REINVENTING THAILAND'S HIGHER EDUCATION

Driven by megatrends which include the pandemic, climate change, technological progress and social change, transformation in higher education is necessary in order to ensure that the system meets the needs of society and the economy, enabling Thailand to overcome global and local challenges. Contrary to the older concepts, higher education no longer caters exclusively to students prior to entering the job market, but also supports lifelong learning for people of all ages and occupations to increase the skill and competency level for social and economic development. Reskilling, upskilling and new skilling programs have never been more vital as the country needs to prepare skilled workers to build its new engines of growth as well as to attract investors of advanced industry to relocate to Thailand due to the shift in global economic power.

The State of Higher Education and Workforce Development in Thailand

Demand for Workforce Development

Megatrends such as the pandemic, digital technology and climate change are expected to drive high growth in the following industries: smart farming, genomics, vaccines and biologics, next generation automotive, food, medical device, creative economy, artificial intelligence, circular economy and frontier research. As a result, rising demand for a STEM workforce is anticipated in those industries with jobs such as robotics engineers, data specialists and food designers.

The grassroots economy affects income and livelihood of a relatively large population residing in local communities and rural areas. Therefore, growing the grassroots economy will boost income of a majority of people and facilitate better income and wealth distribution in the society, which constitutes the Thailand 4.0 vision. To encourage the growth of the grassroots economy, farmers, workers and low-income earners need to be equipped with a wide array of entrepreneurial knowledge and skills. Information technology skills enable access to information and new business opportunities abundantly available online. Improvement in productivity, efficiency and value creation can be achieved with technology and innovation. Finance and accounting skills help with cost and debt management, as well as future investment, whereas management skills are helpful for risk management and efficiency improvement. Marketing skills can boost product and service sales through market expansion to various channels including e-commerce marketplaces.

An increasing shift from traditional and full-time employment to freelancing, working part-time, and independent contracting has been observed worldwide. This new labor market - made up of freelance or part-time jobs as opposed to full-time, fixed contracts - is referred to as the gig economy. The gig economy can often be facilitated by digital platforms. There is no report on an official number of gig workers in Thailand. However, an official number of people in informal employment stood at 20.4 million in 2020. Of this number, 1.9 million people or 10% of formal employment were part-time workers or workers with more than one job, which is close to the definition of gig workers. The rest of informal employments, which amount to 18 million people, are seasonal workers or people who are unemployed or not in the labor force, e.g., retired persons and students. This large group of population can benefit from workforce development programs, preparing them to participate in the gig economy to earn a better living.

Body of knowledge derived from social sciences, humanities and arts – in the forms of culture and history – has enormous potential to be exploited to create economic value, thus contributing significantly to the creative economy. Workforce development in social sciences, humanities and arts will therefore be extremely beneficial to Thailand in the long run and skills in high demand include creativity, entrepreneurship, cross discipline, communications, art and design.

Situation of Workforce and Higher Education

Thai labor force is steadily shrinking as the country is entering an aging society. In addition, student enrollment in higher education has been on the decline in the last five years, contributing to the current and future labor shortage. It is also evident that competence and skills of university graduates do not often match the requirements of employers. The mismatch between the skills that are sought by employers and the skills that are possessed by individuals points to the inherent flaw in higher education. The disconnect between academia, industry and the policymakers is the culprit of poor vocational education quality. Due to the lack of information on skills required by industry, higher education institutions are unable to design curriculum that will equip graduates with skills and competence demanded by employers. Rapid advancement in technology and innovation only exacerbates the problem.

Thailand ranked 40th among 141 economies in the World Economic Forum's Global Competitiveness Report 2019. In the human capital skills criteria, however, the country was placed at 73rd position, scoring 62.3 out of 100. The scores for skillset of graduates, digital skills among active population, and ease of finding skilled employees were 49.7 (79th position), 54.3 (66th) and 50.4 (66th), respectively. All in all, the skills of Thailand's current workforce fell behind those of Singapore and Malaysia, making the country less attractive when it comes to foreign investment into the ASEAN region.

A study performed by the Office of the National Economic and Social Development Council revealed that students from high-income families have a 65.8% chance of going to college and the number remarkably dropped to 5.3% for students coming from low-income families. Financial burden is evidently the main cause of education inequality. Without education, job opportunity is limited, resulting in the vicious circle of poverty.

Technology disruption has a significant effect on the labor market. While some jobs will be displaced by machines, new jobs are emerging, requiring workers to have new skillsets. Universities therefore need to move from supply-side to demand-side education, producing graduates with skills in demand by industry, as well as adaptability and resilience.

Adaptation of Higher Education System

The Equitable Education Fund was established in 2018 aiming to reduce educational inequality, provide financial support for students in need and support teacher development. In addition to providing financial support, the fund also promotes the overall educational system such as setting up a special scholarship program for students who will pursue a teaching career in their hometown and a program to monitor students' learning performance and health to prevent dropout.

The Reskill/Upskill/New Skill initiative launched by the Ministry of Higher Education, Science, Research and Innovation currently has over 500 non-degree courses in development focusing on future skillsets demanded by target industries. Reskill-Upskill vouchers worth THB 1,000-2,000 each have been handed out. Financial measures have been introduced to encourage companies to hire skilled workers and provide training to their employees. These include 150% tax exemption for expenses spent on hiring employees with advanced STEM knowledge and 250% tax exemption for training expenses.

Online and hybrid education is increasingly made available in most, if not all, major universities in Thailand. In addition, Thailand Massive Open Online Course Platform (Thai MOOC) has been established as a lifelong learning space providing open-access courses to general students and people from any educational and occupational background. Online courses available on Thai MOOC cover a vast range of subjects taught in normal university curriculum as well as vocational training. The model takes full advantage of digital technology to provide "anytime, anywhere" education, befitting the new normal way of life.

To engage universities to community development, University to Tambon (subdistrict) or U2T project has been introduced. U2T provides grants to universities to employ their knowledge and technology to develop local communities and create jobs to drive the grassroots economy. The initial phase of the project is expected to add 60,000 new jobs in 3,000 subdistricts and create a long-term partnership between universities and communities to strengthen local economies.

Key Policies in Higher Education

Quality Assurance and Standards. A ministerial regulation was issued in 2021, classifying higher education institutions into 6 categories according to the institute's objective, mission, strategy, potential and past performances. The six categories are: 1) world-class research, 2) technology and innovation, 3) community development, 4) religion and wisdom, 5) vocational development, and 6) others. Subsequent ministerial regulations are being drafted to define standards requirement, quality assessment and assurance of each higher institution category.

University's Role in Manpower Development. The concept of demand-directed higher education will help universities fulfil their commitments as the roles of university have evolved over the past decades. In addition to manpower development, research, public service and arts and culture cultivation, universities are now expected to promote social equality, area-based development, social responsiveness and social responsibility. The Higher Education Act B.E. 2562 (A.D. 2019) introduces some new initiatives promoting diverse forms of education (article 31), collaboration between public and private universities (article 34), academia-industry collaboration (article 35), off-campus education (article 58) and educational sandbox (article 69). At present, there are a number of public funding programs for manpower development. These include the Science, Research and Innovation Fund, the Higher Education Fund, the Equitable Education Fund and the Student Loan Fund.

Entrepreneurial University. The 2016-2021 Startup Promotion Plan calls for universities to boost entrepreneurial skills among students and citizens. As a result, a number of initiatives have been launched, including Entrepreneurship Educator Consortium, Business Brotherhood, Startup Thailand League and Technology and Innovation-Based Enterprise Development Fund (TED Fund).

Academia-Industry Collaboration. Multiple programs have been implemented to promote collaboration between universities and industry to enrich students with work experience such as Work-integrated Learning (WiL), Co-operative Education, Total Innovation Management Enterprise (TIME) and Higher Education for Industry (Hi-FI). In addition, some new platforms have been introduced to promote this cause. These platforms are Thailand Electroplating Professional Network (TEPNET) by NXPO, Chulalongkorn University and Fraunhofer offering a non-degree course in electroplating and Talent Mobility facilitating R&D personnel from academic and research institutions to work in private companies. Many of these initiatives come with tax privileges and investment incentives to attract industry engagement. A study has been conducted to identify high-skilled workforce demands and future skillsets in the next five years (2020-2024) in the following 12 target industries: 1) robotics industry, 2) medical industry, 3) aviation & logistics industry, 4) bioenergy & biochemicals industry, 5) digital industry, 6) advanced agriculture & biotechnology industry, 7) food industry, 8) future mobility industry, 9) intelligent electronics industry, 10) high wealth & medical tourism industry, 11) defense industry, 12) workforce & education industry.

Impact of Megatrends on Higher Education

Changes taking place around the world can significantly impact higher education systems and how education is delivered. Such megatrends include the COVID-19 pandemic, technological disruption, multistage life, aging society, generation divide and global economic power shift.

The COVID-19 pandemic has direct impact on the employment and job landscape, effecting employment opportunity and quality of newly graduated students. Companies resort to reducing work hours or laying off staff in order to maintain their businesses. Nevertheless, the new normal has boosted jobs in certain

sectors such as food delivery, virtual tourism, online meeting platform and gig economy. Lockdown and physical distancing measures caused disruption in the provision of education. Online education is proven ineffective in providing hands-on practices which can result in sub-standard skills among future workforce.

While digital technology, automation and other innovations are displacing low-skilled workers, disruptive technologies like robotics and automation as well as digital platform give rise to new high-skilled jobs in the areas of algorithm for human-robot interaction, data analytics, artificial intelligence, machine learning, e-commerce, robotic engineering and internet of things (IoT). The shift in global economic power also offers opportunity for Thailand to attract global companies to relocate their businesses from China to Thailand. Provision of a skilled workforce is among the main factors attracting foreign investment in addition to infrastructure and investment privileges. Universities thus need to bolster their ability to offer education in emerging technologies to produce a workforce to fulfil the current and future labor market, as well as to increase Thailand's competitiveness to attract foreign investment.

With an increase in life expectancy and an aging population, people are expected to have longer working lives. The multi-stage life and aging society trends call for continuous learning – reskilling, upskilling and new skilling - to guide people through changes and disruptions in the job market landscape. Universities can also play an important role in closing the generation gap by changing mindset and improving skillset in both older and younger generations.

Higher Education Innovations in the 21st Century

Multiple interesting higher education models have been introduced over the past decades in response to technological and social disruptions and the ever-changing global, regional and national challenges. Some of these models represent policy intervention, whereas others address how best to deliver education that will increase people's skill level.

To promote lifelong learning and develop a skilled workforce, the Singapore Government introduced the SkillsFuture Credit policy. SkillsFuture Credit is a credit scheme for Singaporean citizens aged 25 years and above to acquire new skills or improve existing ones. The credit can be used to pay for a wide range of approved skills-related courses.

Advancement in digital technology has disrupted educational delivery methods. Western Governors University offers an online and competency-based education with curriculum designed to build a career. This model offers working adults flexibility and cost effectiveness for obtaining higher education. At Arizona State University (ASU), a new model was introduced, offering a risk-free education. Students can complete their entire university freshman year coursework online and pay only after passing the course. Courses are open to everyone from anywhere in the world with no application or transcripts required.

To ensure that graduates are equipped with skills and knowledge required by the industry and employers, several universities now engage real-sectors and employers into the curriculum development and delivery, with one example being Technische Universität Braunschweig-Volkswagen collaboration. The partnership creates a win-win situation for all involved, including students gaining work-relevant skills, universities engaging in market-driven research and industry having access to cutting-edge technologies pioneered in academia.

Relationship-based education fosters social capital that helps students access opportunities for career development. There are several successful examples of relationship-based education. iCouldBe is a virtual mentoring program connecting students with mentors from across the United States, cultivating relationships to explore career interests for the future. ASU Local is a hybrid and work-based learning program designed for low-income and/or working college students who enroll in online courses at ASU to receive in-person coaching and mentoring and access to numerous career opportunities. Project Basta is a mentoring program designed for first-generation college students to navigate education programs and proceed toward a career path.

42 Bangkok was introduced in Thailand by King Mongkut's Institute of Technology Ladkrabang as a response to the shortage of computer programmers in Thailand and the fast pace of IT development. Modeled after the French École 42, 42 Bangkok is a tuition-free, teacher-less computer programming school that employs project-based and peer-to-peer learning, gamification and internship, all aiming to get students job-ready to smoothly enter the workplace.

Job First, College Included is a new model in which jobs at companies come with an opportunity to get a university degree. In this model, employers fund college tuition while employees work and enroll in college at the same time. Benefits of the program include learning professional skills and the practical side of a career and motivating students to finish college. Companies such as PricewaterhouseCoopers and Starbucks already have this model in place.

The merger of education and technology gives rise to education technology or EdTech referring to IT tools designed to facilitate and enhance learning. Game-based learning platform Kahoot! and Al-based writing tool WriteLab are among EdTech that promotes learning. Accredify, Aversafe and Indorse offer services in credential issuance and verification, enabling candidate validation and forgery prevention. In Thailand, there are a number of EdTech providing services ranging from upskilling/reskilling (SkillLane, FutureSkill, Skooldio and Grappik) and learning management (Conicle and FrogGenius) to test preparation (OnDemand, Dek-D School and OpenDurian) and career planning (ScoutOut and GetLinks).

Thailand's New Paradigm of Higher Education

In the announcement published in the Royal Gazette on 27 May 2021, the Ministry of Higher Education, Science, Research and Innovation pledged to create a higher education system aiming at producing graduates and providing lifelong learning to develop workforce with ethics, morality and competency required to thrive through current and future technological and social disruptions; enhancing the country's competitiveness; improving people's quality of life; while maintaining the pride of institution and tradition. To achieve this vision, a paradigm shift needs to be made in Thailand's higher education system as follows:

- 1. from catering to 3-stage life to meeting the needs of multi-stage life,
- 2. from institution-based to national credit bank system,
- 3. towards accessibility and affordability,
- 4. from supply-driven to co-creation,
- 5. from degree-oriented to employability-oriented education,
- 6. from content-based to competency-based education,
- 7. from local perspective to global perspective,
- 8. towards creative ecosystem,
- 9. from limited access to open access, and
- 10. from supply side financing to demand directed financing.

Recommendations on National Policy and Initiative

- Higher Education Reform. The new paradigm advocates for lifelong learning education that enables people of all ages to navigate through the ever-changing job landscape caused by technology and social disruptions, as well as an education system responsive to economic development policy. Lifelong learning and workforce development to meet industry demand can benefit greatly from the following programs:
 - **Higher Education Sandbox** allows higher education institutes to experiment with new forms of education that will pave the way for new education systems and innovations such as a program that engages industry in the curriculum design and delivery, new multidisciplinary, interdisciplinary and transdisciplinary programs or customized courses.
 - **National Credit Bank** is a system that allows learners to accumulate credits earned from informal and non-formal education or work experience as they work towards a degree. The benefits of

credit bank system include learners having more flexibility to earn a degree, able to focus on the subject of interest, and acquiring experiences from both inside and outside of formal education.

- **Talent Attraction and Retention** is a program that enables Thailand to increase its high-skilled workforce to meet the demand of advanced industries by welcoming foreign talents.
- 2. **Budgeting System.** The new budgeting system should follow a demand-directed financing approach which consists of the following measures:
 - Unit-Cost Subsidization using formula-based budgeting to allocate government funding to university faculties and departments,
 - Student Loan Program to increase access to education for destitute students, students with good academic performance and students pursuing education in fields identified as in shortage or in need for the national development, and
 - **Co-creative Investment** inviting the private sector to invest in education through mechanisms such as an income share agreement.
- 3. Institutional Governance. To promote good governance in universities, principles and guidelines should be established to ensure rules of law, transparency, accountability, ethics, stewardship and leadership. Each university should have a Board of Trustee Charter outlining roles and responsibilities, compositions, code of conduct and code of ethics, performance evaluation and secretariat.
- 4. Academic Promotion. The new academic promotion system should reflect the expanded roles of higher education institutes covering manpower development, innovation creation and services to community and society.

Future Directions of Higher Education Institutes

Future Digital University. Online and hybrid education is the future of learning as they not only offer solutions to crises like the pandemic, but also increase access to education for people of all ages and backgrounds. Universities should focus their efforts to provide good quality online and hybrid education that will promote multidisciplinarity, lifelong learning and education by design.

Tertiary Education for Employment. To overcome the skill gap between education and employment, universities need to enhance student employability. This can be achieved with mechanisms such as a co-creation model, real-sector engagement, work-integrated learning (WiL) and student-first approach.

Future Directions of Research Universities

Key tasks of universities are to develop manpower and create innovation in order to enhance the nation's competitiveness with the focus on future industries of Thailand, namely space industry, future mobility, medical device, vaccines and biologics, creative economy and frontier research. To establish academic excellence and promote innovation, the following approaches are proposed:

- **Institutional-based development** can be made through international collaboration with foreign partners via the following programs and activities: university-industry linkage, joint-degree and double-degree programs, and participation in a university consortium and an education expo.
- **Subject-based development** can be achieved by establishing centers of excellence, virtual university consortia and research institute foundations in specific areas and develop a platform that bring together academic and research institutes and industry to co-create innovation and share resources.

Future Directions of Vocational and Community Universities

Lifelong Learning in Rajamangala University of Technology. Rajamangala University of Technology is a system of nine universities, each with multiple campuses spread throughout Thailand, providing undergraduate and graduate level education. To take these universities into the future, they need to establish lifelong learning platforms including informal education for non-student youth, work-integrated learning for students, non-degree program and credit bank system for workers, and elderly school for senior citizens.

Lifelong Learning in Rajabhat University Network. Rajabhat University network consists of 38 universities located across all regions of Thailand. The universities are known for their close-knit relationship with local communities, thus serving as a driver of community development. To bring out their

full potential, Rajabhat Universities should support lifelong learning in the community by developing learning tools and education guidance program for local primary and secondary schools, building capacity of local entrepreneurs to strengthen the grassroots economy and offering reskilling and upskilling programs to upgrade local workers.

Scale up U2T Project. To enable local communities to respond to future changes, the next chapter of U2T project should focus on identifying challenges and trends, as well as creating change agents to drive long-term development in each community.