SYNTHESIS AND WAY FORWARD
(As of 10 Sept 2019)

OPENING CEREMONY

- During the Opening Ceremony, Dr Ethel Agnes P Valenzuela, Director of SEAMEO Secretariat highlighted the importance of regional collaboration in TVET (Technical and Vocational Education and Training) due to its important roles in developing human resources. TVET has also been highlighted in many Ministerial and High Officials Meetings as a priority area on education development until 2035. Various national and regional initiatives in TVET have been co-created and co-developed among Southeast Asian countries and Development Agencies since the 1st High Official Meeting on SEA-TVET on August 2015 with the objectives (1) to advance the quality of TVET in various aspects, and (2) to improve the internationalization and harmonisation of TVET institutions in Southeast Asia. The chosen theme, “Strengthening Efforts towards TVET 4.0” is timely due to the fast-changing technology in manufacturing and service sectors, influenced by the Industrial Revolution 4.0.

- Opening Remarks by H.E. Dato Seri Setia Haji Hamzah bin Haji Sulaiman, the Minister of Education of Brunei Darussalam stressed the importance role of technical vocational education and training in the 21st century. The minister also advises ASEAN and SEAMEO to continue to work together to improve the effectiveness of TVET for the 21st century. We need to strengthen our capabilities and provide an ecosystem that can support the digital revolution through investment in emerging technologies and modernizing physical facilities, building capacities, and matching skills to emerging markets demands. Training programmes will have to keep pace with industrial trends and developments in order to stay relevant in the future through upgrading curriculum, teachers’ training, and promoting life-long learning. The Minister also shared the development of TVET in Brunei Darussalam, including the development of the Brunei TVET Teacher Standards (BTSS), which is aligned with SEAMEO’s Regional TVET Teacher Standard, improving access for life-long learning.

- Dr Mohd Zamri Sabli, Director of SEAMEO VOCTECH and Alexander Tsironis, Project Manager, GIZ/RECOTVET explained the Industry 4.0 Feature in SEA-TVET.net. Director of SEAMEO VOCTECH shared some of the achievements of the online platform since its official launch in 2018 and highlighted the achievement in terms of knowledge uploaded and number of viewers. The Project Manager from RECOTVET demonstrated the use of the online platform highlighting its purpose and function and how the audience can use and contribute. The participants were encouraged to join the community and to start downloading and uploading materials.

SESSION 1

- In Session 1 under Country Initiatives: Strengthening Efforts toward TVET 4.0, moderated by Dr Sheikh Lukman of Institute of Brunei Technical Education (IBTE), the keynote speaker Mr. Herbert Tutschner from BiBB delivered a paper, “Digitalisation, Industry 4.0, VET 4.0: The German Way of Transformation”. Mr. Tutschner started his presentation by explaining the profiles of the Federal Institute for Vocational Training (BIBB). He shared some key points stating that digitalisation needs more qualified people. The digitalisation requires different level of qualifications such as university level, CVET (Continuing Vocational Education and Training) for high skills. He stated that digitalization is about disruption and agility. Then he shared bout the strategy of the Federal Government on transformation, policy, research, programmes and
standards of the VET programmes. To enter digitalization, TVET institutions must update the curriculum and the programmes based on new occupations. He also shared the qualification of trainers for digital media as one example of important job in this era of digitalisation and the key competencies that TVET graduates should have, including the personal competence and professional competence. The speaker then concluded that digitalisation is not a new phenomenon, it is more than just a transformation; it is a disruptions with positive and negative consequences.

- In the country presentation, Brunei Darussalam was represented by Her Excellency Siti Rozaimeriyanti binti DSLJ Haji Abdul Rahman, Legislative Council Member, President of Puja Brunei Darussalam, Director and Principal Architect of EcoBumi Arkitek. In her presentation on “Building a F.A.S.T. future for Brunei”, she began with a brief introduction to the current youth unemployment and issues surrounding TVET education. She then further highlighted that educational systems need to change in order to respond to SDG 4, which is “to increase the number of youth and adults who have relevant skills, including technical and vocational skills for employment, decent jobs and entrepreneurship” to address the 4 ASEAN Strategic Goal 4: which include maximizing access; strengthening regional harmonization; establishing regional quality assurance and reducing skill gaps. She then recommended the tripartite strategic partnership between the private, public and education sector. By doing so, the businesses and industry are able to support TVET laws and regulations and work together with education institutions to develop effective strategies to promote TVET education. Finally, she highlighted that in cooperation with ASEAN Secretariats and GIZ, “F.A.S.T: Future ASEAN Sustainable TVET”, ASEAN will develop the ASEAN skills standards to be implemented in 2021.

- Indonesia, represented by Dr. Ismunandar, Directorate General of Learning and Student Affair, Ministry of Research, Technology and Higher Education, shared his presentation on “Developing Vocational Higher Education for 2020-2024” with objectives to support national competitiveness through the creation of higher quality education combined with science and technology, and innovation capability. Ministry of Research, Technology, and Higher Education (MORTHE) of Indonesia proposed that TVET sectors must promote entrepreneurial education and lifelong learning in order to adapt and to counter against disruptions, besides understanding the local and global disruptions and contextualize the skills taught by properly trained teachers. Cooperation between TVET sectors and relevant stakeholders is needed. He also shared a national initiative called Multi-Entry Multi-Exit System (MEMES) to strengthen vocational education to provide opportunity for progression in accordance to the Indonesian Qualifications Framework levels. He then shared about revitalization of vocational higher education with the main strategy to increase vocational Gross Enrolment Ration (GER) in certain areas of industry, such as tourism, e-commerce and Industry 4.0, agriculture and fishery technology as well as health. Finally, he shared five national initiatives namely: Vocational Acceleration Programme, Increase in capacity of existing polytechnics, Increase courses at existing polytechnics, Increase in capacity of non-polytechnic vocational higher education institutions, and Establishment of 265 new polytechnics.

- Malaysia represented by Mr Zainuren Haji Mohd Nor, Director of Technical and Vocational Education Division, Ministry of Education Malaysia presented a country paper on "TVET Efforts Toward TVET 4.0 from MOE Perspectives". Mr Zainuren shared in his introduction - Malaysia’s (Ministry of Education) perspective regarding IR4.0, by highlighting the Prime Minister’s quote from TVET Conference in 2019, "TVET will be a game changer in our effort developing local high skills human capital that would reduce country’s dependence on foreign workers. The government will continue to strive to enhance the capacity of Malaysian youth in TVET to ensure the needs of high technology industries can be met by local workers". He also conveyed that there has been extensive collaboration between Malaysia’s Ministry of Education, Ministry of International Trade and Industry, and industry ‘strong’ players to strengthen IR4.0 and its two key components: 1) Internet of Things 2) Big Data Analytics. Mr Zainuren shared Malaysia’s way forward, which is to create 1.5 million new jobs by 2020 and is seeking recommendations from collaborating nations in how to achieve that number successfully. He also shared the ‘Human Capital Qualities Framework’ sharing the formula of [C] Competence = [K] Knowledge, [S] Skills, [E] Experience, and powered by [A] Attitude; TVET is not only the preparation for work but also preparation of life. To do this, he briefly mentioned on the initiatives of IR4.0 components of school curriculum and collaborations with relevant partners.
• Singapore represented by Mr Vincent Yu, Senior Manager, Higher Education Policy Division, Ministry of Education, shared his presentation on “Singapore on Going Efforts towards TVET4.0”. He started with the introduction of The Skills Future Movement that Singapore had embarked in 2014 which promotes lifelong learning with the intention of preparing Singaporeans for the future workforce and providing them with opportunities to develop their fullest potential regardless of their starting points. The four Key Thrusts that underpin The Skills Future Movement are: (i) helping individuals make well-informed choices in education, training and careers; (ii) develop an integrated high-quality system of education and training that responds to constantly evolving needs; (iii) prompt employer recognition and career development based on skills and mastery; and lastly (iv) foster a culture that supports and celebrates lifelong learning. He shared Singapore’s strategies and initiatives that have been implemented in order to create a strong link between TVET institutions (polytechnics/ITE), such as the collaboration between ITE and industry partners, the establishment of Centre of Innovations (COIs) to encourage innovation and enterprise and representation of industry partners in ITE’s and Polytechnic’s School/Academic Advisory Committees. The presentation then concluded by looking at the approaches that Singapore is undertaking in an attempt to further strengthen the links between The SkillsFuture Movement and Singapore’s TVET institutions: Work-Study Programmes, Enhanced Internships & Industry Collaborations, Skills Frameworks, and Strengthening Continuing Education & Training.

SESSION 2, PART 1

• In Session 2, Part 1: Regional Initiatives for TVET Development in Southeast Asia by Development Agencies, moderated by Dr Mohd Zamri Sabli, Centre Director of SEAMEO VOCTECH, 6 papers were presented. The first presentation was on the Progress Report of ASEAN TVET Development Council by Mr Elmer K Talavera, Executive Director, National Institute for TESD (NITESD), TESDA, Philippines. TVET plays an important role in preparing for IR 4.0 workforce requirements. He explained about the history of the ASEAN TVET Council (initially referred to as ASEAN TVET Development Council). ASEAN TVET Council is a multi-sectoral/cross-sectoral body that will provide policy advice, recommendation, and coordination on TVET initiatives. The vision of ASEAN TVET includes higher productivity in the digital economy, establishing globally competitive human resources, market-responsive workforce skills, greater employment opportunities, and human-centered future of work. The Priority Areas highlighted were the development of market-responsive workforce through LMIS, conducting researchers pertaining to TVET, rebranding the image of TVET, supporting the capacity building of TVET trainers/personal at schools and in companies, strengthening of TVET quality assurances in AMS, opening means to share best practices and lessons learnt on TVET implementation, and finally, TVET financing. The ASEAN TVET Council will be launched in 2020 in Vietnam whereas the Terms of References will be adopted during the 35th ASEAN Summit which will take place in Bangkok, Thailand in November 2019.

• The second regional initiative was on “ASEAN Initiatives for TVET Development” presented by Ms Pitchanuch Supavanich, Senior Officer, Human Development Directorate/ labour and Civil Service Division, ASEAN Secretariat. She presented a progress report on initiatives being implemented in the ASEAN nations in the development of TVET. The main goal is to identify and develop a working system that would accommodate TVET and its linkages of labour workforce, education, youth, and SMEs. She also shared brief findings of research on ASEAN Readiness on IR4.0. She then listed down ASEAN initiatives on ASEAN and TVET, TVET Labour & Education, and TVET Youth & SMEs.

• The third regional initiative was on Future ASEAN Agenda for TVET by GIZ-RECOTVET, presented by Mr Bahrin Mohammad, Council Member (Education & Examination) Institute of Surveyors, Engineers & Architects Brunei Darussalam. Under the heading of ‘Future ASEAN Agenda for TVET’, Mr Bahrin Mohammad shared a brief background of this agenda, the urgency for change in TVET among ASEAN Member States (AMS) and the revision of current legal and policy frameworks. By identifying the challenges and countering them with practical solutions is essential to strengthen the cooperation of businesses and industries. The ASEAN Regional Working Group highlighted the top five recommendations: (1) Set up National TVET Councils co-chaired by senior public and private sector representatives to drive coherent, future-oriented national TVET agendas, (2) form skill standard development committees that support business and industry in leading the development of skill standards, (3) form an ASEAN Future Workforce Council led by business and industry, (4) develop skills information platforms
to make information about the supply and demand of skills publicly accessible online, and (5) allocate an appropriate annual budget to TVET and consider the establishment of a TVET fund.

- The fourth regional initiative was on Regional Cooperation on TVET 4.0 for the Year 2020-2030 By Mr Ingo Imhoff, Programme Director, GIZ-RECOTVET Programme, Vietnam. He began his presentation by sharing the objective of RECOTVET which is to strengthen the capacity of TVET systems in the ASEAN region to adapt to the requirements of digitalization and IR4.0. Strategic partners to carry out the initiatives include (1) Regional: ASEAN, SEAMEO, and International Organizations, (2) National: Ministries of education and labour and their specialized agencies, (3) Business and industry: chamber associations, enterprises. According to findings, “Digitalization” is the dominant topic of regional and national discourse. While strategies for dealing with the skills implications of digitalization exist, they are often very general and consultation-driven. There is, however, an increasing readiness to cooperate across sectoral boundaries, but there is a lack of specific reform plans for the TVET systems. He then shared various activities under regional TVET cooperation including regional policy dialogues, business and industry cooperation, regional knowledge platform, training on digital competencies and teaching methods; LMIS, skills forecasting and future competencies; and providing support for strategy development.

- The fifth initiative was on SEAMEO VOCTECH-GIZ/RECOTVET Modules for Industry 4.0 presented by Ms Siriporn Parvikam, Programme Component Manager, GIZ/RECOTVET, Thailand. In her presentation, she shared the main points regarding the relevance of regional in-service training modules for industry 4.0 in TVET and its implementation. There are three modules in total: Modules are jointly developed by international and regional experts with proven experience in field of Industry 4.0 and advanced teacher training institutions from the ASEAN region. Each training module has their own target group and pre-requisite: Module 1: Innovative Teaching and Learning for Industrial Changes due to Industry 4.0, the training was held in Bangkok, 5-16 August 2019. Module 2: Professional Development Training for TVET Teachers in Industry 4.0 to be conducted in Kuala Lumpur on 19-27 September 2019. Module 3. “Curriculum design for Industry 4.0 Work process” to be held in Bangkok on 7-15 October 2019. Recommendations from the training were shared including seeking for support at the national level to share about the training and to nominate qualified multipliers to participate in regional multiplier trainings. She shared that it would be helpful to provide financial support for additional participants if the country is sending more than one participant. Another recommendation added was to provide the resources to translate the modules and supporting materials into local language and to support the replication of innovative in-service training modules developed under the auspices of SEAMEO VOCTECH and with support of RECOTVET among TVET institutions in the country. Finally, she mentioned the need to build alliances for upgrading TVET teachers with national and regional training institutions and donor organisations.

- The sixth regional initiative was on “Survey to Assess Industry and TVET Institutions Readiness for Industry 4.0” presented by Dr Paryono, Deputy Director, SEAMEO VOCTECH, Brunei Darussalam. In his presentation, he shared that there is a need to know to improve the readiness of industry and TVET institutions for IR4.0 in Southeast Asia. Based on the recommendations from the 4th HOM SEATVET, there are three main objectives for the survey: (1) To assess the readiness for IR 4.0 of TVET institutions in SEAMEO Member States, (2) To solicit feedbacks and recommendations from TVET and industry leaders for the future development in Southeast Asian countries. Besides using questionnaire to assess the industry and TVET readiness, the study will also use Focus Group Discussions as data collection tools to address the following questions: (1) What changes could be expected in industry due to the implementation of Industry 4.0, (2) How will the roles of workers and semi-engineers change, (3) What is the status of the current adoption, and (4) What initiatives should be taken by industry in response? This paper was presented with requested decision to carry out the research either by: (1) Each SEAMEO member countries conduct its own study and share the findings with SEAMEO, (2) Each SEAMEO member countries and potential funding donors will contribute some funds for the conduct of the study carried out independent body or by SEAMEO Centres, or (3) Just for reference only, up to member countries to decide whether to conduct the study or not. The decision will be made during the round table discussion among High Officials.
In Session 2, Part 2, Regional Initiatives for TVET Development in Southeast Asia by Development Agencies or partners, moderated by Dr Ethel Agnes P Valenzuela, Director, SEAMEO Secretariat, the first paper was on “Skill 4.0 for Industry” presented by Mr Jonathan Ledger, Global TVET Specialist, Department of International Trade, UK. In his presentation, he shared the background information on United Kingdom’s Department of International Trade (DIT) Education Team and how the organisation has been fostering collaborative relationship with the ASEAN region, especially in the aspects of sharing the best education practices, creating mutually beneficial opportunities and partnerships, enabling reformation of education systems and enhancing skills and education in key industrial areas. The presenter then explained how the UK expertise has been supporting the development of the next generation skills in ASEAN countries, for example through multi-country skills 4.0, Pearson BTEC Qualifications in Thailand, Educational Governance & Quality Assurance, Advanced Aviation Technical Capacity and Skills 4.0 for Industry. To conclude, he underlined that the UK remains committed in working together with ASEAN countries to develop and enhance their skills capability in order to meet the demands of industry 4.0. Recommendations for consideration and approval by the TVET High Officials: (1) SEA Ministers invited by the UK Government to agree to attend the successful Education World Forum and BETT show being held in London in January 2020, (2) Ministers and their delegations from all ASEAN countries to actively participate in the UK Wilton Park Skills and Education Dialogue planned for February 2020 in Vietnam, potentially to coincide with the Bett Asia Summit Malaysia and BESS Vietnam), (3) SEA education ministry officials, alongside officials from ADB, to take part in a visit to UK during early 2020 to gain a greater understanding of the UK skills and broader education capability and how this can support development across ASEAN countries.

The TVET regional initiatives of UNESCO on Entrepreneurship Education was presented by Ms Yoojeong Seo, Programme Specialist, UNESCO-Bangkok. In her presentation, she started by clarifying what UNESCO can and cannot provide in response to the request from country members. The speaker spoke about the UNESCO’s functions for TVET which are to provide content experts, quality assurance experts, ICT experts, pedagogy experts, course planning guidelines, and institutional course planning tools. The speaker highlighted the recent activities of UNESCO: UNESCO-UNEVOC TVET leadership Programme for the Asia-Pacific area and a meeting on entrepreneurship Education for 4th Industrial Revolution EE-NET 8th UNESCO – APEID meeting. The speaker concluded that the above were the initiatives of UNESCO to achieve entrepreneurship in TVET.

Towards a Community of Shared Future: China-ASEAN TVET Collaboration By Ms Zhou Hui, Deputy Director, ASEAN China Centre. She started by introducing the background of the organization and the 4 flagship programmes that are currently practiced. The presenter then highlighted on China’s recent TVET reform initiatives where she emphasized on the common challenges faced and tackling the issues by introducing the national implementation plan. Currently, there are 1.3 million TVET teachers but regarded as a relatively low image and reputation in society. Curriculum teaching materials are all up to date but have yet to improve and align with the industry 4.0 as teachers have no experience with the latest pedagogical methods (theory rather than practice). The presenter then shared the current status on the topic of ‘ASEAN-China TVET collaboration’ where she emphasized on the establishment of collaborative platforms, student mobility and TVET-Industry integration. Moreover, the section on future collaboration was also presented based on the components on innovation-driven development, quality development, win-win development and multi-dimensional development. China has recently introduced a new ‘XY’ certificate system for TVET where certificate X is for diploma students and certificate Y is for occupational certificate. Towards the end of the presentation, she hoped that the relationship between China and ASEAN could improve in three aspects: (1) Collaboration in innovation- How can we bring innovation in the system, (2) Quality-to enhance quality of TVET and collaborative programmes and the sustainability of the quality. She suggested on joint development of curriculum and standardisation, (3) Multi-dimensional regional framework. ACC requests: 1) Information about the latest TVET policy developments and the status quo of TVET system in ASEAN countries (some are available online and some are not) and produce a brochure for the reference of Chinese TVET institutions and 2) Information about ASEAN countries’ demands in terms of TVET collaboration with China and suggestions for future collaboration.

SEAMOLEC Initiative on the Online Course Development by Utilizing Common ASEAN Tourism Curriculum (CATC) By Ms Cahya Kusuma Ratih, Manager (Research and
Progress Report on TVET Training for Special Education Needs Teacher and Proposal By Ms Hjh Salmah Binti Jopri, Centre Director, SEAMEO Regional Centre for Special Education (SEAMEO SEN).

The speaker started her presentation by stating that children with disability may not be sophisticated with technology and there is a need to give importance for the children’s safety and physical strength. The speaker also highlighted the progress report on TVET training in the field of special education where implementing urban agriculture is the main focus. In 2016, there was a pilot project on urban agriculture programme. In 2017 there was a customized course. In 2018 there was an urban agriculture training for Vietnam special Educational needs teachers and community learning centre educators. The speaker highlighted that entrepreneurship for special educational needs teachers need organizational skills, time management, leadership development and interpersonal skills. The High Officials are requested to: (1) take note on the training projects that has been conducted for Vietnam Special Educational Needs Teachers and Community Learning Centre Educators; (2) support the hosting of the proposed TVET training project initiatives for Special Educational Needs Teachers in respective countries; (3) support and recommend input for the TVET training projects; (4) suggest relevant experts institutions to co-host the TVET training projects; (5) co-funding expenses (training venue, experts invitation, mobilization and accommodation of participants) for the TVET training projects.

SEA-TVET Student Exchange Programme By Ms Piyapa Su-angavatin, Project Officer, SEAMEO Secretariat. The SEAMEO Secretariat started the presentation by sharing the background, aims and the current status of the programme. The presenter then highlighted, with illustrations, on the participations of institutions and students from 5 countries mainly Indonesia, Malaysia, Philippines, Thailand and Vietnam. She explained further on how the process has been implemented for the Student-Exchange programme where the SEAMEO Secretariat acts as a facilitator during the process. A total of 1143 students had been involved with the student-exchange program since January 2018 where the latest batch of students (August- November 2019) has the highest number of participants. The presenter then shared feedbacks received, with data and illustrations, from industries based on the overall satisfaction of students’ performance, quality of work, skills satisfactory, achieving of learning goals during internship, the institutional expectation and internalization of the programme. Overall, the data displayed have shown positive feedback and significant differences. The presenter then shared the upcoming 5th batch of SEA-TVET Exchange in 2020 hosted by Duy Tan University, Da Nang City, Vietnam on 17-18 October 2019 where the institutions support air-ticket and hotel.
In response to a question regarding budget for students exchange, she responded that expenses and funding is based on a cost sharing basis. Parents will need to cover airfare, living cost, food, pocket money, and visa. Receiving institution will provide accommodation and pay for extra activities provided to students.

SESSION 3.2:

- Skill Development for TVET 4.0 was moderated by Mr Ian John Wall, Head of School, School of Business, Politeknik Brunei. The first presentation was on IR 4.0 Skill Development Initiatives in Politeknik Brunei by Dr Tang Shi Siong, Head of Quality Assurance/Assistant Head of School of Engineering, Politeknik Brunei. Dr Tang Shi Siong started his presentation with sharing the vision and mission of Politeknik Brunei. He then shared about developing new policies to achieve Industry 4.0 and findings from study for the selected schools School of ICT, the students are more exposed to Industry 4.0; students and graduates are familiar with technology. Students learn 3D painting and animation; students are able to bring 3D models to life. Future plan is to move into focusing into data analytics and encourage industry-driven and innovation projects related to Industry 4.0, such as artificial intelligence. School of Health Sciences: Emerging evidence supports the value of simulation as an educational technique. Clinical simulation is integrated into the curriculum to transfer from theoretical and practical skills to clinical practice; via the simulation will provide a safe environment to promote clinical competences, self-confidence, reflective practice, and teamwork. Students can continuously practice until they acquire the necessary skills without involving living patients. School of Sciences and Engineering: To implement virtual reality in petroleum engineering programmes (for example risk safety in oil and gas). With the virtual reality, there is no need to worry about the health and safety risks, or the weather. In response to a new report published by BCG, the presenter emphasized the importance of lifelong learning and soft skills and the need to embed them into the curriculum.

- The Development of Holistic Human Capital for Industry 4.0 Readiness, by Mr Ngan Cheng Hwa, Specialist Technical Training Officer, German-Malaysia Institution. He started his presentation by posing a pertinent question with regards to TVET and IR4.0 - how to develop lifelong learning through IR4.0? As an aid to help answer this, Mr Ngan Cheng Hwa mentions that we currently live in “19th century classroom, 20th century teacher, and 21st century student”. So he delves into three types of analysis to ponder: 1) Industry 4.0 – Where are we? 2) People – what are talent development requirements? 3) Learning & Teaching – how to develop holistic/competent talent? These are all important factors due to the fact that the world of ‘work’ and world of ‘learning’ compliment of each other; people must have the capacity to learn – and through it, TVET needs to adapt to find the ‘fitment’ and synchronize these three factors. The aim is to shift to do problem-based learning instead of teacher-based learning. This works hand in hand with IR4.0, for them to become as innovators.

- Preparing Korean TVET for Dealing with TVET 4.0, by Ms Young Sun Ra, President, KRIVET (Korea) She started her presentation by briefly explaining the challenges of Industry 4.0 to TVET such as changing work environment and aging population. Then, she listed out issues faced by TVET at Secondary level, Tertiary level and adult learners. As a result, the Korean Government is pursuing ‘Growth with Innovation’ where the new directions of TVET includes (1) A reshuffling of the TVET according to the changes in industrial structure and diversifying employment patterns, (2) Competency building and new skills training for the workforce in the era of Industry 4.0, (3) Enhancing the participation in lifelong learning in order to secure the competencies for adults, (4) Shift to learner-customized TVET policies. She highlighted how the role of TVET has shifted from developing the industry labour force and providing social safety net to growth with innovation and establishing human resources foundation for the future talent. The presenter then shared the strategies in TVET Reforms under the 3 respective areas: (1) Developing competencies for new skills in the era of Industry 4.0, (2) Lifelong learning for all, (3) Supporting infrastructures for TVET. To conclude, the presentation shared 3 implications: collaborative policy implementation, tailor-made supports for the recipients and adequate lifelong TVET opportunities for all.

- KOSEN Projects in Thailand, by Dr Tsutomu Matsumoto, Director, Japanese-Thai KOSEN, Japan. The KOSEN project in Thailand was first created due to the domestic demand during the high economic growth period from 1955-1973. This project is collaborated between Thailand and Japan to fill certain job gaps between the two nations. It is an alternative route to the ‘education path’ in Japan as shown by Dr Tsutomu Matsumoto. The Kosen project is
essentially a 5-year course; with a Curricula that totals to 5340 hours. The syllabus was developed by Kosen Japan – and agreed by the partner. Training programs to ‘train the trainer’ is organised to brief the Thai instructors regarding the KOSEN pedagogy. The KOSEN graduates expected from this project are expected to create a variety of human resource jobs. Dr Tsutomu Matsumoto concluded that there was quite a difference in the style of teaching between Japan and Thailand instructors; there would be the need to improve cross cultural understanding in terms of language as well as pedagogy practices in the classroom between Instructor and student to make the KOSEN project much more effective.

SESSION 4.2:

- The session on Public-Private Partnership Model towards TVET 4.0 was moderated by Dr Sheikh Lukman, Central Principal, Institute Brunei of Technical Education (IBTE). The first paper, Enhancing Industry Collaboration for Successful Implementation/ Integration of IR 4.0 by Mr Jonathan Ledger, Global TVET Specialist, Department of International Trade, UK. As the rate of change for technology drastically advances, it proves to be challenging for individuals, businesses and public policies to keep up. As a result a skills gap, a commercial lag and a policy deficit follows in the wake of such drastic technological advancement. Thus, it was posited that the biggest barrier for the implementation technologies is the lack of knowledge and skills among staff, along with insufficient training in current and future technologies and the high cost of implementing such technologies. This calls for the implications for IR 4.0 by which: Technical skills need to be of quality and relevant; Foundational skills demand to be fostered; Entrepreneurial skills must be encouraged, and Digital skills enhanced. As TVET is about skills for industry, TVET sectors are required to not only understand industry needs, but also develop industry professional benchmarks. Henceforth, TVET sectors must design, deliver and implement relevant industry training programmes whilst closely measuring its following impact and outcomes. Accordingly, employers within the industries must collaborate with one another to refine their own businesses and articulate the skills it needs, in essence outlining clearer career paths. Industries are to create employment, training opportunities and assist in the supervision of training and coaching to staff. Therefore, it is expected that they provide technical input to qualifications and curriculum development. In conclusion, the perception of TVET amongst students, parents, employers and wider society demands for a change.

- Improving TVET through PPP with collaboration, by Dr Steve McKee, President of LabTech and President of WorldDIDAC China. Dr McKee started his presentation by explaining how technology is shaping the workplace and economic landscape and transforming the state of TVET. Nevertheless, PPP is not without its problems as research states that there has always been a mismatch between the supply and demand of TVET graduates. This creates the opportunity for collaboration on the creation of a new generation of teaching and learning materials in digital learning. He emphasized the beneficial partnerships of Worlddidac and Labtech within the TVET sectors towards the transformation of TVET through technology, making it virtual. Virtual TVET is thus the utilization of technology for education as it helps to reduce costly physical training systems, operational costs, reach and time taken to teach and learn, henceforth improving accessibility. It also encourages the betterment of trainers and teachers, thus, there is a demand to create the right balance between virtual and practical learning within the TVET sectors. Through the application of technology, improvements can be adapted and accessed by a wide range of audience. He concluded that industries and governments can complement each other to meet the constantly growing economic demands and challenges. The collaboration from government, international agencies, TVET and industrial sectors is highly appreciated.

- Industry Technical Skills Accumulation System (ITSAS), by Mr Lu Chuyang, Deputy Director, National E-Commerce Vocational Teaching Steering Committee PR China. In his presentation, he shared about Talent Demand Forecasting System, and PGSD skills development model.

WAY FORWARD

Within the era of digitalisation, collaboration within and outside of SEAMEO region is even more needed. Key issues that require strong collaborations are preparing future workforce with with quality, relevance and effective technical and vocation education and training. Unemployment of
TVET graduates is still high is some countries. Collaboration with industry must continue to be strengthened as well as offering opportunity for lifelong learning through flexible TVET and employment systems.

Knowledge creation and management are even more needed in the era of digitalisation through research activities and having knowledge management systems for easy access and usage. The need for more qualified workforce by offering higher level skills are also needed in the era of digitalisation. Through reviewing the current and new occupation profiles, TVET providers must also adjust the curriculum and the programmes by integrating key competencies besides improving the quality of teachers and infrastructures. We appreciate the contribution of all presenters and participants. We look forward to furthering our collaboration. Together we excel!