

Technology Market Scan

ASIA-PACIFIC

ASEAN countries strengthen pandemic research cooperation

Countries of the Association of South-east Asian Nations (ASEAN) are stepping up research collaboration with a specific focus on genomic surveillance of virus strains and research into immunity against COVID-19 in regional populations, in order to boost the region's ability to combat COVID-19 and future pandemics by sharing scientific data and research.

These include a regional project analyzing genomic surveillance data, co-led by Singapore and Malaysia through Singapore's Bioinformatics Institute (BII) and A*STAR Infectious Diseases Labs, which are research institutes under Singapore's Agency for Science, Technology and Research known as A*STAR, and the National Institutes of Biotechnology Malaysia.

The project will provide up-to-date genomic information on virus strains detected in the region, A*STAR said in a statement, adding that the partnership leverages existing biotechnology and bioinformatics capabilities within ASEAN and builds on existing national genome sequencing efforts. Genomic sequencing can help identify variants by detecting tiny differences in genetic code.

"The emergence of COVID-19 variants has added another layer of complexity for public health officials. To better understand the impact of these variants, such as its transmissibility and clinical severity, it is critical to identify and differentiate the strains," the A*STAR statement said. Looking beyond the current pandemic, regional research cooperation will advance the region's preparedness for future outbreaks by strengthening linkages and cultivating new networks between ASEAN member states for the sharing of information on viruses, the Singaporean research agency said.

Systematic bio-surveillance of viral genomes in the ASEAN region can assist in detecting potential transmission

between countries as well as discovering new strains with mutations that could affect diagnostics or vaccination. "This information serves to inform national contact tracing processes as well as evaluate the effectiveness of mitigation measures," according to A*STAR. Sharing real-time genomic information on COVID-19 strains within the region will help public health authorities to maintain a broader, constantly updated picture of virus strains detected both nationally and regionally.

The Philippines and Singapore are co-leading a regional study to assess the levels of immunity within ASEAN communities at different stages, including before vaccination and how long immunity lasts after vaccination. The study will look into the effectiveness of seroconversion of vaccines, which refers to the development of specific antibodies in the blood serum as a result of a COVID-19 infection or vaccination. It will assess levels of immunity at different stages including before and after vaccination.

<https://www.universityworldnews.com>

INDIA

Updated drone rules

The Civil Aviation Ministry released the updated Drone Rules, 2021 for public consultation. The Drone Rules, 2021 will replace the UAS Rules 2021 which was released on 12 March 2021. "The updated rules are built on a premise of trust, self-certification, and non-intrusive monitoring," the ministry said. It said new drone corridors will be developed for cargo deliveries and a drone promotion council will be set up to facilitate a business-friendly regulatory regime.

Under the new rules, the approvals for unique authorization number, unique prototype identification number, certificate of conformance, certificate of maintenance, import clearance, acceptance of existing drones, operator permit, authorization of R&D organization, student remote pilot license, remote pilot instructor authorization, drone port authorization etc. are abolished. Number of forms has been reduced from 25 to 6. The

ministry said the fee has been reduced to nominal levels and there is no linkage with the size of the drone.

Safety features like "No permission – no take-off" (NPNT), real-time tracking beacon, geo-fencing etc. will be notified later. As per the new rules, a 6-month lead time will be provided for compliance. Digital sky platform shall be developed as a business-friendly single-window online system. There will be minimal human interface on the digital sky platform and most permissions will be self-generated.

Interactive airspace map with green, yellow, and red zones will now be displayed on the digital sky platform. Yellow zone reduced from 45 km to 12 km from the airport perimeter. No flight permission required upto 400 feet in green zones and upto 200 feet in the area between 8 and 12 km from the airport perimeter.

In the R&D space, no pilot license is required for micro drones (for noncommercial use), nano drone and for R&D organizations. Restriction on drone operations by foreign-owned companies registered in India has also been removed. Import of drones and drone components will be regulated and no security clearance is required before any registration or license issuance. Requirement of certificate of airworthiness, unique identification number, prior permission, and remote pilot license for R&D entities is also not there.

Under new rules, coverage of drones under Drone Rules, 2021 is increased from 300 kg to 500 kg. This will cover drone taxis also. All drone training and testing will be carried out by an authorized drone school. The maximum penalty under Drone Rules, 2021 reduced to Rs 1 lakh. This shall, however, not apply to penalties in respect of violation of other laws.

<https://www.business-standard.com>

Indian startups in Forbes list

Twenty-two Indian startups have made it to Forbes Asia's inaugural "100 to watch" list, the most for any country on the list, which was released on 9 August 2021. The list sheds light on the top 100 startups and small companies, identified by Forbes,

which have garnered attention and are on the rise across the Asia-Pacific region. The Forbes Asia 100 to watch list covers 10 sectors. They include biotechnology & healthcare, e-commerce & retail, food & hospitality, education & recruitment, construction & engineering, agriculture, logistics & transportation, finance, technology, and entertainment & media.

The 100 companies on the list represent 17 different countries and regions in Asia-Pacific. The most number of companies are from India (22), followed by Singapore (19), Hong Kong (10), and Indonesia (8). Japan is ranked fifth with seven companies on the list. Startups from countries like China, South Korea, Malaysia, Philippines, Australia, Vietnam, New Zealand, Thailand, Pakistan, Mongolia, Laos, and Cambodia are also on the list.

From India, most of the startups—four each—were from the agriculture, biotechnology and healthcare sectors. Technology, and education & recruitment come next, with three companies each. Startups from logistics & transportation; construction & engineering; and food & hospitality sectors have two companies each on the list; while entertainment & media, and e-commerce & retail sectors are at the rear end with only one company each that has made it to the list.

<https://www.forbesindia.com>

Startups raise over \$20 billion

Indian technology startups have shown massive growth this year as the funding rises over \$20 billion. Global venture capitalists and private equity firms are allocating more funds to Indian startups than China as it amped up regulatory clamp-down on its tech companies.

Record market listings and crackdown in China has come to India's aid for funding. According to the data by Venture Intelligence, Indian companies raised \$20.2 billion across 576 deals, as compared to \$13 billion from 878 deals in 2019. According to the statistics, manufacturing startup Zetwerk raised \$120 million from a group of investors for a valuation of \$1.4 billion, surpassing the \$20 billion

mark. This mark was breached in just 8 months, which is a record high level for India.

<https://www.freepressjournal.in>

FIJI

New Trade Marks Act

Fiji now has a new Trade Marks Act, to replace its almost 90 year old Trade Marks Act 1933. The new *Fijian Trademarks Act 2021* was gazetted on 20 August 2021 and should come into force in the very near future, once the commencement date is announced. There is no certainty regarding its commencement date, but Trade mark lawyers will be hoping that it is sooner rather than later.

The new Trademarks Act introduces a raft of welcome updates, not least of which is its adoption of the Nice Classification of Goods and Services. Until recently, Fijian trademark law relied upon an antiquated British system of 50 different good classes and 10 subclasses.

Conveniently, the *Fijian Trademarks Act 2021* is very similar to the New Zealand Trade Marks Act 2002 (and thus also similar to the Singapore Trade Marks Act 1998 and the United Kingdom Trade Marks Act 1994).

<https://www.lexology.com>

MALAYSIA

Global technology grant launched

The Malaysia Digital Economy Malaysia (MDEC) has announced the Global Technology Grant (GTG), an initiative aimed at nurturing global champions, driving investments, and catalyzing a digital innovation ecosystem. In a statement, it said the objective of GTG is to support the scaling-up of Malaysian technology companies into the global arena by way of empowering innovation, development, and commercialization of disruptive or innovative products and services.

The grant works by supporting research and development (R&D), scaling-up of

provision of R&D services, development of new technologies, establishment of centers of excellence, and the creation of new market-driven products or services for the global market, it said. The GTG also serves to support high-impact ecosystem development initiatives, including the development of ecosystem players that ultimately contribute to the growth of the digital economy, it added. This includes new job creations, expansion of export and investments, and talent development.

<https://www.digitalnewsasia.com>

Public-private tie-up to strengthen startup ecosystem

ScaleUp Malaysia and Technology Park Malaysia (TPM) signed a Memorandum of Cooperation that establishes a public-private partnership in providing mentorship, training, market access, and capital to technology startups, allowing them to strengthen their capacity for regional expansion and foreign direct investment.

"ScaleUp Malaysia is a known accelerator programme that is operated by entrepreneurs and industry veterans. The partnership between TPM and ScaleUp Malaysia will provide startups better access to government resources that include labs, infrastructure and other facilities, as well as regulatory facilitation to advance innovation. This collaboration opens up the door for the scaleups to receive support from the private sector's networks, expertise and capital," said Dzuleira Abu Bakar, the Group CEO of TPM who delivered the keynote address at the ScaleUp Malaysia's launch of Cohort 3 Programme.

According to Dzuleira, the recent announcement by the Ministry of Science, Technology and Innovation (MOSTI) on the formation of a technology commercialization accelerator (TCA) through the consolidation of TPM and the Malaysian Global Innovation and Creativity Centre (MaGIC) will create incredible opportunities for entrepreneurs, scientists, researchers as well as startups to accelerate commercialization of technology and innovation.

"In our bid to propel and create more startups, scaleups and future unicorns,

this partnership as well as the formation of TCA is a boost to the startup scene in Malaysia and is poised to see more technology companies that will succeed within the Malaysian ecosystem," Dzuleira said.

"This is a strategic move where ScaleUp Malaysia aims to help create the right alliance with the Government's resources and support with private sector networks, expertise and capital. ScaleUp Malaysia will continue on to support the Government by providing training, market access and capital to these companies to contribute towards the national agenda in creating a vibrant entrepreneurship ecosystem," said Dr Sivapalan Vivekarajah, Managing Partner of ScaleUp Malaysia.

<https://www.digitalnewsasia.com>

PHILIPPINES

Intellectual property filings record 20% growth

Filings for intellectual property (IP) protection in the first half of 2021 posted a 20% year-on-year growth as the economy recovered further from eased lockdown restrictions while the Intellectual Property Office of the Philippines (IPOP) succeeded in highlighting the importance of IP in business recovery. In total, IP applications stood at 22,919. Utility model (UM) filings saw the biggest increase at 26%, from the 592 recorded from January to June last year to 744.

Driving the increase were residents whose filings climbed 29% from 555 to 715. On the other hand, nonresident UM filings contracted by 22% from 37 to 29. The top fields for UM filings during the period were in food chemistry (239); basic materials chemistry (39); special machines (32); handling (20); and IT methods for management (19). Trademark filings increased as well by 23% from 15,969 filings to 19,649. Resident filings made up the bulk of the applications and registered a 39% surge from 8,859 to 12,288.

International filings, which are made through the Madrid Protocol, took a 5% drop from 3,859 to 3,677. Most trademark filings were in pharmaceuticals, health, cosmetics

(5,786); agricultural products and services (5,473); scientific research, information and communication technology (4,204); management communications, real estate and financial services (3,614); and textiles, clothing and accessories (2,865).

Patent filings rose by 2% from 1,899 to 1,945. Majority of the growth came from nonresidents with 165 filings, an increase of 23%. Filings through the international Patent Cooperation Treaty edged down by a mere 1% from 1,599 to 1,586.

The top fields for patent filings were in pharmaceuticals (1,020); organic fine chemistry (523); biotechnology (312); basic materials chemistry (198); and food chemistry (176). Meanwhile, copyright deposits soared by 163% from 285 to 761. The lone laggard during the period was industrial design with filings sliding 10% to 581. While resident filings increased by 8% to 339, nonresident applications for ID decreased by 27% to 242.

<https://www.ipophil.gov.ph>

Accelerating innovation through partnerships

A business process outsourcing (BPO) firm in the Philippines has recently partnered with 10 universities and academic institutions to help accelerate technology innovation in the country. The tech company handed over PHP80 million in grants to its academic partners to fund programs focusing on emerging technologies, sustainability, and inclusion and diversity.

As per the company's technology lead in the Philippines, Africa, and the Asia-Pacific, the funding aims to help boost the local innovation system, particularly Filipino technology talents. "By supporting on-campus labs and incubators that are embarking on initiatives to accelerate the use of new technologies, develop more sustainable business practises, and foster a more inclusive culture in the technology field, we are helping to nurture the next generation of Filipino technologists that will solve complex business and social challenges in the future," he said.

- The partnership between the tech firm and Adamson University's Tech-

nology Business Incubator for Neo-Environmental Science and Technology will include curriculum updates and startup support for Industry X applications. The BPO firm will help finance the Innovate with Data program at the Asian Institute of Management-Dado Banatao Incubator, which will develop a collaborative learning journey to transform local startups into data-driven companies.

- Its collaboration with Ateneo de Manila University (ADMU) entails curriculum intervention in order to establish data and analytics programs at the tertiary education level. In addition, the company will work with Ateneo Blockchain Labs to launch programs to scale healthcare startups using multi-party systems, as well as blockchain curriculum development and the development of government applications for multi-party systems with ADMU Loyola Schools.

<https://opengovasia.com>

REPUBLIC OF KOREA

R&D investment by drugmakers

Large pharmaceutical companies increased their investment into research and development in the first half of 2021 despite an uncertain profitability outlook due to the prolonging COVID-19 pandemic. According to semi-annual reports submitted to the Financial Supervisory Service, seven out of the top 10 pharmaceutical companies expanded R&D investment in the first 6 months from the same period of 2020 to find a new growth engine.

Celltrion spent 202 billion won (\$172 million), 21.12% of its sales in the year's first half, on R&D. It marked the 42.3% increase from 141.9 billion won a year ago. The company is rapidly expanding its R&D activities to drugs other than its mainstay of biosimilars. Celltrion's COVID-19 antibody therapy Regkirona, which received conditional approval from the Ministry of Food and Drug Safety in February based on

phase 2 clinical trial results, is experiencing a sharp market demand increase amid the ongoing fourth viral wave.

Health authorities estimated that 8,610 COVID-19 patients had received Regkirona at 85 domestic medical institutions as of 31 July. Celltrion's biosimilar drug Remsima SC, a hypodermic injection, also won authorization from the European Commission in July 2020 for all indications except for treating pediatric patients. The drug began generating sales with the approval, and phase 3 clinical trials are underway in the U.S.

Daewoong Pharmaceutical spent 90.63 billion won as R&D expenses in the first half-year, up 25.5% year on year. It is the second-largest increase after Celltrion. The ratio of R&D investment to sales rose to 17.61%. The company conducted studies on its pancreatitis drug Foistar (ingredient: Camostat) and investigational drug DWRX2003 (ingredient: niclosamide) for tapeworm infestation to re-purpose them into COVID-19 therapies. In addition, a clinical trial of mesenchymal stem cell therapy targeting severe COVID-19 patients in need of a ventilator is going on.

Samsung Biologics' R&D spending amounted to 43.42 billion won, up 38.24%, over the cited period. The company is maintaining its growth trend thanks to contracted manufacturing orders' increase due to the COVID-19 pandemic. Other large Korean drugmakers are also actively seeking R&D investment opportunities for growth.

Expansion of R&D investment was noticeable in Ildong Pharmaceutical, DongA-ST, Chong Kun Dang, and inno.N, focusing on their bestsellers. Ildong Pharmaceutical poured 48.4 billion won, or 17.6% of cumulative sales, into R&D, marking a 41.19% growth. Chong Kun Dang lifted R&D investment by 25.52 to meet its goal of developing new drugs. Its R&D spending increased to 78.05 billion won in the January–June period compared with 62.18 billion won a year ago.

In contrast, some companies reduced their R&D spending, reflecting their worsening profitability due to the prolonged

pandemic. Hanmi Pharmaceutical, Yuhan Corp, and GC Pharma reduced investment in R&D compared to last year. However, they used more than 10% of their sales for this purpose. Hanmi Pharmaceutical, which had actively engaged in R&D activities, saw an unusually significant reduction in investments. Hanmi Pharm's R&D investment in the first half was 72.76 billion, down 28.88% from the previous year. However, the company still spent 13.2% of its sales on R&D.

<https://www.koreabiomed.com>

New drug development projects

The Korea Pharmaceutical and Bio-Pharma Manufacturers Association announced on 5 September that 193 out of the 299 South Korean companies in the industry are working on 1,477 new drug pipelines. For reference, 100 companies were working on 573 new drugs according to the association's 2018 survey.

The 1,477 are divided into 599 synthetic drugs, 540 biopharmaceuticals, and 338 others. 27.3% of the projects are in their lead compound and candidate phases, 26.9% in nonclinical, and 18%, 11.4%, and 7.9% in their first to third clinical phases, respectively. The number of projects more than doubled in 3 years in every phase. Especially, the number of those in the third phase soared 274.2%. The 1,477 include 317 anticancer drugs, 173 metabolic disease drugs, 146 nervous system drugs, 112 drugs against infectious diseases, and 79 digestive system drugs.

In the industry, the number of cases of technology transfer including license in and out increased from 36 to 105 last year. The number was 85 in the first quarter of this year. The cases include 45.7% related to biopharmaceuticals and 26.8% related to synthetic drugs.

More than 25% of the cases are related to anticancer drugs, followed by infectious disease (9.7%), metabolic disease (5.8%), eye disease (4.9%), and digestive disease (4%). The smaller and larger companies transferred 250 and 81 licenses, respectively. The larger companies transferred

17 to foreign capital companies and the smaller companies transferred 64 to their domestic peers, 50 to foreign capital companies, and 35 to larger companies.

<http://www.businesskorea.co.kr>

THAILAND

Smart city plans en route to Industry 4.0

Thailand is forging ahead with its plans to become a developed digital hub in the Southeast Asian region, as part of its Thailand 4.0 policy that was outlined way back before the pandemic, in 2019.

The COVID-19 situation did, however, highlight to what extent that digital tools and enhancements could play in a city, as Thailand relied on both 5G networking technology and 5G-enabled tech enhancements to support overwhelmed public health services even early on in its pandemic response.

As one of the regional economies on the path towards Industrial Revolution 4.0 (or Industry 4.0) maturity, Thailand is restructuring itself into a value-based, innovation-driven economy by looking towards future economic trends—and as part of the Thailand 4.0 roadmap, one of those trends is to modernize urban centers in the country into smart, sustainable cities.

The Smart City concept, according to the *Bangkok Post* daily, is “a core pillar of the Thailand 4.0 policy that the country is pursuing, as part of its 20-year national development plan. The country aims to boost the digital capacity of its city management ecosystem, while preserving Thailand's unique social fabric, as well as enhancing the quality of life for urban residents. Moreover, the plan looks to further encourage locals in the participation of the future development of their city.”

As part of the smart city drive, an organization called the National Charter of Thailand (NCT) has been tasked with planning the sustainable development of the nation's cities. The NCT has developed a blueprint for creating “smart blocks,” experimental zones comprising of 0.25 square kilometers, in communities where

physical “smart” infrastructure such as sensor connectivity and the Internet of Things (IoT) will be deployed to gather data and to gauge public acceptance for increased tech adoption.

The development of smart blocks is already underway in 6 out of 13 municipalities: Chiang Mai, Nakhon Sawan, Udon City, Khon Kaen, Rayong City, and Patong City. These experimental zones will utilize all-in-one “smart poles” embedded with IoT sensors to gather traffic data, to make designated areas more pedestrian-friendly placing priority on pedestrians, followed by cyclists, public transport users, and finally private car users.

<https://techwireasia.com>

Medical technology innovations

Under its development target of becoming an international healthcare and medical hub by 2036, Thailand is currently aiming to reach the next level of medical and wellness services by promoting precision medicine for the treatment of more complex illnesses, such as cancer and genetic-related diseases.

The action plan focuses on improving R&D and skill training technology, with the local medical device industry also expected to benefit from the cutting-edge innovations and R&D facilities in the Eastern Economic Corridor (EEC) which covers the three provinces of Chachoengsao, Chonburi and Rayong in the country’s Eastern Region. As Thailand’s pilot industry 4.0 special economic zone, the EEC provides support for all of the country’s target high-tech industries with facilities that promote the whole R&D and innovation development process, including the Startup and Innovation Center, National Quality Infrastructure and Translational Research Infrastructure.

One project that is fundamental to this plan calls for the Public Health Ministry to establish the Thailand Genome Sequencing Center in the EEC as a facility to provide clinical services for patients from across Southeast Asia and beyond.

The Excellence Center for Genomics and Precision Medicine at King Chulalongkorn

Memorial Hospital has provided assurances that it could support and strengthen the whole genome sequencing project. On top of that, the BOI and the EEC office have provided tax and non-tax incentives to foreign businesses and experts to work in the EEC.

In a related development, Thammasat University⁵ has confirmed its plan to develop a Total Digital Healthcare Solution at its Pattaya campus in Chonburi province. With a focus on healthtech, state-owned Mahidol University has introduced Salaya Startup Town which houses a comprehensive ecosystem of lab and R&D space for engineering, biotechnology, and healthcare technology.

In the capital city of Bangkok, around 20 medical academic institutions and research houses have signed an agreement to strengthen their collaboration on research and human clinical trials under the “Multicenter Medical Innovation Clinical Trial” project. The institutions which have formed a network called “the Yothi Medical Innovation District” have worked together on the development of medical devices such as a portable chest x-ray and its application for patients with noncommunicable diseases.

<https://www.bangkokpost.com>

Enhanced incentives to promote R&D

The Thailand Board of Investment (BOI) at a meeting on 30 June 2021 approved a series of measures to encourage more investment in research and development (R&D) and engage the industry more actively in human resource development (HRD). Enhanced incentives are also offered to attract investment in the growing semiconductor, digital and packaging industries.

As Thailand aspires to become more innovation-driven, private sector R&D plays a very significant role. To encourage companies to step up their R&D, the BOI has proposed to the Board that projects that invest or spend at least 200 million baht or 1% of their total sales of the first 3 years be entitled to a longer tax breaks (maximum 13 years) with no corporate income tax

exemption ceiling. The number of additional years of tax holidays depends on the amount of R&D spending/investment. Moreover, companies that participate in apprenticeship programs or spend on advanced technology training can also enjoy greater tax incentives.

The BOI also approved a revamp of its promotion policy for businesses operating on the supply side of the digital economy by focusing on hiring and developing IT workforce as well as upgrading companies to relevant international standards. Companies applying for BOI privileges under the single reorganized category called “Development of Software, Digital Services Platform or Digital Content” will be eligible for an 8-year tax holiday, with the yearly ceiling reflecting additional hiring of Thai IT personnel, training expenses and costs of international standard certifications, such as ISO 29110 and CMMI Level 2 and above.

<https://www.bangkokpost.com>

UZBEKISTAN

UNESCO support to further enhance STI

Over the last couple of years Uzbekistan has taken some bold steps to promote STI areas that are perceived as the foundation for the country’s future development. Under the leadership of H.E. President Shavkat Mirziyoyev, the Ministry of Innovation Development, the National Council on Science and Technology, as well as brand new innovation centers, scientific clusters, and technology parks were established in the country. With the state support, the number of research institutions of the national Academy of Sciences has grown from 20 to 35 and the funding for science has quadrupled.

Promoting Science, Technology and Innovation (STI) has become a key policy objective in developed and developing economies, as governments around the world have recognized STI to be a driving force for achieving the Sustainable Development Goals (SDGs).

As a pillar of UNESCO’s mandate, the development of STI is an important focus

of bilateral cooperation with Uzbekistan. This collaboration expanded significantly in several fields of UNESCO's competence following the official visit of Ms Audrey Azoulay, Director General of UNESCO, to Uzbekistan in August 2019, when she held some productive high-level meetings with the leadership of the Republic of Uzbekistan.

One of the key elements of cooperation has been UNESCO's technical assistance through a project on strengthening inclusive STI systems in Uzbekistan that was launched in 2019 with the financial support of the Islamic Development Bank (IsDB). This project, implemented with the Ministry of Innovative Development of the Republic of Uzbekistan and UNESCO, aims at strengthening the capacity of Uzbekistan on STI policymaking through reviewing the national system to identify strategic investments in STI that tackle major development, social-economic and environmental challenges, as well as formulating policy options and governance recommendations.

The review further serves as an evidence base for the next stages of cooperation—namely, developing a national STI policy and key policy instruments (Action Plan) for its implementation.

The publication of "Mapping Research and Innovation in the Republic of Uzbekistan" (available in English, Russian, and Uzbek) in October 2020 was an important milestone in this project. It is the 10th volume of a series of country profiles produced by UNESCO's Global Observatory of Science, Technology and Innovation Policy (GO-SPIN), and it is the first of its kind for Central Asia. The Publication presents an analysis of key characteristics of Uzbekistan's STI system and includes an overview of STI development needs and opportunities, analysis of strengths and weaknesses, and recommendations formulated for the Government of Uzbekistan. By analyzing the national STI system, the report serves as a reference in providing evidence base for the development of the national STI policy as the next step of the project.

In the framework of this project, several capacity building activities and national

workshops on STI policy were held with the participation of the Ministry of Innovative Development and other national stakeholders engaged in these areas. Moreover, a national survey of the STI potential of eight regions—Andijan, Bukhara, Ferghana, Jizzak, Kashkadarya, Khorezm, Namangan, and Navoi—has been conducted. The survey collected more in-depth information on the state of the STI system in the country.

Based on the information collected through these studies, bilateral activities and exchanges, UNESCO has developed the first draft of Uzbekistan's STI Policy. The document should serve as the foundation for achieving the STI objectives in Uzbekistan over the next 10 years and an important tool to facilitate a successful recovery from the COVID-19 crisis.

<https://indiaeducationdiary.in>

VIET NAM

National strategy for artificial intelligence

The Vietnamese government has issued a national strategy on the research, development, and application of artificial intelligence (AI) till 2030. It aims to gradually turn Vietnam into an innovation and AI hub in ASEAN and the world. The Minister of Science and Technology, Bui The Duy, noted that the strategy intends for Vietnam to be among four leading countries in ASEAN and 50 nations globally in terms of AI research, development, and application over the next few years. Also, it targets to build 10 prestigious AI trademarks in the region and develop three national big data and high-performance computing centers.

By 2030, Vietnam will set up 50 interconnected open databases in economic sectors in service of the effort. To achieve this, the country is fine-tuning legal documents, creating a legal framework regarding AI, and promoting international cooperation in the field. According to a news report, further attention should be paid to human resources training and building a database that is synchronous with computing infrastructure. Since the COVID-19 pandemic

broke out nearly 2 years ago, the application of AI in health care in Vietnam has become a bright spot in the world. AI has helped ease burdens on medical workers and anti-pandemic forces through tracing apps and epidemiological maps.

The Hanoi University of Science and Technology officially debuted an international center on AI under the model of a mixed international research center. It is expected to conduct basic studies and create Make-in-Vietnam core technologies. Professor Ho Tu Bao, Director of the Centre, said that the digital environment is creating invaluable opportunities to develop and master technologies like AI. Minister Duy added that construction on the National Innovation Centre began at Hoa Lac Hi-Tech Park to support the startup ecological system in Vietnam, contributing to renewing the growth model based on advanced technologies.

In June, Vietnam introduced an AI application that issues warnings when facemasks are not being worn on public transport. The computer vision app alerts authorities of passengers who are not wearing or improperly wearing masks. As OpenGov Asia reported, the app is connected to surveillance cameras on public transport vehicles and can access image data and automatically analyze it. It sends appropriate notifications to the server of the transport company if it detects someone not wearing a mask or wearing one incorrectly.

Meanwhile, a group of scientists from the Medicine Faculty at the Vietnam National University Ho Chi Minh (HCM) City unveiled a technological solution that combined the internet of things (IoT) with AI to concurrently manage people in quarantine sites and crowded places. Further, medical and delivery robots have been put into use at quarantine sites to replace health workers in transporting food, medicine, and essential goods and collecting waste, thus minimizing direct contact. Many other organizations have also created a number of high-quality scientific and technological products such as testing kits and vaccines.

<https://opengovasia.com>