

**Workshop to Sharing Experiences and Best Practices on How APEC Economies' Qualifications Frameworks are Coping with the Disruptive Impact of Emerging AI Technologies**

**Summary Report**

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**APEC Human Resources Development Working Group**

**October 2024**



**Asia-Pacific  
Economic Cooperation**





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# Introduction

Technological development is advancing at a fast pace, contributing to the competitiveness and productivity of the different economies across the globe. Such is the case of AI, which can, for example, drastically and efficiently improve production levels in the manufacturing industry when implemented in combination with automation. However, this carries the latent risk that certain operational jobs will no longer be needed as they will be replaced by AI: e.g., ChatGPT that has prompted IBM's CEO to pause the hiring of about 7,800 back-office related positions and gradually replace them with AI over 5 years. This is the case in much of the formal labor market, raising serious concerns about the impact on MSMEs, but also in the informal market; and not only that, women are also experiencing segregation in some areas of knowledge, such as ICT or STEM, where they are under-represented with low participation rates, putting them at a disadvantage in benefiting from new job opportunities. The rapid advancement of technology and its pervasive influence on various sectors have significantly reshaped the global economic landscape. In this context, economies are increasingly recognizing the imperative need to equip their workforces with the relevant skills and competencies to navigate these changes effectively.

According to APEC Economic Policy Report 2021 on Structural Reform and the Future of Work "(...) Government can support the development of skills by developing better skills forecasting systems, expanding reskilling and upskilling programmes, promoting lifelong learning and increasing targeted investment in education to better align school curricula and labor market skills needs".

Seven APEC economies (Australia; Hong Kong, China; Malaysia; New Zealand; Singapore; Thailand; and The Philippines) have implemented QF that incorporates the qualifications from each education and training sector into a single comprehensive domestic framework. Similarly, other APEC economies, within the Pacific Alliance, Chile; Mexico; and Peru (including non-member Colombia) have moved towards their Regional Qualifications Framework (RQF) to enable mutual recognition of qualifications across the region. In this sense, this project proposes to analyze the implementation of APEC economies' QF to identify the skills, knowledge and competencies needed by professionals to cope with the disruptions of new technologies in different fields of the productive sector, and how they can reduce the negative impact on the workforce by rapidly adapting academic offerings for the well-being of people and society in an increasingly digitized economy.

In this context, the Workshop to Share Experiences and Best Practices on How APEC Economies' Qualifications Frameworks Are Coping with the Disruptive Impact of Emerging Technologies was held in Lima on 21-22 August 2024. The event brought together key representatives from the qualification systems of APEC member economies, as well as participants from non-member economies connected to the

education sector. The workshop provided a platform for presenting and sharing experiences, best practices, and lessons learned in adapting qualifications frameworks to the challenging context of technological disruption. Additionally, as an outcome of the project, a compendium of experiences was developed to identify the main challenges that AI and new technologies pose to domestic qualifications frameworks.

The objective of this workshop was to improve the capacity of APEC economies to identify the skills, knowledge and competencies needed by professionals to cope with the disruptions of new technologies (AI) in different fields of the productive sector, through analyzing the experiences, best practices, lessons learned and challenges in adapting their respective QF, and how they can reduce the negative impact on the workforce by rapidly adapting academic offerings to promote inclusive human resources development, as well as economic and technical cooperation to better equip our people for the future.

By doing this workshop supports the capacity building needs for APEC developing economies to obtain, share, strengthen, maintain and develop knowledge, abilities, skills in the implementation of APEC economies' QF to cope with the disruptions of new technologies (e.g., artificial intelligence) to prepare their workforce for the labor market.

The objective of the project is in line with the HRDWG's objective related to "Develop 21st Century Knowledge and Skills For All" as it will provide insights to enhance the resilience of the tertiary education system when new technologies are adopted. This project also supports the "APEC Framework on Human Resources Development in the Digital Age", and the "APEC Framework for Youth Education, Employment and Entrepreneurship", as well as the APEC HRDWG Strategic Plan 2021-20225

The project's direct participants and users primarily include officials from Ministries of Education, Labour, Industry, Production, and Commerce, decision and policy makers, curricular design experts (TVET and Higher Education), and instructional design experts from APEC member economies. These participants, with diverse qualifications and roles, will use the project's outputs to inform policy decisions, shape educational curricula, and develop strategies for workforce development that align with the demands of the digital era.

To ensure the active participation and engagement of both men and women in project activities and to maximize the benefits for women, the project will implement several strategic steps. Firstly, it actively encouraged and promoted equality in all project activities. Secondly, the project outputs, such as the Compendium of Best Practices, workshop materials, and the Summary Report, have incorporated a gender-responsive approach. Thirdly, the project collected and analyzed gender-disaggregated data to assess the impact of AI-related workforce challenges on both men and women. Additionally, it will ensure diversity among speakers and experts,

including women leaders in technology. Lastly, the project's Summary Report will include gender-responsive policy recommendations.

This document synthesizes the key contributions from the workshops, the insights of the experts, and the outcomes of the dialogue sessions that were conducted. Finally, it presents some concluding reflections.



# Workshop development

## Main focus and speakers

The workshop took place on 21-22 August 2024 in Lima, Peru, at the Lima Convention Center. Each day featured different working dynamics, but both were centered on sharing experiences, learning from successes and failures, and fostering cooperation to achieve these goals. The event was facilitated by a moderator and five experts in the field, whose backgrounds and qualifications are outlined below:

### **Moderator: Sylvain Goudreau**

He has developed a diverse professional experience that includes 25 years of strategic planning in the field of international operations. He has focused on advancing quality higher education, primarily in the context of managing complex projects, mobilizing multisectoral partners, and establishing mutually beneficial agreements between educational organizations, ministries, various levels of government (municipal, provincial, and federal), private companies, and civil society associations in Canada as well as in several other economies. He has been a speaker, facilitator, and leader of international initiatives on Qualification Frameworks; Sectoral Councils; Innovation Management in Higher Education; Applied Research; Skills for Employment; Curriculum Development, Teaching, and Assessment Based on Competencies and Problem-Solving; Women Empowerment; Masculinity Models and Gender Equality; Cultural Diversity and Inclusion; Sustainable Development; Entrepreneurship; Results-Based Management; Leadership; Policy Formulation; and Governance.

### **Speaker and Specialist: Marushka Chocobar**

She is an expert in digital transformation and artificial intelligence. She has led the Domestic Digital Transformation Policy in the economy, promoting digital governance, the creation of the Government and Digital Transformation Laboratory, the Digital Trust Framework, and the enactment of the Artificial Intelligence Law in Peru. She has also promoted the Digital Girls Program and the Domestic Alliance for a Safe Internet. Currently, she is an advisor at the Ministry of Foreign Affairs, a mentor for the Global Women in Government and Technology Challenge for the International Telecommunication Union, and an advisor on various digital talent funds to promote digital development in the economy, the participation of women in technology, and the protection of children and adolescents on the internet.

### **Speaker and Specialist: Eliana Gallardo**

With over 30 years of experience in managing projects on gender equality and inclusion, she has designed gender policies and technical professional training with the public and private sectors. She is a specialist in gender equality in projects funded by international cooperation. Over the last 18 years, she has managed funds and monitored projects for gender equality in Bolivia, funded by the Netherlands and

Canada, and has participated in several projects with economies in the Latin American region. She is a gender specialist in Technical Training Programs, with a focus on competencies, mainstreaming, and monitoring from a gender perspective. She is a regional gender consultant for the Sustainable Development and Skills for Employment Program in the Extractive Sector of the Pacific Alliance. Currently, she is part of the Pulso 21 consulting platform.

**Speaker and Specialist: Gonzalo Donoso**

Organizational Psychologist with a Master's Degree in Organizational Development and Strategic Human Resource Management. He has over 15 years of experience in the public and private sectors, particularly in productive training institutions, companies, non-governmental organizations, and consulting in training and development of education and career pathways.

**Speaker and Specialist: Sebastián Espinoza Farias**

He holds a degree in Sociology (University of Chile), a Master's in Education (Pontifical Catholic University of Chile - UC), and a Ph.D. in Psychology (University of Girona). Dr. Donoso has participated in various specialization opportunities in Europe, Asia, and Latin America, focusing on digital, technological, and human development. Throughout his career, he has worked in the public, private, and academic sectors, as well as an international consultant. He has led the design, implementation, and evaluation of domestic and international public policies, programs, and research in education and technology. He is currently the Director of the Higher Technical Professional Education Division of the Ministry of Education of Chile, overseeing critical developments in higher technical and vocational education.

**Speaker and Specialist: Jullada Meejul**

Ms. Jullada Meejul has worked at the Thailand Professional Qualification Institute (TPQI) since 2013 and is now the Managing Director. She has extensive experience in the development and implementation of qualification frameworks. She played a significant role in the development of quality assurance policies, procedures, and guidelines for the Thailand Professional Qualification Framework to systematically validate prior learning, occupational skills, and work experiences. She was also instrumental in aligning the Professional Qualification Framework with the Domestic Qualification Framework to ensure that educational qualifications become relevant to labor market demands and provide better pathways for those with experience to achieve higher qualifications. Beyond her cooperation with domestic agencies, Ms. Meejul was a member of the domestic working group and contributed to the referencing of the Thailand Domestic Qualification Framework to the ASEAN Qualification Reference Framework. Additionally, she has worked to promote the mutual recognition of qualifications and the recognition of international qualifications. Examples of her work include aligning digital literacy and ICT standards with global industry standards and offering joint certification to the workforce, as well as partnering

with a trusted global online network and digital badge delivery platform to create, issue, and manage digital credentials to add value to learning new skills.

### **The Role of Qualifications Frameworks in a Changing Landscape: The Case of Australia**

She works as an independent consultant, providing policy advice on education and training to key government authorities (both domestic and international) and advising educational organizations on complex issues of quality, auditing, and evaluation. She has a long track record in quality assurance in vocational education and higher education in Australia as an auditor and accreditation and curriculum development advisor. She has a particular interest and experience in qualification frameworks and quality assurance frameworks and their governance arrangements. Andrea has extensive experience in international projects related to domestic and regional qualification frameworks, domestic and international quality assurance frameworks, and policy review and support. Her areas of impact include Australia, the Pacific Islands, ASEAN, South Asia, South America, and the Arabian Peninsula.

### **Specialist: Juan Felipe Miguez**

He has participated in the design, implementation, and coordination of projects related to job evaluation and description of competency profiles in various industries such as construction, pulp, and paper, among others. He has also worked on aligning professional training with capacity development and productive transformation, analyzing the role of professional training in closing the skills gap in the region. His area of expertise includes the organization of training systems and institutions, as well as the processes of identifying demands, structuring, and implementing training programs, including their evaluation in terms of impact and certification. He has organized and provided technical assistance in Latin American and Caribbean economies in various areas, including innovation in vocational training services, the design of public training policies, the implementation of competency-based training and certification, and quality systems in training. Recent topics in his work include updating certification and recognition of competencies services, implementing domestic qualification frameworks, monitoring training, and mechanisms.

## **Day 1 of the workshop**

The first day of the workshop on 21 August 2024 was focused on the presentations of the experts according to the agenda presented below:

Location: MATEO SALADO Room, Lima Convention Center

Start Time	Activity
09:00 - 09:15	Opening Remarks - Dr. Morgan Quero – Minister of Education of Peru - Ex-ante evaluation of participants
09:15 - 09:30	Opening Session
09:30 - 10:30	Present and Future of Disruptive Technologies and Their Impacts on the Workforce and Society Speaker: Marushka Chocobar Reyes – Ministry of Foreign Affairs of Peru
10:30 - 11:00	Coffee Break
11:00 - 12:00	Rethinking Gender Equality within the Framework of New Technologies Speaker: Eliana Gallardo Paz - Independent Consultant from Bolivia
12:00 - 13:00	The Role of Qualifications Frameworks in a Changing Landscape: The Case of Chile.  - Speaker: Gonzalo Donoso Director of the Higher Technical Professional Education Division of the Ministry of Education of Chile - Speaker: Sebastian Espinoza Farias – UNDP Consultant for the Qualifications Framework of Chile
13:00 - 14:30	Lunch
14:30 - 15:30	The Role of Qualifications Frameworks in a Changing Landscape: The Case of Thailand - Speaker: Jullada Meejul – Managing Director of the Thailand Professional Qualifications Institute
15:30 - 16:30	The Role of Qualifications Frameworks in a Changing Landscape: The Case of Australia - Speaker: Andrea Bateman – Member of the Australian Vocational Education and Training Research Association (Virtual)
17:00 - 17:30	Panel Discussion
17:30 - 17:45	Q&A Session
17:45 - 18:00	Summary and Concluding Remarks - Sylvain Goudreau - Deputy Director of Institutional Development, CEGEP de l'Outaouais, Canada

The various presenters are experts in their specific topics or hold roles within the agencies responsible for the implementation and management of the domestic

qualifications frameworks in the economies they represent.

## Disruptive Technologies, Labor Market Challenges and Educational Frameworks.

The speaker began by underscoring the swift pace of technological advancement and the transformative potential of digital technologies such as Artificial Intelligence (AI). These advancements present both opportunities and challenges for societies, particularly in relation to labor markets, education systems and domestic qualifications frameworks. The urgency of embracing these changes is highlighted by the unprecedented speed at which these technologies are evolving, reshaping industries and societal structures.

AI represents one of the most significant disruptive forces in the global economy. According to a report by PwC, AI has the potential to contribute up to USD15.7 trillion to the global economy by 2030, with USD6.6 trillion resulting from increased productivity and USD9.1 trillion from consumption-side effects. This positions AI as the largest commercial opportunity in today's rapidly evolving economy. But, AI's impact extends beyond technological fields, transforming operations across all sectors and influencing how businesses function and how individuals interact with services. For instance, AI is employed to optimize supply chains, enhance customer service through chatbots, and even enable predictive maintenance in manufacturing.

The speaker also addressed the implications of generative AI technologies such as OpenAI's GPT models. These technologies have introduced new possibilities for content creation, data analysis, and even human-like interactions. The release of GPT-4, which can handle multimodal inputs (text, images, and audio), signifies a significant advancement in AI capabilities. The omnipresence of AI in everyday life, from virtual assistants to personalized recommendations, is becoming more apparent, and it is imperative for individuals and institutions to understand and leverage these tools effectively.

The Internet of Things (IoT) is another transformative technology with profound implications. It is projected that by 2030, there will be over 50 billion IoT devices connected worldwide, far exceeding the global population. This proliferation of connected devices is expected to generate 79.4 zettabytes of data annually by 2025, compared to 13.6 zettabytes in 2019. The widespread deployment of IoT devices—ranging from smart home appliances to industrial sensors—presents opportunities for more efficient resource management, enhanced security, and the development of new business models. However, it also raises significant concerns regarding data privacy and security, as the vast amounts of data generated require effective management and protection.

Although still emerging, Blockchain and Cryptographic technologies are being recognized for their potential to transform various sectors through decentralized

and transparent systems. Blockchain's capability to provide secure, immutable records makes it particularly beneficial for industries such as finance, supply chain management, and healthcare. For example, blockchain can ensure product traceability, prevent fraud in financial transactions, and protect patient data in healthcare settings. While the adoption of blockchain technology is progressing more slowly compared to AI and IoT, it could become a pivotal tool in addressing trust and transparency issues in digital ecosystems.

Lastly, technologies that facilitate direct interaction between the human brain and digital devices, such as Neuralink, are pushing the boundaries of human-machine interaction. These technologies hold the potential to revolutionize how individuals interact with computers, enabling direct communication between the brain and machines. This could have profound implications for fields such as healthcare, where brain-machine interfaces could assist individuals with disabilities in regaining control of their limbs or communicating more effectively. However, the ethical and societal implications of such technologies are significant and require thorough consideration and regulation.

### **Potential Benefits and Challenges**

**Increased Productivity and Economic Growth:** the potential for AI and automation to enhance productivity is substantial. According to the McKinsey Global Institute, AI could increase global GDP by 1.2% annually, adding USD13 trillion by 2030. Sectors such as manufacturing, retail, and healthcare are expected to witness significant gains from AI-driven automation. For instance, AI can optimize manufacturing processes, reduce waste, and improve product quality. In retail, AI-powered analytics can elevate customer experiences through personalized recommendations and efficient supply chain management.

**Job Displacement and the Need for Reskilling:** despite the economic benefits, AI and automation also present considerable challenges, particularly regarding job displacement. The World Economic Forum estimates that by 2025, 85 million jobs may be displaced by machines, while 97 million new roles could emerge, reflecting the new division of labor between humans, machines, and algorithms. Roles in data analysis, AI and machine learning, and digital marketing are expected to expand, whereas jobs involving routine tasks are at higher risk of automation. This shift necessitates extensive reskilling and upskilling initiatives to prepare the workforce for these emerging roles.

**Data Privacy and Cybersecurity:** the growing reliance on digital technologies and the vast amounts of data they generate have made data privacy and cybersecurity critical concerns. A report by Cybersecurity Ventures predicts that cybercrime will cost the world USD10.5 trillion annually by 2025, up from USD3 trillion in 2015. The speaker emphasized the necessity for individuals to be more conscious of the data they share online, often without fully comprehending the implications. Regulatory frameworks,

such as the General Data Protection Regulation (GDPR) in the European Union, have established standards for data protection, but more comprehensive measures are needed to ensure that personal data is secure in a rapidly evolving digital landscape.

**Digital Divide and Inequality:** the digital divide remains a significant obstacle to realizing the full potential of digital technologies. While global internet penetration has increased to 63% as of 2021, disparities in access to technology and digital literacy persist. In many developing economies, limited internet access and high data costs prevent people from benefiting from digital advancements. The speaker noted that the digital divide is no longer merely about connectivity but also about the quality of access and digital skills. Bridging this divide requires targeted policies to improve infrastructure, reduce costs, and provide digital education and training.

**Gender Diversity and Inclusion in Technology:** the underrepresentation of women in technology remains a critical issue. According to UNESCO, only 28% of engineering graduates are women, and women hold just 22% of AI-related jobs worldwide. This gender gap limits the diversity of perspectives in technology development, potentially leading to biases in AI systems. Increasing the participation of women in technology fields is needed to ensure that AI and other digital technologies are developed with a broader range of inputs, thereby reducing the risk of perpetuating existing gender biases.

### **Educational Implications and the Role of Domestic Qualifications Frameworks**

As digital technologies become ubiquitous across all sectors, digital literacy is essential for all professions, not just those traditionally associated with STEM fields. A 2019 report by the European Commission found that 90% of jobs require some level of digital skills. Therefore, educational institutions must integrate digital competencies into all curricula. This includes not only technical skills like coding and data analysis but also critical thinking and problem-solving skills that enable individuals to adapt to new technologies.

Traditional education systems, which are often slow to adapt, must be restructured to keep pace with technological advancements. The speaker emphasized the need for flexible educational frameworks that can be updated regularly to reflect changes in technology and labor market demands. This requires a shift from content-heavy curricula to competency-based learning, where the focus is on developing skills that are directly applicable to the workplace. The integration of digital tools in teaching and learning processes is also essential for preparing students for a digital future. Technical and vocational education and training (TVET) systems play a crucial role in equipping individuals with the skills needed in the modern workforce. The speaker called for greater emphasis on lifelong learning, with TVET systems providing opportunities for individuals to continually upgrade their skills. This is particularly important as the half-life of skills continues to decrease due to technological advancements. The World Economic Forum estimates that by 2025, 50% of all

employees will need reskilling. TVET systems must be agile and responsive, offering short-term courses and certifications that align with industry needs.

Educators are at the forefront of preparing students for the future, but they themselves need to be equipped with the knowledge and tools to teach digital skills effectively. The importance of continuous professional development for teachers, enabling them to integrate digital technologies into their teaching practices cannot be understated. This includes training in the use of digital tools, understanding the implications of emerging technologies, and developing new pedagogical approaches that foster critical thinking and creativity.

Specifically, DQFs were pointed as essential for aligning educational outcomes with labor market needs. They provide a common language for describing qualifications and competencies, facilitating the recognition of skills across sectors and borders. In the context of disruptive technologies, DQFs can help identify emerging skills requirements and support the development of new qualifications. For example, the European Qualifications Framework (EQF) and the ASEAN Qualifications Reference Framework (AQRF) have been instrumental in promoting mutual recognition of qualifications across economies.

Regarding DQFs, the presentation highlighted some challenges for their implementation that are limiting its impact in many economies. Despite their potential, many stakeholders are not fully aware of DQFs or do not understand how to use them effectively. A 2018 UNESCO study found that only 33% of DQFs globally were well-known among employers. This limits the impact of DQFs in supporting workforce development and mobility. Raising awareness and promoting the use of DQFs among educators, employers, and learners is critical to their success. The development of sectoral qualifications, involving collaboration between industry, government, and educational institutions, is a key strategy for aligning education with labor market needs.

Also, DQFs must be flexible enough to accommodate different learning pathways, including formal, non-formal, and informal education. The recognition of prior learning (RPL) is particularly important for adults who have gained skills through work or life experiences but lack formal qualifications. By recognizing these skills, DQFs can support lifelong learning and help individuals transition into new roles or industries. Economies like Australia and South Africa have implemented successful RPL programs that integrate these principles into their DQFs.

The challenges also come from the governance of DQFs, as ensuring the quality and relevance of qualifications is a key challenge. This requires robust governance structures that involve all relevant stakeholders, including government, industry, and education providers. Quality assurance processes must be in place to evaluate and certify qualifications, ensuring that they meet agreed standards and are recognized by employers and educational institutions. The European Quality Assurance in Vocational



Education and Training (EQAVET) framework is an example of a comprehensive quality assurance system that supports the implementation of DQFs.

### **Opportunities and Future Directions**

The future was not presented as negative, but rather challenging and with plenty of opportunities if decisive action is taken to take advantage of them. The potential for innovation and economic growth through the adoption of emerging technologies is immense. AI, automation, IoT, and blockchain can drive new business models, create new markets, and enhance global competitiveness.

The speaker also addressed the environmental implications of technological development, particularly the issue of electronic waste. The United Nations estimates that the world generated 53.6 million metric tons of e-waste in 2019, and this figure is expected to grow to 74.7 million metric tons by 2030. Developing sustainable practices for recycling and reusing electronic devices is crucial to minimizing the environmental impact of digital technologies.

Global cooperation and dialogue are necessary to develop common standards and frameworks that support the responsible development and use of these technologies. Sharing best practices on the implementation of DQFs, fostering cross-border recognition of qualifications, and working together to address global challenges such as data privacy and cybersecurity, are suitable actions to be taken in this sense.

### **Conclusion**

The speaker concluded by emphasizing the need for decisive action and a proactive approach to embracing digital transformation. The rapid advancement of technologies like AI presents both immense opportunities and significant challenges. To harness the potential of these technologies, societies must invest in education, workforce development, and robust regulatory frameworks. Domestic qualifications frameworks play a crucial role in this process, providing a structure for recognizing and validating skills and supporting lifelong learning. Moreover, the presentation underscored the importance of a coordinated, inclusive approach that ensures no one is left behind in the digital revolution. By building the capacity of individuals, institutions, and systems to adapt to technological change, economies can not only mitigate the risks but also unlock new avenues for growth and prosperity.

### **Rethinking Gender Equality within the Framework of New Technologies**

In Eliana Gallardo's detailed presentation, she addressed the complex and multifaceted challenges of achieving gender equality in a world that is rapidly evolving due to technological advancements, particularly in artificial intelligence (AI) and other emerging technologies. The discussion was structured around several core themes, including gender mainstreaming, the impact of new technologies on societal structures, the role of Domestic Qualification Frameworks (DQFs) in promoting

inclusive education and employment opportunities, and strategic recommendations to counteract gender bias. By emphasizing the interconnectedness of these themes, the speaker provided a comprehensive analysis of the current state of gender equality and proposed actionable strategies for creating a more equitable future.

### **Historical and Actual Context and Conceptual Framework**

The speaker began by setting the historical context for gender equality, referencing key figures like Mary Wollstonecraft and Olympe de Gouges, who were among the early proponents of feminist ideals. These foundational thinkers laid the groundwork for what would evolve into modern feminist movements, which have significantly influenced contemporary understandings of gender as both a biological and cultural construct. This framework helps to illuminate the deeply rooted nature of gender inequality and the long-standing efforts to address it.

The concept of gender mainstreaming was introduced as a crucial strategy for integrating a gender perspective into all policies, actions, and interventions. This approach, first formally recognized at the 1995 Beijing Conference, emphasizes the need to consider gender implications in every aspect of policy-making and implementation, across both the public and private sectors. The speaker argued that gender mainstreaming is essential for ensuring that policy measures are not only universally applicable but also sensitive to the unique needs of different populations, including women, people with disabilities, ethnic minorities, and other marginalized groups.

#### *Global Gender Gap Report and its Implications*

The speaker referenced the Global Gender Gap Report, published annually by the World Economic Forum, to highlight the progress and ongoing challenges in achieving gender parity. The 2024 report reveals that the global gender gap stands at 68.5%, indicating that substantial disparities remain in areas such as economic participation, education, health, and political empowerment. At the current rate of progress, it is estimated that it will take 134 years to close the global gender gap. Some key findings from the report were presented:

1. **Regional Disparities:** the report highlights significant regional disparities in gender equality. Northern European economies, particularly those in Scandinavia, are leading the way, with many of these economies occupying the top positions in the rankings. These economies have implemented comprehensive gender equality policies, including generous parental leave, robust childcare support, and proactive measures to promote women's participation in the workforce.
2. **Latin America and the Caribbean:** the region has made notable progress, with an 8.3% reduction in the gender gap over the past year. However, challenges remain, particularly in achieving gender parity in political representation and reducing the economic participation gap. The speaker

pointed to Nicaragua as an example of an economy that has made significant strides, despite its challenging political context.

3. **Asia and the Pacific:** progress in Asia and the Pacific has been slower, with only a 3.1% reduction in the gender gap. The region faces significant challenges, particularly in terms of economic participation and educational attainment. The speaker called for more targeted efforts to address these disparities and promote gender equality across the region.

## **The Impact of New Technologies and AI on Gender Equality**

A significant portion of the presentation was devoted to exploring the transformative impact of new technologies, especially AI, on gender dynamics. The speaker challenged the common perception of technology as neutral, asserting that it often reflects the biases of its creators. This inherent bias can perpetuate, and even exacerbate, existing social inequalities, making it crucial to address these issues proactively.

### **Bias in AI Systems**

One of the most compelling examples provided is the case of facial recognition technology. Studies have shown that these systems are significantly less accurate in identifying women and people of color compared to white men. This disparity is largely due to the homogeneity of the data sets used to train these algorithms, which are predominantly composed of images of white males. The speaker also highlighted the implications of such biases, which can lead to real-world consequences, such as wrongful arrests or denials of access to services for marginalized communities. This example underscores the broader issue of bias in AI development and the need for diverse and representative data sets.

To address this problem, the speaker advocated for the inclusion of diverse voices and perspectives in the development of AI and other technologies. This involves not only ensuring that the data used is representative but also that the teams developing these technologies are diverse. By incorporating a broader range of experiences and viewpoints, developers can create more equitable and effective technological solutions that better serve all members of society.

### **Gender Stereotyping in Digital Assistants**

The speaker also discussed the issue of gender stereotyping in digital assistants like Siri and Alexa. These technologies often have female voices and are programmed to be polite, helpful, and submissive, reinforcing traditional gender roles that suggest women are naturally more suited to subservient positions. This design choice, while seemingly benign, can have subtle yet pervasive effects on societal perceptions of gender roles.

The speaker argued that designers and developers need to be more conscious of the implications of these choices. By rethinking how digital assistants and other AI-driven

technologies are designed and implemented, it is possible to create tools that do not reinforce harmful stereotypes. This requires a concerted effort to challenge existing norms and consider the broader social impact of technological design choices.

### **Inclusion in Technological Development**

The need for greater inclusion in the technological development process is another key point raised in the presentation. Mrs. Gallardo noted that women and other marginalized groups are often underrepresented in STEM fields, which contributes to the perpetuation of bias in technology. To counter this, she called for increased efforts to encourage women to enter and remain in STEM fields, including targeted educational programs, scholarships, and mentorship opportunities.

By ensuring that the teams developing new technologies are as diverse as the populations they serve, it is possible to create more inclusive and equitable solutions. This diversity in development not only helps to prevent the perpetuation of existing biases but also fosters innovation by bringing a wider range of perspectives to the table.

### **Recommendations for Domestic Qualification Frameworks (DQFs) and Gender Inclusion**

The role of DQFs was highlighted as a critical tool for promoting gender equality in both education and the labor market. DQFs are designed to standardize and validate different levels of knowledge and skills, making it easier for individuals to gain recognition for their competencies, regardless of how or where they were acquired. However, for these frameworks to be truly effective, they must be designed with inclusivity in mind, taking into account the diverse needs and experiences of different groups. In this regard, Mrs. Gallardo presented some recommendations that are resumed next:

#### *1. Recognition of Informal and Non-formal Learning:*

Recognizing skills and knowledge gained outside of traditional educational settings is critical, particularly for women who often acquire valuable competencies through caregiving and other domestic roles. DQFs should include mechanisms for validating these skills, which are frequently overlooked in the formal labor market. By doing so, DQFs can help bridge the gap between the skills women possess and the opportunities available to them.

#### *2. Flexibility in Frameworks:*

DQFs need to be more flexible and responsive to the diverse life experiences of individuals. This includes creating pathways for people who may have interrupted their education or careers due to caregiving responsibilities or other personal circumstances. Flexible frameworks can support re-entry into the workforce and provide opportunities for upskilling and reskilling, which are essential for adapting to a rapidly changing job market.

### *3. Promoting Gender Diversity in STEM:*

The underrepresentation of women in STEM fields is a persistent issue that requires targeted intervention. DQFs must include specific provisions to encourage more women to pursue careers in STEM, such as scholarships, mentorship programs, and partnerships with industry. These initiatives can help create a more inclusive pipeline for women entering and advancing in these fields.

### *4. Integration of Gender Sensitivity in Educational Policies:*

Educational institutions should incorporate gender-sensitive policies into their curricula and teaching practices. This involves training educators to recognize and counteract their own biases, creating an inclusive learning environment, and ensuring that educational content reflects diverse perspectives. By embedding gender sensitivity into the education system, institutions can help break down barriers and promote more equitable outcomes for all students.

## **Addressing Gender Bias and Discrimination**

Despite significant progress in many areas, the speaker acknowledged that there are still substantial challenges to achieving gender equality. Overcoming these challenges requires a comprehensive approach that addresses both structural and cultural barriers, including persistent gender bias and discrimination in education, employment, and technology. Mrs. Gallardo presented some possible positive actions for fostering Equality both in the labor market and in education.

For the labor market the use of gender quotas and targeted recruitment policies as a means of increasing female representation in sectors where women are underrepresented. Quotas have been effective in many economies in increasing women's participation in political and economic spheres. Similar measures could be applied in industries like technology, where women are often significantly underrepresented. Secondly, conducting regular gender pay gap audits is recommended as a way to identify and address wage disparities between men and women. By making these audits public, companies can be held accountable for ensuring equal pay for equal work. Transparency in compensation practices is a key step towards closing the gender pay gap and promoting fairness in the workplace. Lastly, policies that support work-life balance, such as parental leave for both men and women and flexible working arrangements, are crucial for reducing the burden on women and promoting shared caregiving responsibilities. The speaker emphasized the need for these policies to be universally adopted to create a more equitable workplace environment.

Regarding the education system, the speaker noted that career counseling often perpetuates gender stereotypes by steering young women towards traditionally female-dominated fields and young men towards more lucrative, male-dominated

professions. There is a need for unbiased career guidance that encourages both genders to explore a wide range of career options, including those in STEM fields.

Also, gender-based violence and discrimination, both in the workplace and in broader society, remain significant barriers to gender equality. The speaker called for robust legal protections and comprehensive support systems for survivors of violence, as well as for initiatives aimed at preventing violence through education and awareness-raising.

### **Strategies for Overcoming Obstacles**

The presentation concluded with a set of strategic recommendations for overcoming the obstacles to gender equality in education, employment, and technology. The speaker emphasized the need for coordinated efforts across sectors and calls on all stakeholders to take proactive steps to implement these strategies effectively.

1. **Comprehensive Policy and Regulatory Frameworks:** the speaker underscored the importance of establishing robust policies and regulatory frameworks that explicitly address gender equality. These frameworks should be supported by concrete action plans, regular monitoring, and accountability mechanisms to ensure their effectiveness. Such policies should be integrated across all sectors, including education, labor, and technology.
2. **Data-Driven Decision Making:** The use of data to inform policy decisions is crucial for identifying and addressing gender disparities. This includes collecting and analyzing data on gender differences in various sectors, as well as conducting regular assessments of the impact of policies and programs on different groups. Data-driven decision-making can help ensure that interventions are targeted and effective.
3. **Public Awareness Campaigns:** Raising public awareness about the importance of gender equality and the benefits of diversity is essential for creating a supportive environment for change. Educational campaigns can help challenge stereotypes and biases, while training programs for leaders and decision-makers can foster a more inclusive culture in organizations.
4. **Building Partnerships:** collaboration between the public and private sectors, educational institutions, and civil society organizations is also critical. These partnerships are key to creating a coordinated response to gender inequality, sharing best practices, and pooling resources to amplify the impact of gender equality initiatives.
5. **Support for Innovation and Entrepreneurship particularly for women:** this can include providing access to finance, mentorship, and networking opportunities for female entrepreneurs. By fostering an environment that supports women-led innovation, we can help close the gender gap in economic participation and promote sustainable development.
6. **Incorporating Gender Sensitivity in Curriculum Development:** Educational institutions should review and revise curricula to ensure that they are gender-

sensitive and inclusive. This includes integrating gender studies into the curriculum, promoting the achievements of women in various fields, and challenging gender stereotypes through educational content.

## **Conclusion**

The speaker concluded by reiterating that gender equality is not only a fundamental human right but also a prerequisite for sustainable development and economic growth. Achieving this goal requires a comprehensive and coordinated approach that includes policy changes, cultural shifts, and targeted interventions in education and the labor market. By integrating a gender perspective into all aspects of policy-making, technology development, and organizational practices, we can create a more inclusive and just society for all. The speaker called on all stakeholders—governments, businesses, educational institutions, and civil society—to work together to implement these strategies and close the gender gap. Only through collective action and a commitment to equality can we ensure that everyone, regardless of gender, has the opportunity to reach their full potential.

## **Case 1 - Chile: Modernization of Higher Education and the Implementation of the Qualifications Framework**

The presentation focused on the modernization of Chile's higher education system and the ongoing implementation and reform of their Qualifications Framework. The speakers divided the discussion into two parts: an overview of public policy and the Chilean education system, followed by a detailed examination of the qualifications framework and its integration into the economy's educational landscape.

Providing an international audience with context, the speaker described the current state of Chile's higher education system. With a population of approximately 19 million, Chile's higher education enrollment reaches nearly 1.3 million students. Technical and professional education, which was previously less prominent compared to university education, has seen significant growth. It now accounts for nearly 45% of total higher education enrollment, with first-year technical-professional students comprising 56% of new enrollments.

Despite these gains, the participation of women in technical-professional education remains comparatively low. The Ministry of Education is actively working to address this disparity through policies aimed at encouraging women to enter traditionally male-dominated fields, particularly in STEM (Science, Technology, Engineering, and Mathematics). Measures include providing special incentives for institutions to increase female participation and addressing structural barriers such as the caregiving responsibilities that disproportionately affect women's educational attainment.

The speaker also discussed the unique configuration of Chile's technical-professional education system, which consists of two main types of institutions: technical training

that offer short-term programs of up to two years, focusing on basic technical education and professional institutes that offer longer programs of up to four years, resembling universities in their structure but without the mandate to conduct scientific research. Both types of institutions predominantly operate in the private sector. However, since 2016, efforts have been made to re-establish a public presence in technical-professional education through the creation of state technical training centers in each of Chile's 16 regions. This initiative aims to strengthen the role of public education and provide more equitable access to technical training across the economy.

### **Context and Rationale for Modernization**

The speaker continued by outlining the broader context of the modernization process currently underway within Chile's Ministry of Education. This process, termed the "modernization of higher education," is structured around three primary pillars:

1. **Academic Modernization:** This pillar focuses on updating the academic offerings, enhancing institutional collaboration, and redefining training trajectories. A key issue identified is the excessive length of pre-graduate and post-graduate programs in Chile, which are longer than those in many developed economies. This necessitates a reconfiguration to align with international standards.
2. **Linkage to Productive Development:** The second pillar addresses the need for higher education, particularly technical-professional education, to be more effectively linked to the economy's productive development. Despite the recognition that technical-professional education should contribute to domestic development goals, there is often a disconnection between educational outcomes and the needs of the economy. The speaker emphasized the importance of measurable, monitorable instruments that align educational outputs with the strategic development goals of Chile.
3. **Redesign of Financing and Management Mechanisms:** The third pillar involves rethinking the financing mechanisms for higher education in the context of Chile's policy of free education. This shift introduces challenges related to the flexibility of training pathways, particularly in technical-professional education. Historically, this type of education was seen as terminal, meaning that students had limited opportunities to continue their studies beyond a certain level. The modernization aims to create more flexible trajectories that allow for lifelong learning and continuous professional development.

In this context, the speaker highlighted the need for educational trajectories to be flexible, adapting to the diverse personal, institutional, and biographical conditions of students. The previous rigid structure of technical-professional education limited students' ability to continue their studies or change their educational paths. The new approach seeks to remove administrative barriers and create a system where



educational and life trajectories can flow naturally, facilitating continuous learning and adaptation to changing personal circumstances. However, this shift towards flexibility faces resistance from various stakeholders, particularly higher education institutions that may perceive flexible pathways as a threat to their traditional revenue models. The speaker called for a "social pact" to reconcile the interests of educational institutions with the needs of students and society. This would involve recognizing prior learning, allowing for credit transfers, and fostering trust among institutions that are subject to rigorous quality evaluation processes.

### **Chile's Qualifications Framework and Its Implementation**

The core focus of the presentation was the implementation and evolution of the QF in Chile. The QF is seen as a crucial tool for making the education system more transparent and aligned with the needs of the labor market. Over 150 economies globally have adopted similar frameworks, highlighting their role in establishing a common language and trust between educational institutions and employers. In Chile, the QF addresses several critical issues:

The framework aims to bridge the gaps between educational qualifications and labor market requirements. It seeks to create a more seamless connection between what is taught in educational institutions and what is needed in the workforce. Also, Chile's QF, particularly in the technical and professional field, includes five levels, compared to the typical eight levels found in other domestic frameworks. The QF is designed to be communicative, providing guidance and facilitating curricular updates and capacity building within educational institutions. Supporting lifelong learning by allowing individuals to move between different levels of education and to have their non-formal and informal learning experiences recognized is a key objective, particularly important for adults who are re-entering the education system or seeking to upgrade their skills.

A significant innovation in Chile's QF is the development of "sectoral settlements," inspired by the Australian model of skill councils. These settlements create a space for dialogue between the business sector, workers, and educational institutions to agree on the qualifications required in each sector. Chile has developed sectoral settlements in areas such as mining, construction, maintenance, energy, and tourism, with additional settlements under development in administration, commerce, agriculture, and food. These sectoral settlements are designed to ensure that the qualifications offered by educational institutions are relevant to industry needs. They also facilitate the updating of study programs and the alignment of educational outcomes with the competencies required in the labor market. The goal is to create a more responsive and dynamic education system that can adapt to the changing demands of the economy.

The implementation of the QF in Chile is overseen by the Advisory Commission of Technical and Professional Qualifications, which includes representatives from multiple ministries and government agencies. This commission is responsible for

coordinating the various initiatives related to the QF and ensuring that they are aligned with domestic education and labor policies. However, several challenges to its full implementation were presented:

1. **Lack of Awareness and Adoption:** there is a general lack of knowledge and understanding of the QF among the public and within educational institutions. This limits the framework's effectiveness, as people cannot benefit from a system they are unaware of or that they do not fully understand.
2. **Coordination Between Stakeholders:** improved coordination is needed between the industry and academia to ensure that educational programs are aligned with the qualifications framework. This includes faster adoption of standards by educational institutions and better integration of industry needs into curricula.
3. **Governance and Quality Assurance:** the governance of the QF must be strengthened to ensure that it can effectively guide the development of education and training policies. Additionally, there is a need to improve the quality assurance processes for the data that supports the QF.
4. **Learning Outcomes and Standards:** Developing and evaluating learning outcomes remains a significant challenge. The QF must establish clear standards for learning outcomes and ensure that these standards are consistently applied across different levels of education.

The speaker emphasized the importance of recognizing prior learning, particularly for adults who are returning to education or seeking to formalize their work experience. This is a critical component of creating a more inclusive education system that values all forms of learning. Additionally, the speaker discussed the need for greater international cooperation and alignment with other qualifications frameworks in Latin America. Participating in international forums and adopting best practices from other economies can help Chile strengthen its own QF and improve its integration into the global education and labor markets.

### **Current State and Future Directions**

The presentation concluded with an overview of the current state of the QF in Chile. Significant progress has been made in developing sectoral profiles in key industries such as mining and tourism. These profiles allow individuals to gain certification for their skills and facilitate the alignment of educational programs with industry needs. Moving forward, the focus will be on expanding the sectoral settlements, improving the articulation between different levels of education, and enhancing the recognition of prior learning. The speaker reiterated the importance of continuing to develop the QF as a tool for promoting lifelong learning, supporting economic development, and ensuring that Chile's education system meets the needs of all its citizens.

In Chile, since 2020, the Job Vacancy Analysis System (SABE) has been developed, a digital platform that uses an artificial intelligence algorithm to extract information from job advertisements across various online job portals in Chile. By utilizing text mining

techniques and machine learning, SABE collects, harmonizes, and analyzes job ads published on the main job portals, generating data on the occupations in demand by companies, the required educational level, type of work schedule, and offered salaries, among other aspects. SABE also identifies the job skills highlighted by employers in the job ads, making it a useful tool for detecting trends and informing decision-making in public policy design and implementation. The results are presented on a free-access platform that provides information at the four-digit occupation level and includes a methodological document detailing the information sources, data processing, and considerations for interpreting the indicators. Since March 2020, SABE has processed over 5.5 million job advertisements. The information provided by SABE is updated monthly and is built from job postings from the previous 12 months.

In the medium term, SABE is expected to detect skills described in job advertisements and classify the ads by economic sector, geographic location, and educational requirements of applicants. The SABE project is part of the SENCE Labor Observatory and is developed in strategic partnership with OTIC SOFOFA, executed by the Web Intelligence Centre (WIC) at the University of Chile under the umbrella of the Complex Engineering Systems Institute (ISCI). Collaborating institutions include the Faculty of Physical and Mathematical Sciences at the University of Chile (FCFM), the Faculty of Economics and Business at the Andrés Bello University, and the Institute for Market Imperfections and Public Policy Research (MIPP).

## **Conclusion**

The modernization of Chile's higher education system, supported by the implementation of the QF, represents a significant step towards creating a more flexible, inclusive, and responsive education system. By aligning educational outcomes with the needs of the labor market, recognizing diverse forms of learning, and promoting lifelong learning, Chile aims to provide its citizens with the skills and opportunities they need to succeed in a rapidly changing world. The speaker concluded by thanking the audience for the opportunity to share Chile's experience and expresses optimism about the future of the economy's education system. The ongoing reforms and the development of the QF are seen as crucial elements in building a more equitable and prosperous society.

## **Case 2 - Thailand's Qualification Frameworks and Workforce Development: A Comprehensive Overview**

Mrs. Jullada's speech offered an extensive examination of Thailand's Domestic Qualification Framework (DQF), a crucial initiative designed to synchronize educational standards with the needs of the labor market amidst rapid technological evolution. Developed to cater to the emerging demands of a knowledge-based economy, the DQF serves as a bridge between education and employment, ensuring that Thai workers possess competencies that are relevant both domestically and globally. Despite considerable advancements, the path toward a fully integrated and

effective DQF is ongoing, with numerous challenges and opportunities arising from technological advancements and global economic shifts.

The DQF was initially sanctioned by the Thai Cabinet in 2013 and revised in 2017 to better align with the evolving requirements of the workforce. Far from being merely a regulatory mechanism, the DQF represents a comprehensive strategy aimed at reforming the educational system to produce graduates with qualifications that meet the labor market's needs. Its primary goals include enhancing educational quality to international standards, fostering lifelong learning, and supporting the socio-economic development of the economy through a well-prepared workforce.

Managed by the Office of Education Council under the Ministry of Education, the DQF is a collaborative effort involving multiple government agencies, private sector stakeholders, and educational institutions. This collective approach ensures that the DQF is not merely theoretical but a practical framework that guides curriculum development, establishes qualification standards, and regulates the certification process across all levels of education and training.

### **Adapting to Technological Advancements and the local context**

The speech emphasized the transformative impact of emerging technologies on the workforce and the critical need for the DQF to adapt to these changes. Thailand's 4.0 strategy, which centers on automation, robotics, and digitalization, necessitates a substantial shift in workforce skills and competencies. The DQF aims to address these needs by fostering the development of future skills, including digital literacy, data analysis, and AI-related competencies.

A significant initiative under this strategy is the development of a competency framework for AI-related professions. The Thailand Professional Qualification Institute (TPQI), established in 2011, plays a pivotal role in this effort. The TPQI collaborates with industries, educational institutions, and other stakeholders to establish occupational standards for AI literacy, data analytics, human-machine collaboration, and AI ethics. This framework is designed not only to cultivate a technically skilled workforce but also to ensure that all workers, regardless of their occupation, can effectively use AI tools to boost productivity.

Despite the forward-looking initiatives, the speaker identified several critical challenges or "pain points" that Thailand faces in integrating technology into its workforce development efforts. One primary issue is the mismatch between training demand and supply. Many workers are hesitant to engage in further training due to barriers such as time, cost, and lack of motivation. This reluctance poses a significant challenge to upskilling and reskilling, which are crucial for adapting to technological changes. Another major challenge is the lack of foundational skills among a significant portion of the adult population, particularly those aged 40 and above and those without tertiary education. Foundational skills, such as digital literacy, problem-solving, and language proficiency, are essential for workers to adapt to new technologies and

perform more complex tasks. The absence of these skills hinders the ability of many workers to transition into new roles that require a higher level of technical competence.

The TPQI is a key player in Thailand's workforce development strategy and addressing the mentioned challenges. Its primary mission is to develop a professional qualification system that establishes clear and consistent standards for various occupations. These standards are developed in collaboration with industries, educational institutions, and other stakeholders to ensure that they meet the needs of the labor market. The TPQI also accredits and monitors assessment centers across the economy, responsible for evaluating workers' competencies and issuing professional qualifications. This system is designed to provide a clear and structured pathway for workers to gain recognition for their skills, whether acquired through formal education, on-the-job training, or other means.

One of the most innovative aspects of the TPQI's work is the development of a competency credit bank. This system allows workers to accumulate credits for their skills and experiences, which can then be used to obtain professional qualifications. This approach is particularly beneficial for workers who may not have formal educational qualifications but have acquired significant skills and experience in their field. By providing a means to formally recognize these competencies, the TPQI is helping to bridge the gap between education and employment. The credit bank system is complemented by a range of other initiatives aimed at promoting lifelong learning. For example, the TPQI has developed a platform called e-Workforce Ecosystem (EWE) that provides access to a wide variety of training programs, many of which are aligned with the DQF and the professional qualification framework. This platform includes features such as e-portfolios, job matching services, and an e-coupon system that subsidizes training costs for workers. These initiatives are designed to make training more accessible and affordable, thereby encouraging more workers to engage in lifelong learning.

However, the speaker acknowledged that more needs to be done to motivate workers to engage in continuous learning and to demonstrate the value of training in terms of career advancement and income growth.

Also, the TPQI has developed a lifelong learning platform aimed at making training more accessible and effective. This platform includes features such as e-portfolios, job matching services, and a digital competency credit bank, which allows workers to accumulate credits for their skills and experiences over time. The goal is to create a flexible and dynamic system that supports continuous learning and career progression.

In addition to its domestic initiatives, Thailand has been actively collaborating with international organizations to ensure that its qualification frameworks align with global standards. The economy has benchmarked its DQF against the ASEAN Qualification Reference Framework (AQR) and is one of only four ASEAN economies to have

successfully aligned its framework with the AQR. This alignment not only enhances the mobility of Thai workers within the ASEAN region but also ensures that their qualifications are recognized internationally. Thailand has also partnered with organizations such as TOPSET in South Korea, Microsoft, Pearson, and Certipoint to develop and implement international standards for digital skills and other competencies. These collaborations are essential for making the Thai workforce competitive in the global job market.

### **The Integration of AI in Workforce Development and the Importance of Foundational Skills**

While much of the focus is on developing advanced technical skills, the speaker emphasized the importance of foundational skills as a prerequisite for more specialized competencies. Foundational skills such as digital literacy, emotional intelligence (EQ), problem-solving, and language proficiency are essential for workers to adapt to new technologies and perform more complex tasks. The speaker noted that these skills are fundamental, progressive, and transferable, serving as the building blocks for more advanced competencies.

Unfortunately, many workers in Thailand lack these foundational skills, particularly those aged 40 and above and those without tertiary education. This deficiency presents a significant barrier to the economy's efforts to build a more technologically advanced workforce. To address this issue, the TPQI has developed a range of programs aimed at improving foundational skills, including digital literacy courses, EQ training, and language classes.

The speech also addressed the impact of artificial intelligence (AI) on the future of work. While AI has the potential to automate many routine tasks, the speaker argued that it will not completely replace human labor. Instead, AI is likely to take over specific tasks, allowing humans to focus on more complex and creative aspects of their jobs. This shift towards augmentation rather than automation presents opportunities for workers to engage in more intellectually stimulating roles.

The speaker cited a report estimating that 60% of all jobs have tasks that could be automated, but only 5% of jobs are at risk of complete automation. This indicates that while AI will change the nature of work, it will not eliminate jobs altogether. Instead, it will augment human capabilities, making it essential for the workforce to adapt and learn new skills that complement AI technology.

To prepare for this future, the TPQI is developing a framework for AI-related competencies, including AI literacy, data analytics, human-machine collaboration, and AI ethics. These competencies will be integrated into the DQF and the professional qualification framework, ensuring that workers have the skills they need to succeed in an AI-driven economy.

As Thailand continues to implement its DQF and professional qualification framework, the focus will remain on enhancing the skills of its workers, aligning with international standards, and addressing the challenges posed by emerging technologies. The integration of AI and other advanced technologies presents both challenges and opportunities for the Thai workforce. By focusing on augmentation rather than automation, the TPQI aims to ensure that workers are equipped with the skills they need to thrive in an AI-driven economy.

However, this will require a concerted effort to improve foundational skills, promote lifelong learning, and demonstrate the value of training in terms of career advancement and income growth. The TPQI and the DQF will play a crucial role in this effort, providing the framework and support needed to build a skilled and adaptable workforce.

Thailand's DQF and professional qualification framework represent a significant step forward in the economy's efforts to build a skilled and adaptable workforce. While significant progress has been made, there are still many challenges to overcome, particularly in terms of integrating technology into workforce development and addressing the gap between training demand and supply. The TPQI, as a central player in this effort, is working to develop a comprehensive and flexible system that supports lifelong learning and career development.

The integration of emerging technologies, particularly AI, presents both challenges and opportunities for the Thai workforce. By focusing on augmentation rather than automation, the TPQI aims to ensure that workers are equipped with the skills they need to thrive in an AI-driven economy. However, this will require a concerted effort to improve foundational skills, promote lifelong learning, and demonstrate the value of training in terms of career advancement and income growth.

In this context, the role of the TPQI and the DQF cannot be overstated. They are the pillars upon which Thailand's future workforce will be built. By focusing on lifelong learning, international collaboration, and the integration of emerging technologies, Thailand is laying the foundation for a more prosperous and inclusive future. While the journey is far from over, the progress made so far is a testament to the commitment and vision of all those involved in this important work. As the world continues to change, Thailand's qualification frameworks will remain a critical tool for navigating the challenges and opportunities that lie ahead.

### Case - 3 Australian Qualifications Framework and Strategies to Address AI

The speech handed by Mrs. Bateman provided a comprehensive overview of the Australian Qualifications Framework (AQF), emphasizing its flexibility, structure, and the challenges posed by emerging technologies, particularly artificial intelligence (AI). It highlights the AQF's role in ensuring that the economy's educational and training

systems are aligned with the evolving needs of the labor market. Additionally, the speaker discussed how the AQF is positioned to adapt to future challenges and opportunities presented by technological advancements, offering insights into strategies for integrating AI into educational frameworks and addressing its implications on the workforce.

## **Overview of the Australian Qualifications Framework**

The AQF was established in 1995, evolving from pre-existing qualification descriptors in various sectors. It is a shared responsibility between the Australian government and other stakeholders, including industry representatives. The framework's purpose is to provide a comprehensive domestic policy for regulated qualifications in Australian education and training. It encompasses higher education, vocational education and training (TVET), and school education, making it a unifying structure across all sectors.

The AQF operates without direct legislation. Instead, it is integrated into various legislative and regulatory contexts, primarily through quality assurance agencies and accreditation processes. Despite this, it has become a critical component of Australia's education and training landscape, influencing the design, delivery, and recognition of qualifications. The framework has undergone some minor reviews, and only major ones in 2011 and 2019, to ensure its continued relevance and effectiveness.

A unique feature of the AQF is its use of qualification type descriptors. These descriptors provide a detailed outline of what constitutes a particular qualification, such as a Bachelor's degree or a Certificate IV. They include information on the purpose of the qualification, the expected learning outcomes, and the volume of learning required. This approach allows for a clear understanding of the intended outcomes and ensures that all qualifications, regardless of their level or field, adhere to a common standard of quality and consistency.

The AQF is deliberately designed to be sector-neutral. While it traditionally associated levels 1 to 6 with TVET and levels 7 to 10 with higher education, the framework allows for cross-sectoral integration. This means that qualifications at any level can be developed and delivered by providers from different sectors, provided they meet the required standards. This flexibility is crucial in an increasingly complex and interconnected world where the boundaries between education and work are becoming blurred. The ability to move seamlessly across sectors is further supported by the AQF's policies on credit transfer and recognition of prior learning. These policies enable learners to use their existing qualifications and experiences to gain credit towards new qualifications, thereby reducing duplication and promoting lifelong learning.

The AQF structure (10 levels, ranging from Certificate I to Doctoral degrees, based on three domains: knowledge, skills, and application) is intentionally broad to accommodate a wide range of qualifications and learning outcomes. By using generic descriptors for each level, the AQF allows for significant flexibility in how qualifications



are designed and delivered, enabling institutions to tailor their programs to meet specific needs without being constrained by overly prescriptive criteria.

## **Responding to Emerging Technologies**

A key issue for discussion in this document is the extent to which a DQF can and should remain flexible to accommodate changes in technology and the emergence of new skills and knowledge. The focus remains on how level descriptors can best support the accurate placement of qualifications within the overall system, without compromising the framework's stability and coherence. The fundamental question at hand is: how flexible can and should a DQF be in order to effectively respond to ongoing changes in the educational and occupational landscape?

The Australian Qualifications Framework (AQF) relies on robust quality assurance arrangements for qualifications to ensure their relevance, need, and alignment with identified outcomes. For example, in the TVET sector, the development of qualifications is based on defined learning outcomes and involves a comprehensive process that includes:

- Consultation with industry, community, and education stakeholders to ensure that the qualifications are relevant, appropriately scoped, and up-to-date.
- Involvement of an industry peak body responsible for the development and ongoing maintenance of the qualifications.
- Independent verification of the qualifications prior to their endorsement or accreditation by the Skills Ministers.
- Recognition by industry where applicable, ensuring that the qualifications meet the specific needs of the sector.
- Consideration of pathways, recognition of prior learning (RPL), and credit transfer to facilitate learner progression and mobility.
- Adherence to a consistent format to maintain clarity and uniformity across qualifications.

Through this quality assurance process, the AQF also addresses the incorporation of new technologies, artificial intelligence, and microcredentials, ensuring that the framework remains responsive to emerging trends and advancements in skills and knowledge.

While the AQF maintains a balance between the flexibility and specificity of its level descriptors, differentiating between the ten levels can sometimes be challenging. This complexity underscores the importance of the AQF's reliance on quality assurance mechanisms to ensure that qualifications are appropriately categorized and meet the evolving needs of industries and learners alike. The adaptability of the AQF in recognizing new qualifications such as microcredentials is essential to keeping the framework relevant in a rapidly changing educational and occupational landscape.

Key quality assurance measures within the AQF encompass several critical components to ensure the integrity, flexibility and effectiveness of the system:

1. **Quality Assurance of Qualifications:** This involves the use of qualification quality standards, policies, and guidelines to ensure that each qualification meets the established benchmarks for relevance, accuracy, and alignment with the framework's objectives.
2. **Registers and Databases of Approved Qualifications:** To maintain transparency and accessibility, qualifications that have been approved under the DQF are systematically recorded in official registers or databases. These resources provide stakeholders with a reliable reference for the qualifications recognized within the framework.
3. **Quality Assurance of Providers and Their Programmes:** This measure ensures that the institutions and their educational programmes, which lead to qualifications under the DQF, adhere to quality standards, policies, and guidelines. This process helps verify that providers are capable of delivering the qualifications to the required standard.
4. **Registers and Databases of Approved Providers:** Similar to the qualifications, approved providers are listed in registers or databases managed by responsible bodies. This ensures that only institutions that have met the necessary quality assurance criteria are recognized and authorized to offer DQF-related qualifications.

These quality assurance measures collectively support the credibility and reliability of the DQF, ensuring that both the qualifications and the providers are held to consistent and rigorous standards.

One of the key insights from the Australian experience in addressing the challenges posed by new technologies is the emphasis on prioritizing educational programs and their strategies as a primary space for adaptation. To support this, the Higher Education Quality and Standards Agency (TEQSA) has developed a Higher Education Good Practice Hub<sup>1</sup>, accessible via a dedicated webpage. This hub consolidates resources and information on a wide range of topics to promote best practices across the higher education sector.

The resources available on the hub are not only focused on managing risks but also on the proactive integration of artificial intelligence (AI) into educational settings. The hub offers valuable guidance to providers on various aspects of AI, including:

- AI and academic integrity and assessment.
- Incorporating AI into classroom instruction.
- The role of generative AI in research.
- Strategies for engaging with students about AI and effectively integrating AI into teaching.

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<sup>1</sup> <https://www.teqsa.gov.au/guides-resources/higher-education-good-practice-hub>

The hub provides a comprehensive array of materials, such as PowerPoint presentations, webinars, academic papers, and information on international approaches, all aimed at equipping providers with the tools and knowledge necessary to effectively incorporate AI and navigate the evolving technological landscape in education.

If we define a programme as a coherent set or sequence of educational activities designed and organized to achieve predetermined learning objectives or accomplish a specific set of educational tasks over a sustained period. Within an education programme, educational activities may also be grouped into sub-components variously described in contexts such as 'courses', 'modules', 'units' and/or 'subjects'. It makes sense that IA new technology is addressed there as well, and probably with more flexibility than in a DQF, which needs stability as small changes have big impacts in the Australian labor market. This hub policy can be easily replied to in other economies to help the education system to also cope with AI.

Lastly, the Australian experience points out some lessons that can be taken to other experiences. The Domestic Qualifications Framework (DQF) serves as the principal policy instrument within an economy's qualifications system. It is essential that a DQF is tailored to the specific historical and contextual circumstances of the economy, as it cannot simply be replicated from another system. The impact of a DQF on the quality of the qualifications system is likely to be minimal unless it is effectively integrated with other initiatives and strategies within the qualifications system. Quality assurance systems play a crucial role in establishing this connection, providing a platform through which the goals and aspirations articulated in the DQF can be realized. Policymakers must carefully consider these initiatives and strategies, ensuring that they are aligned and interconnected like pieces of a jigsaw puzzle. This approach will result in a coherent and effective qualifications system that fully leverages the potential of the DQF to enhance quality and consistency across the economy.

### **Balancing Flexibility and Stability one big tradeoff**

Throughout the speech, the speaker emphasized the importance of balancing flexibility and stability in the AQF. While the framework must be adaptable to changing needs, it also needs to provide a stable foundation for the labor market and the education and training system. This balance is crucial in ensuring that the AQF remains relevant and effective in a rapidly changing world. The speaker discussed the potential drawbacks of a rigid framework, particularly in the context of emerging technologies. If the level descriptors or qualification type descriptors are too specific, the framework may become inflexible and unable to accommodate new developments. This rigidity could hinder the ability of institutions to respond to changes in the labor market or to develop new qualifications that meet emerging needs. Of course, there is no magic solution, only tradeoffs; though a flexible QF is a good thing, a too flexible one may become a loose reference and become not relevant.

To avoid this problem, the AQF uses broad descriptors that provide general guidance without being overly prescriptive. This approach allows for a wide range of qualifications and learning outcomes to be included within the framework, providing the flexibility needed to adapt to new technologies and changing industry needs. The speaker suggested that this flexibility is one of the AQF's greatest strengths, as it enables the framework to remain relevant in a rapidly changing world.

## **Conclusion**

The Australian Qualifications Framework (AQF) is a robust and flexible system that plays a vital role in aligning the economy's educational and training systems with the needs of the labor market. Its structure and design allow it to adapt to changing industry demands and technological advancements, such as AI, without losing its core purpose or compromising on quality.

The strategies outlined in the speech demonstrate a comprehensive approach to integrating AI into the AQF. By focusing on the development and renewal of qualifications, updating existing qualifications, embedding AI into programs, and ensuring rigorous quality assurance, the AQF can help prepare the Australian workforce for the challenges and opportunities of the future.

The emphasis on lifelong learning and international collaboration further underscores the AQF's commitment to providing learners with the skills they need to succeed in a rapidly changing world. By maintaining a balance between flexibility and stability, the AQF is well-positioned to continue supporting Australia's educational and economic goals in the face of ongoing technological change.

In conclusion, the AQF serves as a model for how a qualifications framework can be both stable and flexible, providing a foundation for educational and workforce development while also being responsive to new challenges. As the world continues to change, the AQF's ability to adapt and evolve will be crucial in ensuring that Australia's education and training systems remain relevant, effective, and globally competitive.

## **Q&A Session**

**Question 1: “You must have had challenges along the way. Was there any failure? Was there any roadblock? Were there any challenges that you may say that it was not all a straight line, it was not just easy, it was not quick?”**

Jullada Meejul: It really took a lot of debate, a lot of discussion around industries, institutions, education. Even right now, there are a lot of debates and put things in place. Still, right now in Thailand, there are fragmented parts that we need to continue collaboration and sharing together to make it a success.

Andrea: The AQF, as we said, started in 1995. And I don't believe we got full engagement from all the sectors until the big review in 2011. I think that the biggest

challenge for us was not industry, because industry was involved right at the very start of the development of the framework. It was getting the sectors to engage with it. TVET engaged almost immediately, but higher education, for example, didn't strongly engage. They had their understanding of what was a bachelor, what was a master's, what was a PhD. And it took that review, really, in 2011 to get full engagement. And I'm very proudly saying they are fully engaged. It really took a very long time until it got full acceptance, so it is not an easy journey.

**Question 2: If you want to start mobilizing all the stakeholders towards effective involvement, what would be your recommendation of the first two steps? Given your experience, where should others begin?**

Marushka: recover or have a sense of urgency. Technology advances very fast, and I think that we don't have the opportunity today to invest a lot of thought. We need to act. So, first, recover or put forward everything that we have to do in public policy design, or in the framework of qualifications, or in the functional maps, etc., the sense of urgency.

And the sense of urgency comes in two ways. The first is how we reformulate what worked well for us until today, and that begins to have a very drastic need for change, because technologies will do many things that we used to do, and in a faster way. And second, how we achieve that speed so that no person who has a traditional education or develops a traditional job is left behind.

So, first, the sense of urgency. And second, I think we have to allow ourselves to be tested and to make mistakes. I mean, these very long paths of seeking perfection have probably worked very well for us because we are very demanding in the work we do. But this test and error could help us to generate more participation from students, from teachers who could be here, having this same conversation, to get closer to this reality. And, as they say in Agile Methodologies, we make mistakes fast and cheap. I mean, fast, if it was a mistake, well, nothing, we go back and continue. So, those two recommendations I would give, which, as I said, apply to everything, but in this particular case, in education, it is much more.

Eliana: When these stakeholders are organized, why not invite the Ministry of Women, or the Ministry of Gender, or whatever it is called, so that they also give their inputs regarding the whole process. I think there has to be a presence of certain specialists, because unfortunately, specialists are still necessary, as I say. I wish we were not necessary, and people would really have this awareness, this level of awareness, to be able to incorporate this look in all these processes.

In the case of the qualification frameworks, I would say that the specialists have to develop clear and precise instruments. How to develop? How is the description? Where does the perspective have to enter? In the case of the Spanish language, for example, we have careers that are named in a feminine way, the nurse or the

engineer, etc., or masculine or feminine. There are languages that are probably not so noticeable, let's say, this differentiation of careers. But in the case of occupations, I think that we have to have an idea from the description, from the planning, the monitoring, the auditing to see how it has developed, if there are gender biases, etc. I think that in all the steps, but from the beginning, I would say, to put a certain specialization to work on gender equality issues in the qualification frameworks, specifically in any other product, I would say, or service, in education, in employment, etc.

Sebastian: I think the first recommendation has to do with the fact that the qualification framework is an instrument, but this instrument does not necessarily have all the answers. It is an instrument that allows, without a doubt, to strengthen coordination, articulation between the world of work, the world of training, allows articulation between different levels, allows one to generate a common language. But it does not necessarily have to give an answer to everything. And when we want to talk about other concepts, whether it is quality, identification of labor force, identification of prospective studies, the framework does not necessarily give a correct answer. It can collaborate in that process; it can make synergies.

But here I think it is important to identify that the framework itself has to be an instrument, it does not necessarily have to become the public policy of each economy. And another element that is also important to highlight, many times we take the experience of other economies that have advanced from the first to the second generation and we replicate that experience, not considering, for example, the context, the local reality. And that, without a doubt, affects.

And another element, also as a second recommendation, has to do with ensuring clear governance, with actors linked, with representatives from various sectors, that allows a social dialogue, that also allows interaction, the visibility of what is being developed, that allows to identify with a short, medium and long-term view what are the challenges that the economy faces in this matter.

## **Question 2: How do we create a good and clear governance?**

Sebastian: First of all, to identify a navigation map, on the one hand. On the other hand, to identify what are the functions that this space should have. What are the objectives that should be achieved? What is the operational responsibility that this body should have?

This body can depend on a ministry, whether it is education, work, it can depend outside of the ministries, it can depend on the reality of each economy. As a third element, the third key has to be who are the people who participate in this space. And I think that is the relevant thing. Because depending on the people who participate, the roles that each of these people have, are the decisions that are made, and where

to move forward in the discussion. I think those are mainly the keys from our experience.

## Day 2 of the workshop

The primary activity on the second day focused on delving deeper into the presentations given by the experts on day one, through small group discussions, according to the agenda outlined below. 55 participants were registered for the second day.

Start time	Activity
9:30 - 10:15	Summary of the previous day, presentation of Juan Felipe Miguez and the dynamics for the working tables
10:15-11:15	First small group round
11:15-11:45	Coffee break
11:45 - 13:00	Second small group round
13:00 - 14:30	Lunch
14:30 - 16:00	Plenary Discussion of Small Group Sessions
16:00 - 16:30	Coffee break
16:30 - 17:00	Synergy Matrix
17:00 - 17:30	Final words from Doris Lorena Gavilano Iglesias, Secretary General of the Ministry of Education and ex-post evaluation and survey of satisfaction.

To achieve this, discussion tables were created, one for each specialist. Participants were required to register for two tables to engage in a one-hour conversation with the specialist and other participants at each table. After two rounds, the specialists presented the main topics discussed using a Jamboard, focusing on potential areas for future collaboration and concrete actions. Since Andrea Bateman was unable to attend the second day of the workshop, Juan Felipe Miguez took her place, building upon the experience he shared at the beginning of the day.

### Table 1: Jullada Meejul

The discussion centered around four major topics, organized into the following ideas and recommendations:

Governance Considerations for DQFs:

- Governance should be shared; in Thailand, it is driven by the Prime Minister in collaboration with the Ministry of Education, educational agencies, and professional qualifications institutes.
- During the initial phases, it is crucial to seek consensus among all stakeholders involved in the DQF and to identify the opportune moment to secure the necessary political support.
- Civil society actors, such as students and teachers, must be involved in DQFs. Experience shows that universities often exhibit the most resistance initially, but efforts must be made to integrate them into the DQF.
- It is the productive sector that defines the demands, and the framework must address them; this logic should not be forgotten.

#### Tools for Qualifications, Key Points:

- Micro-credentials are tools that enable the attainment and progression through different levels within the DQF.
- Listening to industry as the primary input for credential formulation is essential.
- In Thailand, the quality of the DQF is prioritized through constant monitoring and auditing of qualifications to assess their relevance and applicability.
- Ownership of information is an important aspect to consider.
- Adequacy and flexibility are fundamental elements that challenge traditional concepts and forms of qualifications.

#### General Notes for Framework Implementation and Best Practices:

- Consider the local context and the heterogeneity of regional economies within economies to represent the complexity accurately.
- Planning and understanding the problem to be addressed are two preliminary elements to the implementation of a framework, indicating what components should be included.
- Focus on the professional qualifications system, based on occupational standards.
- In Thailand, digital training platforms linked to the competency accreditation system have been promoted.

#### Benchmarking or Lessons from Economies without a DQF:

- The United States does not have a DQF; however, they are interested in content and work with accreditation agencies to improve navigability.

#### Table 2: Eliana Gallardo

##### Discussion Points:

- AI reinforces gender stereotypes or biases.
- AI and big data must incorporate a gender equality approach.



- Digital literacy, revaluation, and certification of ancestral knowledge.
- It is essential to incorporate and recognize the qualifications that women have acquired and learned empirically to break myths.
- A domestic regulatory framework with a gender approach should be implemented with quality and gender indicators as a roadmap.
- MINEDU: Achieve the implementation of a DQF. Establish a domestic authority for the implementation of a quality system for the DQF.
- Incorporate the gender perspective in the dissemination and communication processes of the DQF.
- Example from SENATI: Careers oriented towards both genders in big data and management with leadership skills.
- Involve the productive sector, civil society, academia, and other stakeholders in the design and implementation from a gender perspective.

#### Cooperation Notes:

- Capacity building in the qualification teams with a gender perspective, hybrid events, follow-up, and monitoring.
- Development of a gender equality guide for the framework and training for its use and implementation.
- Leverage online platforms for participation from all stakeholders.
- Define follow-up and evaluation indicators for the incorporation of the gender perspective in the DQF.
- Link secondary and higher education. Review institutional indicators regarding the transition from a gender perspective with the support of APEC.
- Highlight and communicate the success stories of STEAM students to share information on the approach and inspire others.

### Table 3: Marushka Chocobar

The conversation focused on the ethical, transparent, and equitable use of artificial intelligence.

#### Motivations and Needs:

- Incorporate the ethical discussion into AI training across all sectors: government, private sector, academia, and civil society, focusing on people.
- Establish standards that ensure ethics in the use of AI as a governmental priority.
- AI and its outcomes will depend on the ethical use of technologies.

#### Successes, Strengths, and Challenges:

- Economies such as Indonesia; Malaysia; and Viet Nam expressed interest in learning from Peru's experience in AI policy and governance.
- Unlike Peru, Indonesia; Malaysia; and Viet Nam do not have their own AI laws, but they do have tools to regulate its use.

#### Priorities:

- Peru has a domestic authority on artificial intelligence focused on health, education, justice, public safety, and the environment.
- Technology does not transform education; people must update and change practices to prevent AI from replacing humans.

#### Actions with a Sense of Urgency:

- Strengthen governance: regulatory, ethical, and implementation frameworks.
- Design work teams, especially in education, to ensure that the educational model adapts to new technological changes, with an emphasis on teachers.
- Open innovation spaces to ensure participation and a people-centered focus, ensuring no one is left behind.

### Table 4: Felipe Miguez

#### Tools to Keep the Curriculum Updated:

- Interaction and feedback with graduates.
- Use of international occupation catalogs such as the ILO's ISCO to facilitate educational offering studies.
- Basic algorithm-based job search portals can be used to anticipate new skill demands.

#### Key Elements for Interaction with the Productive Sector:

- Alternation should facilitate and promote educational continuity.

- In the United States, despite not having a QF, micro-credentials are widely used.
- Involvement of the private sector is key for the recognition of competencies acquired in the labor market.
- Employers' recommendations, both of interns and to their peers to engage in interactions with the education sector, are a powerful mechanism to attract and commit.

#### Notes on Dual Education:

- The Uruguayan experience in dual or alternating education stems from employers' genuine need due to the difficulty of finding qualified human capital.
- Educational institutions must develop the capacity to manage a dual proposal and help companies develop it as well.
- In a pilot with 25 students, companies highlighted that they gained access to quality and loyal human capital.
- It is necessary to refine the language so that schools and companies can work collaboratively.
- Companies need support from educational institutions during the training period. In Uruguay, applications have been developed to receive daily feedback from apprentices.
- In Uruguay, there is a set of tax incentives for participation, and quality standards have been developed by INEFOP.
- The contract with the student cannot be a labor contract; it must be a special contract that defines rights and obligations appropriate to a training experience.
- Events are organized in Uruguay where participants, especially companies, invite others to join based on their successful experiences.
- A key strategy is to build from the bottom up, with small pilots that generate standards, guidelines, and improvement plans, and then scale up to the system.

#### Table 5: Sebastian Espinoza

##### Challenges Identified in QF Implementation:

- The QF serves as a meeting point between the state and the labor market through the identification of needs and required competencies.
- Trust is a key factor for stakeholders to get involved and see the framework as a credible quality reference.
- Relationship mechanisms allow for the development of training and recognition of prior learning through certification.
- Governance is essential for institutionalizing trust in a collaborative space involving all parties. In Chile, a law is being proposed to establish it.
- The articulation between education and work is crucial. In Chile, spaces for dialogue and collaboration are essential to building trust.

- Some sectors are more conducive than others to begin implementing a QF due to their specialization, use of quality standards (such as ISO), or occupational safety standards.
- Implementing a quality QF is a long process.

#### Identified Capacity-Building Opportunities:

- Strengthen the capacities of actors: state, civil society, academia, and the business world. Who is responsible for this?
- Central themes to strengthen: quality assurance, gender perspective, and decentralization of the QF.
- Enhance targeted communication for each stakeholder with contextualized examples.

#### Proposal in Three Stages:

- Sensitization and capacity-building of the designated team (3 months).
- Design of a training plan (3 months).
- Implementation of the designed training (12 months).
- Evaluation in stages (2 months).

After the discussions done within the workgroups, the results were shared in a plenary.

## Summary and Conclusions

The workshop provided a comprehensive overview of the current landscape of Domestic Qualifications Frameworks (DQFs) and their role in addressing the challenges posed by emerging technologies, particularly artificial intelligence (AI) with a gender perspective. Despite the diverse contexts and focus areas of each presentation, several common themes, challenges, and strategies emerge that highlight the critical importance of adapting educational frameworks to the rapidly changing demands of the global workforce.

Marushka Chokobar, focused on the transformative impact of disruptive technologies such as AI on labor markets and educational systems. AI, with its potential to contribute significantly to global economic growth, is reshaping industries and societal structures at an unprecedented pace. This technological advancement brings both opportunities and challenges, particularly in terms of job displacement and the need for reskilling and upskilling the workforce. The presentation underscored the urgency of embracing these changes and integrating them into DQFs to ensure that individuals and institutions can effectively leverage these tools.

Despite the economic benefits of AI, its widespread adoption presents significant challenges, including job displacement and concerns over data privacy and cybersecurity. The World Economic Forum estimates that millions of jobs could be displaced by machines, while new roles will emerge, necessitating extensive re-skilling

initiatives. The presentation also highlighted the digital divide as a major barrier to the full potential of digital technologies, with disparities in access to technology and digital literacy persisting across different regions. Addressing these issues requires targeted policies to improve infrastructure, reduce costs, and provide digital education and training. The presentation further emphasized the need for regulatory frameworks that ensure the ethical and secure use of AI, protecting individuals' data and privacy.

Eliana Gallardo's presentation addressed the complex challenges of achieving gender equality in the context of rapidly evolving technologies. She highlighted that, while technology is often perceived as neutral, it frequently reflects the biases of its creators. This inherent bias can perpetuate, and even exacerbate, existing social inequalities, making it crucial to address these issues proactively. A significant concern is the underrepresentation of women in STEM fields, which limits their access to well-paying jobs and high-growth opportunities. The presentation argued for the integration of a gender perspective in educational policies and labor market frameworks to ensure that AI and other digital technologies are developed with a broader range of inputs, thereby reducing the risk of perpetuating existing gender biases.

Gallardo advocated for recognizing the skills and knowledge gained outside traditional educational settings, particularly for women who often acquire valuable competencies through caregiving and other informal roles. DQFs should include mechanisms for validating these skills, which are frequently overlooked in the formal labor market. The presentation also called for increased efforts to encourage women to enter and remain in STEM fields through targeted educational programs, scholarships, and mentorship opportunities. By incorporating a broader range of experiences and viewpoints, developers can create more equitable and effective technological solutions that better serve all members of society.

In the workshop the Australian Qualifications Framework (AQF) and its role in ensuring that the economy's education and training systems remain aligned with evolving labor market needs was presented. Established in 1995, the AQF serves as a bridge between education and employment, providing a unified structure that spans higher education, vocational education, and training. The AQF is characterized by its flexibility and adaptability, which are essential in integrating new qualifications and emerging competencies such as micro-credentials in AI and digital skills. This framework is developed through collaboration with industry stakeholders, ensuring that it remains relevant and responsive to market demands.

However, one of the main challenges faced by the AQF is the risk of becoming overly rigid, potentially limiting its ability to respond to rapid changes in the labor market. Furthermore, there is a lack of awareness and understanding of the AQF among employers and learners, which hinders its effectiveness in supporting workforce development and mobility. To address these challenges, the AQF emphasizes the importance of promoting lifelong learning by facilitating credit transfer and recognizing prior learning. It also highlights the need to incorporate digital literacy and AI-related

competencies into educational curricula to prepare students for a technology-driven future.

The modernization of Chile's higher education system and the implementation of its Qualifications Framework (QF) were the focus of the fourth presentation. Chile's QF aims to align educational outcomes with labor market needs, promoting lifelong learning and the recognition of prior learning. The presentation emphasized the importance of addressing the disconnect between educational qualifications and labor market requirements, a challenge that limits the employability of graduates. Although the QF is designed to create a more seamless connection between education and employment, many stakeholders remain unaware of its benefits and how to utilize it effectively.

To overcome these challenges, the presentation recommended strengthening sectoral dialogue between employers, workers, and educational institutions to ensure that qualifications reflect market needs. It also highlighted the importance of recognizing prior learning and non-formal education to create more inclusive educational pathways. The development of "sectoral settlements" in areas such as mining, construction, and tourism serves as a promising approach to align educational programs with industry requirements, thus enhancing the relevance and responsiveness of the education system.

Mrs. Jullada, provided a comprehensive overview of Thailand's Domestic Qualifications Framework (DQF) and its role in developing a workforce equipped to meet the demands of a knowledge-based economy. Thailand's DQF, initially established in 2013 and revised in 2017, aims to enhance educational quality, promote lifelong learning, and support socio-economic development through a well-prepared workforce. The framework is designed to adapt to the needs of emerging industries, with a particular focus on developing competencies in AI and digital literacy.

Despite significant progress, Thailand faces several challenges in integrating technology into its workforce development efforts. One major issue is the mismatch between training supply and demand, as many workers are hesitant to engage in further training due to barriers such as time, cost, and lack of motivation. The presentation also highlighted the lack of foundational skills among a significant portion of the adult population, particularly those aged 40 and above and those without tertiary education. This deficiency hinders the ability of many workers to transition into new roles that require a higher level of technical competence.

To address these issues, Thailand has developed a competency credit bank system that allows workers to accumulate credits for their skills and experiences, facilitating the attainment of professional qualifications. The presentation also emphasized the importance of lifelong learning platforms that provide access to training programs aligned with the DQF. Furthermore, Thailand has actively collaborated with international organizations to ensure that its qualification frameworks align with global

standards, enhancing the mobility and competitiveness of Thai workers in the global job market.

In summary, the presentations collectively highlight the critical role of DQFs in aligning educational outcomes with labor market needs in the face of rapidly advancing technologies. Common themes include the importance of flexibility and adaptability in educational frameworks, the need for lifelong learning opportunities, and the integration of digital competencies into curricula. Challenges such as the digital divide, gender inequality, and the disconnect between educational qualifications and labor market requirements are prevalent across different contexts.

Several strategies are recommended to address these challenges. These include promoting lifelong learning and continuous professional development, strengthening collaboration between education and industry, incorporating digital and AI-related skills into educational programs, and developing mechanisms to recognize non-formal and informal learning. The presentations also emphasized the importance of gender inclusivity in technology development and the need for robust regulatory frameworks to ensure the ethical and secure use of emerging technologies.

Overall, while DQFs are not a panacea, they represent powerful tools for fostering a more agile, inclusive, and responsive education system. Their effective implementation requires coordinated efforts among governments, educational institutions, and industry stakeholders to ensure that these frameworks can adapt to the evolving demands of the labor market and technological landscape. By doing so, economies can better prepare their workforces for the challenges and opportunities of the future, ensuring that the benefits of technological advancements are widely shared and contribute to sustainable economic growth and social well-being.

## Annex 1 Detail of participants

A total of 88 people participated during the workshop, 76 on the first day and 55 on the second. The individual details of the participants and their roles are presented below, just over half of them (45) attended both days while the other only attended one of them, most of them attended the first, as shown in the following table:

Participation	Participants
Both Days	45
Day 1 only	31
Day 2 only	10

On the other hand, the participants represented a total of 13 different economies. Although the vast majority were from the host economy, the distribution is highlighted in the following table:

Economy	Participants
Peru	62
Indonesia	5
The United States	4
Thailand	3
Singapore	2
Chile	2
Viet Nam	2
Malaysia	2
Bolivia	1
Canada	1
Chinese Taipei	1
Korea	1
The Philippines	1
Uruguay	1

Further details regarding the specific institution and his or her position or role are detailed in an annex document.



## Annex 2 Ex ante and ex post evaluations

At the beginning and end of the workshop, participants were invited to take part in a survey on several concepts related to the topics to be addressed over the two days. This served as both a warm-up and an icebreaker exercise to start the session, but it also proved useful in gauging the level of alignment in participants' understanding of domestic qualifications frameworks, although the survey results were not shared during the workshop.

The questions asked were as follows for ex-ante and ex-post:

### Ex-ante questions and answers

1. What is a Qualifications Framework (QF)?  
*A system that outlines the levels of qualifications based on learning outcomes.*
2. Which of the following is a primary purpose of a QF?  
*To ensure consistent and comparable qualifications across different economies.*
3. What is a potential challenge for women in the context of AI-driven job displacement?  
*Women may be disproportionately affected by job displacement in sectors where they are overrepresented, such as administrative roles.*
4. In the context of QFs, what role does AI-based learning play?  
*AI-based learning supports personalized education pathways that may challenge traditional qualification structures.*
5. What is a possible benefit of integrating AI into QFs?  
*AI can enhance the flexibility and responsiveness of QFs to emerging skills needs.*
6. How should policymakers respond to the disruptions caused by AI in the context of QFs?  
*By continuously updating QFs to incorporate AI-driven changes in the labor market and education.*
7. What is a key feature of a well-designed QF?  
It integrates both academic and vocational qualifications to create a comprehensive framework.
8. How can AI contribute to closing the gender gap in STEM (Science, Technology, Engineering, and Mathematics) fields?  
*By being intentionally designed to identify and mitigate biases, AI can help create more inclusive hiring practices that support gender diversity in STEM.*

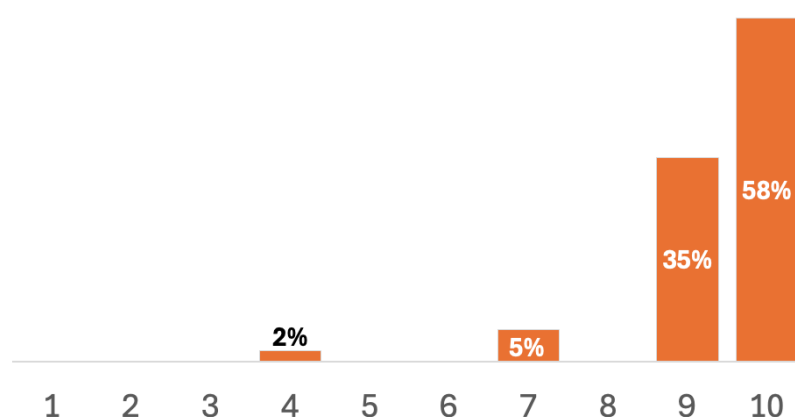
9. How could AI help bridge the gap between education and employment in the context of QFs?

*By aligning educational outcomes more closely with industry needs through real-time data analysis.*

10. What role could AI play in supporting lifelong learning within the QF framework?

*AI could facilitate continuous skill development and upskilling through adaptive learning technologies.*

Share of total answers in ex ante evaluation:



As shown in the table, most of the participants got 10 or 9 out ten answers.

Ex-post questions and answers

1. What is a key feature of a well-designed QF?

*It integrates both academic and vocational qualifications to create a comprehensive framework.*

2. In the context of QFs, what role does AI-based learning play?

*AI-based learning supports personalized education pathways that may challenge traditional qualification structures.*

3. Which of the following is a primary purpose of a QF ?

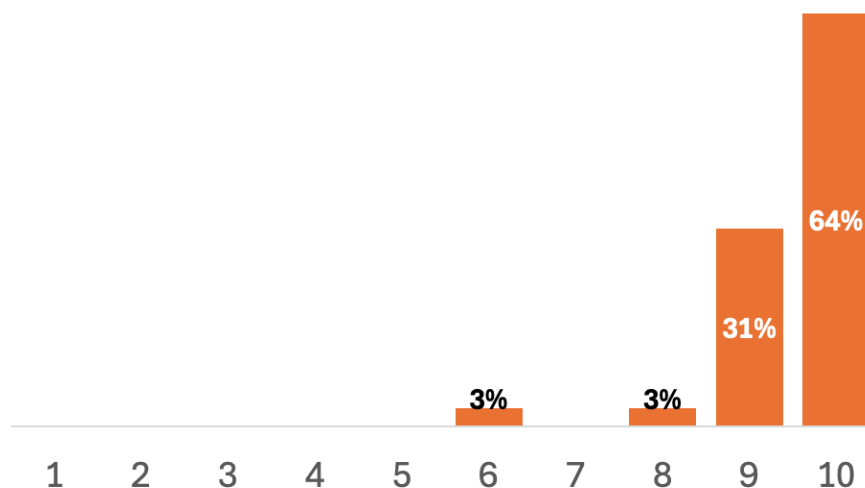
*To ensure consistent and comparable qualifications across different economies.*

4. What is a potential challenge for women in the context of AI-driven job displacement?

*Women may be disproportionately affected by job displacement in sectors where they are overrepresented, such as administrative roles.*

5. What is a possible benefit of integrating AI into QFs?  
*AI can enhance the flexibility and responsiveness of QFs to emerging skills needs.*
6. How should policymakers respond to the disruptions caused by AI in the context of QFs?  
*By continuously updating QFs to incorporate AI-driven changes in the labor market and education.*
7. How can AI contribute to closing the gender gap in STEM (Science, Technology, Engineering, and Mathematics) fields?  
*By being intentionally designed to identify and mitigate biases, AI can help create more inclusive hiring practices that support gender diversity in STEM.*
8. What is a Qualifications Framework (QF)?  
*A system that outlines the levels of qualifications based on learning outcomes.*
9. What role could AI play in supporting lifelong learning within the QF framework?  
*AI could facilitate continuous skill development and upskilling through adaptive learning technologies.*
10. How could AI help bridge the gap between education and employment in the context of QFs?  
*By aligning educational outcomes more closely with industry needs through real-time data analysis.*

Share of total answers in ex ante evaluation:



As with the pre-workshop survey, the results demonstrate a strong level of understanding among participants regarding the domestic qualifications framework tool. Nearly 95% of the participants scored 9 or 10 out of 10.

## Annex 3 Participants evaluation

Table 3.1: State your level of agreement with each sentence:

	Strongly Agree (1)	Agree (2)	Disagree (3)	No answer (4)
<b>The objectives of the training were clearly defined</b>	25	10	-	-
<b>The project achieved its intended objectives</b>	19	13	-	3
<b>The agenda items and topics covered were relevant</b>	26	9	-	-
<b>The content was well organized and easy to follow</b>	26	9	-	-
<b>Gender issues were sufficiently addressed during implementation</b>	20	14	-	1
<b>The trainers/experts or facilitators were well prepared and knowledgeable about the topic</b>	29	6	-	-
<b>The materials distributed were useful</b>	20	13		2
<b>The time allotted for the training was sufficient</b>	17	17	1	-

Table 2: How relevant was this project to you and your economy

	Very (5)	Mostly (4)	Somewhat (3)	A little (2)	Not much (1)	Average mark
<b>How relevant was this project to you and your economy</b>	24	8	3	-	-	4.6

All in all, the participants evaluated every subject, given that in every question "Strongly Agree" answers were more than the Agree answers. The only exception was the evaluation of the time allotted for the training and its sufficiency, for which strongly agree and agree had the same answers. If we consider that the "strongly agree" responses represent the strengths of the workshop, "agree" indicates areas for improvement, and "disagree" highlights areas where the event did not meet expectations, the overall evaluation of the event was very good, with some areas for improvement.

Moreover, if we consider as strengths only those aspects that received 70% or more of "strongly agree" responses, and below 50% a bad perception, we can interpret the data as suggested in the following table.

Strongly agree percentage for every sentence:

Item	Strongly agree percentage
The objectives of the training were clearly defined	71%
The project achieved its intended objectives	54%
The agenda items and topics covered were relevant	74%
The content was well organized and easy to follow	74%
Gender issues were sufficiently addressed during implementation	57%
The trainers/experts or facilitators were well prepared and knowledgeable about the topic	83%
The materials distributed were useful	57%
The time allotted for the training was sufficient	49%

The strengths of the event were: the clarity of the objectives, the relevance of the topics and agenda, the organization of the content, and the expertise and knowledge of the presenters. Although the questionnaire does not provide specific details, it is clear that there are areas for improvement in the achievement of the objectives, the sufficiency of addressing gender issues, the materials provided, and the time allocated for the training.

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