



Women in STEM Programme in Indonesia

Promoting and Demonstrating STEM-related Hard and Soft Skills through Adaptive, Creative, and Innovative Approaches in the midst of COVID-19 Pandemic

- **Donor:** J.P. Morgan Chase Foundation
- **Duration:** September 2017-May 2021
- **Focus:** Information, Communication, and Technology (ICT)
- **Beneficiaries:** underprivileged female vocational school graduates, jobseekers, retail workers, and small-medium enterprise (SME) business owners
- **Partners:** Sectoral business associations, private sector firms, TVET institutions, social partners, and relevant public ministries and agencies

Background

Over the next two decades, technological advances including automation and robotics, will significantly change jobs and enterprises in Indonesia. The ILO estimates that 56% of employment (over 60 million jobs) face a risk of automation in Indonesia. Female are employed predominantly in jobs requiring low STEM (Science, Technology, Engineering and Mathematics) skills, which are clearly at risk of automation. Women are 20% more likely than men to lose their job as a consequence of automation. Female employment in these sectors is currently very low and concentrated in low-skilled occupations.



To address these issues, and considering the national economic and social development priorities, Women in STEM Workforce Readiness and Development Programme in Indonesia sought to provide underprivileged women with critical soft and technical STEM related skills to help women gain quality employment and support career advancement in the ICT sector. ILO identified the ICT sector¹ as a high-growth sector in Indonesia, presenting significant projected STEM-related skills gaps and opportunities for growth for women over the next decades.

¹ The strategic sector selected in Indonesia was the automotive sector. As a result of contextual and implementation challenges, however, Women in STEM Indonesia shifted its focus to the ICT sector and subsequently included the retail sector as part of its pandemic reorientation.

Results and Achievements

“Women Digital Web Development Skill Up”

In aiming one of the Programme’s main objectives to improve enrolment and school-to-work transition of women from STEM-related TVET programmes to the labour market as well as to prepare women for the future of work, the Programme conducted an online web development training. This training was a collaboration with Clevio Coder Camp and Axioo Class Program in computer programming for website development targeting 600 female students and graduates from vocational education and training institutions in Indonesia.

Between November 2020 and May 2021, the web development training programme attracted 2093 female registrants from across Indonesia and succeeded in training 683² female participants, exceeded initial target of 600.

The establishment of an enterprise partnership with Axioo Class Program also led to the success of assisting 126 female participants in finding a job, creating a job, or becoming entrepreneurs in the ICT sector. Successful transitions of these participants from vocational education and training institutions to ICT related employment would contribute to the solution of youth unemployment in Indonesia while securing better future livelihoods for these graduates. By increasing digital talents, the training would also contribute to the country’s digital acceleration, a priority and necessity as workplace and business have transformed drastically due to COVID-19.

Preparing Indonesia’s TVETs’ instructors to shift to online training

To support TVET centers in continuing to provide training during the pandemic as well as in contribution towards the objective of improving enrolment and school-to-work transition of women from TVET programmes to the labour market, Women in STEM Indonesia collaborated with Directorate of Instructors and Training Personnel, Ministry of Manpower of Republic of Indonesia and Skilvul in conducting a training for TVETs’ instructors on the creation and delivery of online training. Providing support and facilitating increased capacity at the institutional level (TVET Instructors) to respond to the changes in training methods would contribute to the continuation of training provision in preparing TVETs’ participants, including female, for the job market despite physical restrictions due to COVID-19. The training for TVET instructors also contributed to the efforts to accelerate the country’s digital transformation that is high in the government’s agenda.



Out of over 2200 instructors registered, 180 instructors from 131 TVETs in 28 provinces participated in the training in June-July and October-December 2020.

At the end of the course, a majority of participants showed a rise in self-confidence, the ability to facilitate interactively, and all participants were able to demonstrate new skills acquired during the course when conducting their online training simulations. Given that the training received substantially more interest than initially expected, documentation has been provided to the Ministry to enable them to replicate the training and continue the capacity building programme to reach more instructors. Ministry did replicate the training in March 2021, a testimony to the quality, relevance and continued necessity of the training.

An impact survey was conducted in December 2020 and March 2021 among participants of the instructors’ training. Although online transformation has not taken place fully across Indonesia, the instructors’ training has shifted the perception of online training among instructors. From 164 instructors who responded to the survey, close to 40% of the instructors have realized their action plans in online transformation at their TVET centers with various degrees and forms. Additionally, approximately 50% of the instructors agree that online transformation is easy to do and around 65% of them think that online transformation is possible and necessary.

² This is the number of participants who successfully passed Check Point 1 of the training as the minimum standard for training achievement. Having passed Check Point 1, participants were able to create a simple dynamic website, which is a basic skill of web development

I truly appreciate the collaboration between Directorate of Instructors and Training Personnel and Women in STEM Project at ILO in conducting an online training on the creation and delivery of online training in June-July and November-December 2020. The online training is extremely useful for instructors to do online transformation at their TVETs. (The training) will also accelerate online transformation at TVET centers

► Ms. Fauziah, Director of Instructors and Training Personnel, Ministry of Manpower, Republic of Indonesia

COVID-19 Response: staying competitive during the pandemic with digital skills

Between May and August 2020, Women in STEM Indonesia conducted e-commerce training program for the retail sector as part of COVID-19 response activity. The Program, collaborated with The Indonesian Retailers' Association (APRINDO) and Clevo Camp, championed a response towards the global crisis within ILO Jakarta to provide training mainly for owners of small and medium businesses and workers in the retail sector who were impacted by the crisis. Providing this form of support would improve the likelihood for retrenched workers to possibly earn a livelihood from another source of income and supported existing SMEs to adapt and continue operations. The Program designed and implemented two nationwide ICT-related skills online training, namely creation of online shop application and administration of e-commerce training.

The training programs were conducted in 6 (six) rounds resulting in over 1600 registrants. From this figure, 624 of them participated and completed the training program, of which 60% were female and represented a total of 23 provinces. In addition to the high interest from the public, these training were the first full online training ever conducted by ILO Jakarta. Women in STEM pioneered and introduced a digital innovation in conducting training during pandemic.

In addition to the training, participants were able to access additional advice on the improvement/creation of their online business, and a further 10 participants

have been invited for a mentorship program with more in-depth support. Results from a post-training survey shows that the training were useful for 95% of respondents to gain new knowledge, to get a new job and to create an online business. Participants also became more confident to start an online business and recognized the importance of starting an online business. Participants' experience and satisfaction for the e-commerce training was also proven to be excellent (with a Net Promoter Score of 65%).

A labour market analysis on types of jobs available in the ICT sector (with a focus on SMEs) and the required ICT skills to complement job placement strategies from BBPLK Bekasi

To improve school-to-work transition of women from STEM-related TVET programmes to the labour market through the identification of skills gap in ICT sector, the programme set a focus on SMEs' labour market analysis on ICT related jobs due to: 1) the high demand for digital talents is reaching 600,000 every year³ and, 2) MSME sectors contribute over 99% to Indonesia's economy⁴ with 62.9 million of MSME units need to accelerate into digitalization in the midst of the pandemic.

The conclusion of the analysis shows that BBPLK Bekasi, a TVET in Bekasi as the center of excellence in ICT sector-related training, has an important and strategic role in targeting MSME sectors for job placement of its graduates. Conversely, it also shows that MSME sectors accept those who graduated from TVET centers as their workers. The analysis identifies recommendations that may be useful for BBPLK Bekasi in assisting more of their ICT graduates to secure a job in MSME sectors. Some of the recommendations include encouraging participants to make portfolios, collaborating further with MSME businesses in the ICT sector while showcasing its graduates through pitching or job events, and conducting a mapping of MSME sectors' digital needs as part of the BBPLK Bekasi's yearly training needs analysis (TNA).

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³ World Bank. (2019). *Program Information Document: Indonesia Skills Development Project*. World Bank.

⁴ McKinsey: *Micro, Small & Medium-Sized Enterprises Can Contribute \$140B to Indonesia's GDP by 2030* (2020).

► Lessons learnt and good practices



- **Swift response to COVID-19** – The rapid reorientation of direction and approach in response to the pandemic demonstrated the importance of being well attuned to the operating context, flexibility and adaptability, important elements of good practice in programme management. The shift of focus fitted both national circumstances and the organizational capabilities of the ILO and APRINDO. At the same time, a number of participants indicated in their training feedback that a longer training period, with greater depth and more opportunity interaction would have been helpful.
- **The power of momentum and digital transformation** – COVID-19 has disrupted and transformed lives and business. Lockdown constrained people within their house while their daily professional activities were ceased or delayed. Women in STEM Indonesia swiftly transformed their activities (e-commerce training started in May 2020, two months after the pandemic started) by adopting digital technology to pioneer online training at the ILO, and used the momentum to provide digital skills training that were accessible and necessary to participants, including women and people with disabilities.
- **Identification and validation of activities** – In designing the training, Women in STEM Indonesia did rapid needs assessments with key stakeholders to ensure that the training to be conducted would be the most suitable and

necessary training to address emerging challenges due to the pandemic. Women in STEM Indonesia had a discussion with APRINDO and MoM to validate the needs for e-commerce training and the creation and delivery of online training for TVET instructors respectively. Such validation was important and contribute to the success of the training (high number of registration (more than 1600 people for e-commerce training, almost 2300 instructors for TVET instructors' training, and more than 2000 women for Web Development training for students and graduates of vocational education institutions), high participation rate (88 % for e-commerce training and 97% for TVET instructors' training), and high attendees satisfaction rate (65% NPS for e-commerce training, 71% NPS for TVET instructors' training, and 50% for Web Development training).

- **Innovation and budget efficiency** – As a project, Women in STEM Indonesia did not only promote STEM hard and soft skills through its activities, but also demonstrated application the STEM skills in designing and delivering activities, e.g. innovative thinking, problem solving, creative thinking, and adaptability. By quickly embracing digital technology to transform all activities to online, combined with the timely training activities, Women in STEM Indonesia was able to conduct various training and trained almost 1500 people with limited budget. Moreover, as the training were designed for the need of people during the pandemic and were of excellent quality, participants followed throughout the training without receiving any compensation. This is notable considering that in the past many ILO's activities must distributed compensation for attendees' time. This created expectations from stakeholders to receive financial compensation for their participation in ILO's activities. Women in STEM Indonesia was able to demonstrate that with timely and good quality of training, participants, including civil servants and government officials, would realize the benefit to participate in the training even without any financial compensation. Online training were accessible to a high number of people without geographical limitation and did not entail transportation or accommodation expenses. Meanwhile, the absence of financial compensation for training participants enabled Women in STEM Indonesia to focus the usage of resources for training activities and increased the number of participants.

Empowering female workers through soft skills

In the context of providing critical soft skills for female workers, the Programme through ILO's In Business soft skills training program established an agreement of public-private partnership with Indonesia Business Coalition for Women's Empowerment (IBCWE) in 2019. This collaboration contributed in promoting the transition of mid-skilled female workers into leadership and management positions. Nine member companies of IBCWE participated in the first training of facilitators (ToF) done on 20 and 21 February 2019 (face-to-face training pre-pandemic). Due to the high demand and positive responses received from other IBCWE member companies, subsequent ToF was conducted between 27-29 November 2019 among IBCWE's company members.

Through an online setting due to the pandemic, IBCWE and Employers Confederation of the Philippines (ECOP) implemented In Business soft skills training program's training of facilitators (ToFs) in April 2021 that would benefit IBCWE member companies' employees, especially female workers. Women in STEM in Indonesia and the Philippines facilitated this collaboration.

Sustainability

Women in STEM Indonesia designed and pioneered the training on e-training development and delivery targeting BLKs/BBPLKs/BLKKs instructors, which received positive feedbacks from the Ministry of Manpower and the instructors. Learning from this experience, Ministry of Manpower is in the process of integrating the training into its e-platform for their future training modality. Furthermore, Ministry replicated and continued the training in March 2021.

Web development training has provided skills with the standards required by ICT industry. Hence, Axioo Class Program (ACP), Women in STEM's Indonesia's industry partner, plans to continue providing web development training due to the increasing demands for programmers in Indonesia. ACP has also used the completion of Web development training as a substitute for competency evaluation for software development major in vocational high schools (SMKs) that collaborate with ACP for the competency exam (*Ujian Keahlian Kompetensi, UKK*).

Moreover, having recognized the quality of ILO's Ready for Business (R4B) modules that were used in the work readiness training phase, ACP plans to incorporate R4B modules in the entrepreneurship curriculum of more than 500 SMKs.



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