Way to Freedom' in early March 2019 where he said that the government will provide "unprecedented support" for education in Georgia and invest one-fourth of the state budget in education.

*Agenda.ge, 11 Mar 2019*

# Vocational Training and Education Needs to Attract Participation of Enterprises

*Students apply their knowledge and skills in practice at Lý Tự Trọng Technical College based in HCM City's Tân Bình District. — VNS Photo Ngọc Diệp*

Enterprises are not interested in collaboration with vocational training facilities to train students or update their internal training programmes because the laws are not clear about their role and responsibilities, according to Võ Tân Thành, director of the Việt Nam Chamber of Commerce and Industry's HCM City branch.

He was speaking at a recent dialogue organised by the VCCI's HCM City office in collaboration with the Ministry of Labour, Invalid and Social Affairs' Directorate of Vocational Education and Training (DVET) and the German Development Cooperation Agency (GIZ) to discuss provisions of the 2012 Labour Code pertaining to businesses engaged in vocational training and education (VET).

A shortage of experts, failure of educational facilities

and equipment to meet demand and old training curriculums are obstacles to the engagement of business in vocational training and education, Thành said.

The number of workers trained by enterprises who work for more than a year for them subsequently has decreased sharply, Bùi Thị Ninh director of the VCCI's Bureau for Employers' Activities, HCM City branch, said.

According to a survey by the VCCI, this rate was 70.3 per cent in 2012 and only 63 per cent in 2018.

There are no regulations governing on-the-job training in terms of trainers, standards, certificates, working relations, and labour contracts.

"There are no specific guidelines or regulations for apprenticeships and on-the-job training contracts in terms of the rights and obligations of each party, contract terms and validity," Ninh said.

The Labour Code only regulates the role of enterprises in establishing vocational training institutes or organising training for their employees, but ignores many other aspects, she said.

Britta Van Erckelens of GIZ Việt Nam said co-operation with the business sector is necessary to develop a sound and coherent demand-oriented technical and vocational education and training (TVET) system that provides an adequately skilled workforce for a green economy in the industry 4.0 era.

"Only the business sector can define the knowledge, skills and competencies needed and certify the quality of the training." Important aspects and concepts concerning co-operation with the business sector in TVET have entered the legal framework since a new TVET law was enacted at the end of 2014, she said.

These aspects should be further defined and synchronised with provisions in the Labour Code, she said.

A mechanism that institutionalises the co-operation with the business sector should be jointly developed to suit Vietnamese conditions, she said.

"Those mechanisms, besides co-operatively implemented training, could and should include stakeholder boards, such as industrial advisory boards at the institutional level or sector councils at the sectoral level."

She strongly encouraged joint efforts in this regard between DVET and the business sector, TVET institutions and provincial governments, saying only a joint approach would lead to comprehensive and sound results.

Ninh said to strengthen the connection between industry and vocational training, there should be alignment between laws, regulations and other legal documents.

"It is necessary to clearly define the roles and responsibilities of each party involved, including enterprises, VETproviders, students, and workers."

Each vocational training activity that enterprises can participate in must be governed by regulations on implementation mechanisms, she said.

Mai Đức Thiện, deputy director of the ministry's legal department, said: "It is necessary to amend the Labour Code because its enforcement has faced several problems and shortcomings that need to be addressed."

Since 2016 the amendment of the Labour Code has gone through three stages: drafting supplements since 2016, making proposals for a complete amendment from 2017 and drafting the amended Labour Code until now.

Amendments related to vocational education are expected to facilitate and provide opportunities for employees to get training and improve their occupational skills.

These will encourage enterprises to organise training for their employees, including those who do not have labour contracts.

"Amending is sure to meet the needs of global economic integration and improve the effectiveness of Government management and feasibility in practice," Thiện said.

The draft will be submitted to the National Assembly for consideration in May 2019.

The department plans to incorporate feedback and revise the draft before submission to the National Assembly.

*Viet Nam News, April 23, 2019*

# Homeschooling is on the Rise in Australia. Who is Doing it and Why?

*By Rebecca English*

*Some families choose to homeschool for cultural reasons. shutterstock.com*

Home education is a legally recognised alternative to enrolling a child in school in all Australian states and territories. Children need to be enrolled in either a school or home education from around the age of 6 until completion age (around 17 years-old). If the parent chooses home education, they must apply to the state or territory authority for permission.

In most states and territories, the parent or a hired registered teacher is responsible for the education of the child, usually at the child's home. Any parent, regardless of their educational background, is legally able to apply for, and homeschool their child.

Parents must submit a plan for their home education, which, in most cases, should show an alignment between their child's learning and the national curriculum. Parents can buy a program, but in most cases, they develop their own, in line with their philosophies of education.

***How many Australian children are being homeschooled?***

Across Australia, there are around 20,000 homeschooled students and the numbers are growing. Around 1,100 students

were being homeschooled in Queensland in 2013. By 2018, this had increased to 3,232 students.

This means there are around the same number of homeschooled students in Queensland as the population of Brisbane State High School.

The numbers are rising in other states too. In New South Wales an estimated 4,700 students were enrolled in homeschool in 2017 compared to around 3,300 in 2013. Around 5,300 children were being homeschooled in Victoria in 2018, compared to 3,545 children in 2013.

*Distance education is different to homeschooling. Dan Peled/AAP*

These numbers may not tell the whole story as they only represent families who have registered to homeschool their child. Research suggests there may be thousands who haven't registered, and so are homeschooling their children "illegally".

***Why do families choose to homeschool?***

There are many reasons parents choose to educate their children at home. For some families it will be because of religious beliefs. Geography or financial reasons might stop these families from accessing a suitable private school.

Other families might be ideologically opposed to mainstream schooling and see it as an unnecessary or inappropriate intrusion into family life.

Some of the biggest growth in home education is in the "accidental" home education group. These are families for whom school was a first choice, but it did not work. There are many reasons school may not have worked, but often it's down to special educational need. These families would traditionally have moved their children around between schools but are now homeschooling instead.

Studies suggest families who take their children out of school, when they have a special need, and homeschool are more satisfied with their child's education than when they were in traditional school.

The rise in homeschooling also appears to have links to worldwide changes in education. Many parents see schools as failing their children including for cultural reasons, and believe homeschooling is a suitable alternative. Some families feel schools are not meeting their primary objectives of education and (healthy) socialisation for their children.

***What about assessments?***

After a period of time (in Queensland, for instance, it's ten months) parents report to their state or territory's education department on their homeschooled child's progress. The reporting requirements differ across states and territories.

For some states, such as NSW and WA, the report is delivered to a person who visits the family. For others, such as Queensland, the parent writes the report and sends it to the department.

Unlike traditional schools, parents don't usually "assess" their child's learning through exams or assignments. The reports must show progress in key areas. Some homeschooled students might choose to participate in NAPLAN testing while others won't do any testing at all.

Homeschooled students can choose to go for an ATAR and do a school-based apprenticeship or traineeship, even though they don't do assessment.

***Is it the same as distance education?***

Some parents may like the idea of home education but feel they want a more school-like experience. They may choose to enrol their children in distance education.

While it's also conducted at home, distance education is not home education and the enrolment counts as a "school". Because it's technically a school, distance education students are not counted among home education numbers.

The differences are many. Home education is conducted by the parent, but distance education is a school program delivered by teachers at home frequently using the internet. It is also usually delivered to a group of children, rather than a family.

There are private and public distance education schools. Some states, such as New South Wales, limit the enrolment to students who are geographically isolated or may be experiencing a special need that stops them from going to school. In others, such as Queensland, any child can enrol in a distance education school.

***What about outcomes?***

The volume and quality of the research on outcomes for children in home schooling is limited. In Australia, studies have focused on NAPLAN results. These suggest home-educated students score higher than state averages across every measure. The effect continues even if the child returns to school.

These children may be doing well because they receive one-on-one attention. Or it could be because the child's learning is personalised and the child has agency over their learning.

Studies from the US, where there is far more data, suggest home-educated students enjoy benefits in reading, language, maths, science and social studies. And many families there cite dissatisfaction with schools' achievements as a reason to home educate. There is no difference between home education in the USA and Australia.

The rise in numbers poses issues for education departments and government authorities charged with managing the practise. They may not be set up to deal with large, and increasing, numbers of registrations. For most departments of education, the numbers of families choosing home education has traditionally been low.

In addition, authorities may be unable to police those families who choose not to register.

The increasing choice of home education is an issue that should be on the radar of every state and territory education authority.

*The Conversation, April 15, 2019*

# About CACCI

The Confederation of Asia-Pacific Chambers of Commerce and Industry (CACCI) is a regional grouping of apex national chambers of commerce and industry, business associations and business enterprises in Asia and the Western Pacific.

It is a non-governmental organization serving as a forum for promoting the vital role of businessmen in the region, increasing regional business interaction, and enhancing regional economic growth. Since its establishment in 1996, CACCI has grown into a network of national chamber of commerce with a total now of 29 primary Members from 27 Asian countries and independent economies. It cuts across national boundaries to link businessmen and promote economic growth throughout the Asia-Pacific region. CACCI is a non-governmental organization (NGO) granted consultative status, Roster category, under the United Nations.

It is a member of the Conference on NGOs (CoNGO), an association of NGOs with UN consultative status.

Among the benefits of membership in CACCI are the following:

1. Policy Advocacy - CACCI aims to play a strong policy advocacy role in order to establish a business environment conducive to creating better opportunities for CACCI members.

2. Wide scope for networking - Participation in the various projects of CACCI will provide members the opportunity to expand their reach in Asia-Pacific by establishing contacts with the business communities of the region.

3. Participation in CACCI Annual Conferences and Training Programs - Members are invited to participate in the annual Conferences and various training programs which CACCI regularly conducts either on its own or in cooperation with other international organizations and member chambers.

4. Interaction in Products and Service Councils - Membership in CACCI allows participation in the activities of the various Product and Service Councils (PSCs) of the organization. PSCs are business groupings organized along product or service lines with a primary objective of promoting business cooperation, personal contacts, and technology transfer.

5. Access to CACCI publications - CACCI publishes the CACCI Profile, its monthly newsletter, and the CACCI Journal of Commerce and Industry, a bi-annual publication which features papers, speeches, and other articles pertaining to issues affecting the regional economy.

For more information, please visit www.cacci.biz

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