

ROADMAP FOR DIGITAL TRANSITION IN NATIONAL TVET SYSTEMS IN OIC MEMBER COUNTRIES 2026 – 2030



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in National TVET Systems
in OIC Member Countries
2026 - 2030

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AI	Artificial intelligence
COMCEC	Standing Committee for Economic and Commercial Cooperation of the Organization of Islamic Cooperation
COMSTECH	Standing Committee on Scientific and Technological Cooperation
ILO	International Labour Organization
IsDB	Islamic Development Bank
KPI	Key Performance Indicator
LMS	Learning Management Systems
OER	Open Educational Resources
OIC	Organisation of Islamic Cooperation
OIC-VET	Vocational Education and Training Programme for the Member Countries of the Organisation of Islamic Cooperation
PAWG	Poverty Alleviation Working Group
PPP	Public-Private Partnerships
SDGs	Sustainable Development Goals
SESRIC	Statistical, Economic and Social Research and Training Centre for Islamic Countries
TVET	Technical and Vocational Education and Training
UNESCO	United Nations Educational, Scientific and Cultural Organization
VET	Vocational Education and Training
VR	Virtual Reality

► Acknowledgements

The Roadmap for Digital Transition in National TVET Systems in OIC Member Countries represents the concrete outcome of the SESRIC Project titled: “Developing an Effective Roadmap for Facilitating Digital Transition in National Vocational Education and Training (TVET) Systems in OIC Member Countries”, funded under the 12th Call for Project Proposals of the Standing Committee for Economic and Commercial Cooperation of the Organization of the Islamic Cooperation (COMCEC) Project Funding mechanism.

We gratefully acknowledge the financial and institutional support extended by the COMCEC, whose contribution made this strategic initiative possible.

The development of this Roadmap has been significantly enriched by the active engagement and valuable insights of relevant national institutions and ministries from the following OIC Member Countries: Azerbaijan, Chad, Gambia, Iraq, Jordan, Malaysia, Nigeria, Pakistan, Qatar, Tunisia, and Türkiye. Their constructive participation in the online working group meeting and on-site workshop played a vital role in shaping the vision, strategic priorities, and policy directions captured in this document.

This Roadmap was prepared under the overall guidance of H.E. Zehra Zümrüt SELÇUK, Director General of SESRIC, and is a product of joint efforts of a team composed of Dr. Esmâ DEMİRTAŞ and Dr. Atilla KARAMAN from the Training and Technical Cooperation Department at SESRIC.

1. Introduction

This Roadmap is the outcome of the SESRIC project titled, “Developing an Effective Roadmap for Facilitating Digital Transition in National TVET Systems in OIC Member Countries”. As a key initiative under the Vocational Education and Training Programme for the Member Countries of the Organization of Islamic Cooperation (OIC-VET), the flagship programme of SESRIC, the Project was implemented between June 2025 and October 2025 within the framework of the 12th Call for Project Proposals of the Standing Committee for Economic and Commercial Cooperation of the Organization of Islamic Cooperation (COMCEC) Project Funding mechanism.

This Project was born in response the Policy Recommendation of the 21st Meeting of the COMCEC Poverty Alleviation Working Group (PAWG), which focused on effective vocational education and training strategies to reduce youth unemployment in OIC Member Countries. The recommendation called for “Upgrading workforce skills and increasing employability through promoting digital skills development and digital transformation of national TVET systems as well as by creating the public-private partnership”.

Additionally, the Project builds upon earlier efforts of SESRIC, most notably the 2024 Project titled: “Empowering Youth through Enhancing Technical and Vocational Education and Training TVET: A Pathway to Employment and Success.” That initiative strongly advocated for inter-OIC collaboration in developing a shared roadmap for digital transition in TVET and encouraged the promotion of a digital culture by investing in digital skills development, particularly through inclusive education and training systems.

Beyond addressing specific COMCEC recommendations, the Roadmap also contributes to the broader goals of the OIC Programme of Action, particularly in relation to youth employment, quality education, skills development, and digital transformation. Aimed also at fostering stronger and more future-oriented TVET systems, the initiative also aligns with SDGs 4 and 8, which focus on quality education as well as decent work and economic growth, respectively. In this regard, the Project also reinforces SESRIC’s continued commitment to the OIC-VET Programme and its role in supporting member countries efforts to shape the future of skills development across the OIC Member Countries.

Objective of the Roadmap

The main objective of this Roadmap is to provide strategic guidance to the OIC Member Countries in facilitating the digital transition of their TVET systems. In doing so, it embraces the COMCEC Core Principles of intra-OIC cooperation and solidarity, and enhance governance. More specifically, the Roadmap aims to:

- ▶ Improve VET systems in line with changing labour market needs;
- ▶ Strengthen digital skill-building, especially among youth;
- ▶ Support the generation of adaptive and comprehensive digital frameworks that can respond to ongoing technological change.

By achieving these outcomes, the Roadmap contributes to reducing youth unemployment and enhancing the overall competitiveness and strength of the economies of OIC Member Countries.

The Necessity for Digital Transition in VET

Digital transformation is profoundly reshaping the landscape of TVET sector. As a “[progressing] process” that modifies systems and models and operations through digital technologies, it compels TVET institutions to rethink their pedagogical models, curriculum content and institutional frameworks (Onan, 2024).

For OIC countries, this change is not merely a trend but a strategic requirement. It promises to make VET more inclusive, flexible and cost-effective, while maintaining quality standards and ensuring alignment with rapidly changing labour market circumstances. Furthermore, digitalisation in VET intersects with broader policy domains such as innovation, labour and employment policies, regional development and foreign direct investment (FDI) attraction strategies.

Roadmap for Facilitating the Digitalisation Process in VET

This Roadmap provides a clear and actionable guide for national TVET institutions in the OIC Member Countries to navigate this domain. It sets out key priorities and practical actions that national TVET institutions can implement in order to build more agile and future-ready systems.

Through its implementation, the OIC Member Countries are expected to achieve several strategic benefits, including:

- ▶ The updating of vocational training in alignment with Industry 4.0 requirements;
- ▶ The development of digital skills that respond to labour market shifts and future demands;
- ▶ The adoption of digital frameworks that are both flexible and sustainable.

Importantly, this Roadmap is designed to serve a broad range of stakeholders, from policy-makers and institutional leaders to educators, learners, and industry partners. Its strategies are informed by the varied socio-economic, geographic, and digital maturity levels of OIC countries, ensuring that the recommendations are adaptable and context-sensitive.

2. Background and Context

Since the early 2010s, the Fourth Industrial Revolution (Industry 4.0) has reshaped the economies by integrating advanced technologies into all sectors. This dynamic has accelerated unprecedentedly since the COVID-19 pandemic, which has highlighted the urgent need to equip education and training with robust digital infrastructure and solutions. According to the World Economic Forum (2025), 60% of employers anticipate that expanding access to digital technology will profoundly transform their business model by 2030.

The **digitalisation of TVET** refers to the process of **integrating digital technologies, such as artificial intelligence (AI), robotics, online learning platforms, open educational resources, or flipped classrooms into the design, implementation, and evaluation of training systems**. It is not limited to the introduction of technological tools but aims to make systems more relevant and aligned with the demands of the digital labour market (UNESCO-UNEVOC, 2022; Tang, 2021).

This change involves a wide range of stakeholders:

- ▶ OIC Member Countries and their public and private training institutions;
- ▶ Learners, teachers, trainers, employers, and social partners;
- ▶ International organizations that support digital transformation policies and programs (ILO, 2020; UNESCO-UNEVOC, 2022).

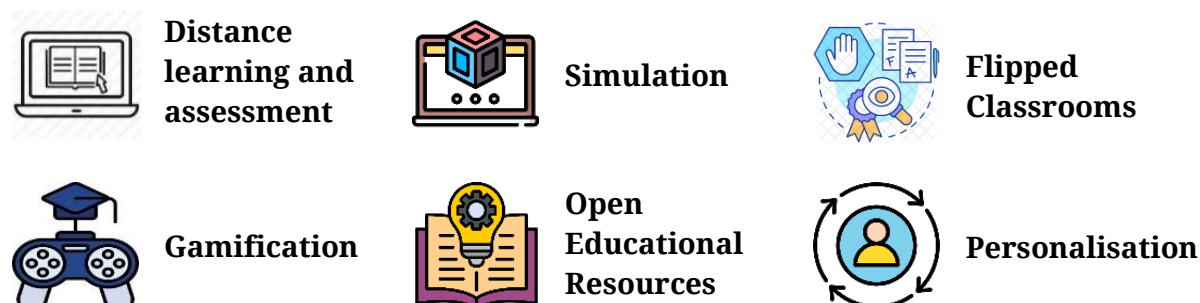
Digitalization affects all OIC countries but in very heterogeneous ways. Economies such as the UAE, Qatar, and Malaysia are among the top 10 countries in the world in terms of digital skills. Conversely, several member countries are among the 10 lowest performers, revealing a significant intra-regional digital divide (SESRI, 2023). This situation underscores the need for differentiated approaches and strengthened partnerships to support the countries that need to catch up.

The digital transformation of TVET relies on several complementary levers:

- ▶ Investing in infrastructure and connectivity;
- ▶ Developing appropriate, high-quality digital content;
- ▶ Training and supporting teachers and trainers in new pedagogical approaches (blended learning, simulations, gamification, personalized learning paths);
- ▶ Implementing integrated public policies and international partnerships to support this change (ILO, 2021).

The ILO (2021) identifies 6 priority areas of digital learning for TVET: distance learning and assessment, simulations, flipped classrooms, gamification, open educational resources, and personalized learning paths.

Six priority areas of digital learning for TVET identified by ILO



The needs are considerable. According to the SESRIC report (2023), 44% of workers' skills will need to be transformed over the next five years and 23% of jobs will undergo a structural change globally. These figures reflect the scale of investment required to close the digital skills gap and meet labour market needs.

The digitalisation of TVET is a strategic issue to:

- ▶ Ensure economic competitiveness and productivity;
- ▶ Reduce inequalities in access to education and employment and promote social inclusion;
- ▶ Prepare younger generations and retraining workers for emerging professions;
- ▶ Strengthen the resilience of TVET systems to future crises (UNESCO, 2020; COMCEC, 2023).

In this connection, digitalisation represents both an opportunity (pedagogical innovation, increased accessibility, alignment with industry needs, support for reskilling and upskilling) and a challenge (uneven access, funding constraints, limited teacher capacity).

In the context of Industry 4.0, the digital transformation of TVET is no longer an option but a necessity. For OIC countries, the urgency is twofold: bridging the digital divide between countries and within societies and aligning TVET systems with global technological changes. The OIC-TVET Roadmap 2020-2025 was the basis in this regard, with its emphasis on digital learning and strategic partnerships (SESRIC, 2020).

3. Methodology

The approach to developing this Roadmap was based on a hybrid methodology, combining primary and secondary data collection and analysis. In addition to analysing the existing literature, the process took into account the concrete realities, needs, and challenges faced by OIC countries. This approach ensured that the final suggestions not only followed global best practices but were also relevant and adapted to local contexts.

3.1. Data Collection and Analysis

3.1.1. Secondary Data Collection

The initial phase involved a thorough review of existing literature, reports, and data related to digital transformation, TVET, and socio-economic trends within OIC Member Countries and the world. The objective was to build a foundational understanding and identify common opportunities as well as challenges. Key sources of information included the following:

- ▶ *Global Reports:* Publications from international organizations such as the UNESCO, the International Labour Organization (ILO), COMCEC and SESRIC.
- ▶ *Academic Research:* Studies and journal articles on digital transformation in general and in education and vocational training.
- ▶ *National Strategies:* Review of national digital transformation and TVET policies from selected OIC Member Countries to identify successful models and key priorities.
- ▶ *OIC-Specific Documents:* Analysis of previous resolutions, reports, and initiatives by OIC bodies (e.g., COMCEC, SESRIC) on education, youth, and economic cooperation.

This secondary research provided the theoretical framework and an overall context.

3.1.2. Primary Data Collection

To ensure the roadmap's relevance and feasibility, primary data was collected through a series of direct engagements with the representatives from TVET national institutions from OIC member countries. Thus, the primary data collection was structured around two main activities: online working group meeting and an on-site workshop.

To gather in-depth insights, feedback, and diverse perspectives from a selected group of experts, policymakers, and practitioners from across the OIC regions. These meetings served as a platform for collaborative drafting and refinement of the roadmap's core components. The working group and workshop was composed of a diverse array of experts, including representatives from ministries of education, TVET National institutions and relevant institutions.

- ▶ **Online Working Group Meeting:** Online Working Group Meeting explored the current needs, capacities, and strategic priorities of OIC member countries to advance the digital transformation of their vocational education and training systems. The working group specifically focused on identifying key challenges and opportunities in digitalization, promoting the integration of technology to enhance the quality, accessibility, and efficiency of VET programmes, and improving the employability of graduates through the adoption of innovative digital tools and skills.
- ▶ **Workshop:** The workshop reviewed and prioritized key areas of focus for the action plan. It then developed clear, achievable, and measurable objectives for each priority area. Finally, the workshop determined specific actions to achieve each established objective.

3.1.3. Selection of Countries for Focused Engagement

To ensure a balanced and representative perspective, 11 OIC Member Countries were selected for focused engagement through the working group meetings and case study analysis. The selected countries are as follows: Azerbaijan, Chad, Gambia, Iraq, Jordan, Malaysia, Nigeria, Pakistan, Qatar, Tunisia, and Türkiye.

The selection of these countries was not random but was based on specific criteria designed to capture the diversity of the OIC's three main regions and their varying levels of economic and technological development. The choice of these countries was based on a careful consideration of the following criteria:

- ▶ **Regional Balance:** The selected countries were chosen to represent the three main regions of the OIC: Africa, Arab and Asia. This ensured that the roadmap addressed the distinct regional contexts and socio-economic challenges.
- ▶ **Economic Diversity:** The sample included countries with varying economic structures, from resource-rich economies to emerging ones, and those with different levels of industrialization. This approach helped to tailor the roadmap to a range of development needs of OIC countries.
- ▶ **Youth Population:** The selection of countries also considered demographic dynamics, particularly the size and proportion of the youth population.

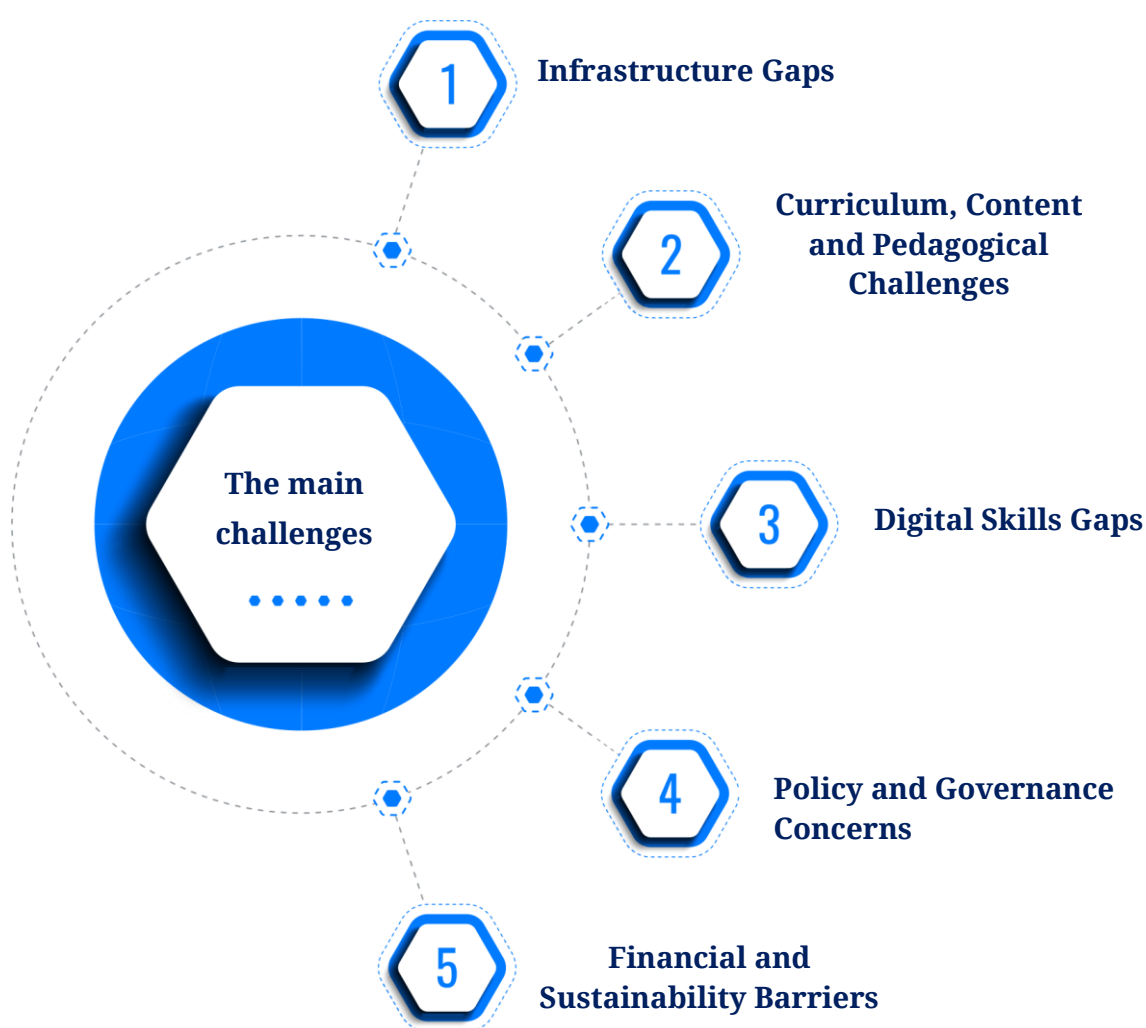
- ▶ **Varying Levels of Digital Maturity:** Countries were selected based on their current stage of digital transformation in the TVET sector. This included some countries that are pioneers in digital TVET and others that are in the early stages, allowing the Roadmap to provide guidance for all levels of maturity.
- ▶ **Examples of Best Practices:** Some countries were chosen because they had already implemented successful digital TVET initiatives. Their experiences served as valuable case studies and a source of inspiration for other member states.

This methodological selection process ensured that the approach applied was both comprehensive and practical, leading to a roadmap that is not only aspirational but also relevant and implementable across the OIC member countries.

4. Challenges of the Digitalisation of TVET in OIC Member Countries

The OIC Member Countries are characterised by a profound social and cultural richness. This wide array of contexts forms a complex environment for TVET, where realizing the full potential of digitalisation is frequently complicated by significant, persistent barriers. Because each country operates at a different level of digital maturity, the specific obstacles to TVET digitalisation vary considerably. However, the challenges detailed herein represent a comprehensive view, synthesized to address the common and unique digital transformation hurdles faced by the OIC countries collectively.

During the Working Group Meeting, participants from OIC Member Countries identified 5 primary challenges impeding the effective digitisation of TVET. These key issues, which formed a central focus of the discussions, have been categorized to provide a clearer framework for understanding the obstacles faced by Member Countries. The main challenges have been grouped under the following aspects:



4.1 Infrastructure Gaps

The foundational obstacles to TVET digitalization centre on the reliability and up-to-dateness of the core infrastructure. A primary concern is the dependability of basic utilities, particularly electricity, which is prerequisite for any digital effort in some OIC countries.

This fundamental infrastructure deficit is starkly illustrated by the uneven landscape of digital access across the OIC Member Countries. Analysis of 2023 data on internet usage rates shows that while several countries boast nearly 100% individual usage, others register extremely low rates, dropping to 13% in some instances (ITU Data hub, 2025). This broad range underscores that the challenge of digital transformation is highly differentiated, directly impacting a country's ability to build out a functional digital TVET system.

Given this wide disproportion, ensuring reliable internet access and connectivity within TVET centres becomes equally critical. This is inseparable from the need to equip classrooms with appropriate modern digital equipment. This investment must be comprehensive, including not just essential hardware like computers but also specialized tools for technical education, such as up-to-date laboratory class equipment, smart classrooms, hybrid learning solutions, relevant software, and advanced technologies like Virtual Reality (VR). Furthermore, the lack of modern digital learning platforms and management systems (LMS) hinders efficient content delivery and administrative oversight. A major systemic challenge is the slow pace of integration and updating of new technology to ensure TVET curricula and tools remain aligned with the rapidly evolving demands of modern industry.

Beyond the physical assets, significant challenges exist in the institutional and financial domains, particularly concerning equity and sustainability. There is a demonstrable need for the development of institutional capacity, focusing on the policies and technical expertise required to manage a large-scale digital transition. Critically, the digital divide is exacerbated by difficulties in facilitating access for vulnerable groups and people living in rural areas, leading to a widening gap of inequality between urban and rural opportunities. Achieving broad digitalization requires overcoming substantial financial and sustainability barriers, including the high costs of initial investment and maintenance. Finally, ensuring the long-term success of digital initiatives demands careful consideration of user experience, specifically by prioritizing the implementation of digital platforms that are user-friendly and easily utilized by students to maximize engagement and adoption.

However, the effectiveness of these platforms ultimately depends on the availability of adequate infrastructure; in this regard, the following have emerged, particularly in some OIC countries, as the main gaps in the digitalisation of TVET:

- ▶ **Unreliable electricity:** Frequent power outages and unstable electrical grids that disrupt the operation of digital tools and prevent the consistent use of ICT-based learning.
- ▶ **Inadequate Connectivity:** Lack of reliable, high-speed internet access in many TVET centres, particularly in rural areas.
- ▶ **Outdated Equipment & Infrastructure:** Failure to provide modern computers, smart classrooms, specialized lab equipment, and VR technology.
- ▶ **Lack of Modern Learning Platforms:** Difficulty in implementing and maintaining modern digital Learning Management Systems (LMS).
- ▶ **Slow Technology Adoption:** Delays in integrating and updating new industry-relevant technology into the curriculum and teaching practices.
- ▶ **Limited Institutional Capacity:** Insufficient internal expertise and resources for developing, managing, and sustaining new technology initiatives and staff training.
- ▶ **Addressing the Digital Divide:** Challenges in facilitating access for vulnerable groups and rural populations, exacerbating the urban-rural inequality.
- ▶ **Financial & Sustainability Barriers:** Difficulty in securing long-term funding for technology upgrades, maintenance, and overall program sustainability.
- ▶ **Low Platform User-Friendliness:** Digital platforms that are not designed to be student-friendly, resulting in low engagement and utilization rates.

4.2. Curriculum, Content and Pedagogical Challenges

Curriculum, content, and teaching methods, a successful digital transition are also among the major challenges facing TVET in many OIC countries. There is a need to focus on skills development and curriculum updates. There is also a need to equip learners and instructors with fundamental digital skills, while providing them with high-quality digital resources and tools, such as interactive simulations and multimedia materials. At the same time, it is crucial to form dynamic learning experiences. To meet the needs of the digital economy, programs need to also integrate advanced technical skills (AI, robotics) as well as soft skills (collaboration, critical thinking) essential for success in the workplace. Continuously adapting programs is also a key issue to ensure the relevance of TVET. Participants emphasized that curricula need to adapt to the labour market trends and new technologies, including extended reality (XR). Flexible curricula, pathways to higher education, and the integration of digital security and entrepreneurship are key elements in preparing graduates for an ever-changing professional future. Specifically, these hurdles manifest in the following areas:

- ▶ Inadequate digital teaching tools and materials.
- ▶ Difficulty aligning curricula with new professions and job market developments
- ▶ Lack of advanced technical skills (coding, AI, robotics, etc.).
- ▶ Lack of development of soft skills essential for the digital workplace.
- ▶ Lack of basic digital skills for learners and instructors
- ▶ Limited integration of immersive technologies (virtual reality, augmented reality, etc.) in teaching.
- ▶ Inadequate adaptation of curricula to new technologies
- ▶ Basic Digital Literacy and Computer Skills
- ▶ Lack of flexible programs to facilitate a smooth transition to higher education
- ▶ Difficulty directing unemployed graduates toward reintegration or entrepreneurship opportunities

4.3. Digital Skills and Training Gaps

Implementing a successful digital transition first faces human and organizational challenges. The first major obstacle is resistance to change, often linked to an institutional culture that is not yet fully digital. This lack of digital literacy can manifest itself in a reluctance to adopt new tools, outdated processes, and apprehension about new ways of working. Furthermore, insufficient digital skills among trainers and educators are a central problem in some OIC countries. They often lack the necessary training in digital pedagogy and online teaching methods, which limits their ability to fully leverage technologies to create effective learning experiences. The absence of strong leadership to drive this transformation exacerbates the situation, as it can lead to fragmented efforts and a lack of clear vision.

The second set of challenges concerns advanced skills and security. The difficulty of upskilling in emerging technologies is a major obstacle to aligning training with labour market needs. Inclusion challenges also remain, particularly for people with disabilities and older populations, who may be left behind without appropriate training and access programs. The lack of digital literacy awareness programs is also a significant gap, preventing a wide audience from acquiring essential foundations. Finally, digital integration raises issues of digital integrity, data security, and privacy, requiring special attention to ensure a safe and reliable learning environment for all. In light of these needs, the primary challenges identified :

- ▶ Resistance to change and difficulty managing the digital transition.
- ▶ Lack of digital culture within institutions.
- ▶ Inadequate training of teachers and trainers in digital pedagogy and online teaching methods
- ▶ Difficulty in upskilling emerging technologies and their practical application
- ▶ Insufficient digital skills among trainers and educators
- ▶ Lack of strong leadership to drive the digital transition
- ▶ Inclusion challenges for the older population and people with disabilities

4.4. Policy and Governance Concerns

An effective digital transformation strategy requires a strong governance and security framework. The first challenge lies in strategic planning, which is often insufficient or non-existent. The lack of clear strategic documents, such as a Cloud Roadmap, makes it difficult to adopt consistent technologies and processes across the organization. Similarly, cybersecurity is a major obstacle. Without clear guidelines and incident response plans, institutions expose themselves to significant risks. Regulatory compliance issues add a layer of complexity, imposing strict constraints on data management and the use of digital platforms. All of these factors together make setting clear priorities and developing guidelines to facilitate the transition extremely complex.

The second set of challenges concerns sustainability and stakeholder engagement. The long-term success of a digital transformation depends on the commitment of key stakeholders, including industry. It is difficult to secure long-term commitment from industry, which may be reluctant to invest in projects without immediate benefits. This lack of collaboration hinders the development of relevant training programs and the sharing of best practices. To overcome these obstacles, it is crucial to establish strong partnerships, present incentives for businesses, and ensure that digital strategies are aligned with labour market needs, thus ensuring that efforts are not only technologically but also socially and economically relevant. Building on this perspective, the following have been identified as the main challenges in the area of policy and governance:

- ▶ Lack of clear strategic documents such as cloud strategies, making coherent planning difficult.
- ▶ Inadequate cybersecurity measures, including guidelines and incident response plans, exposing systems to threats.
- ▶ Difficulties related to regulatory constraints, which can hamper innovation and the adoption of new technologies.
- ▶ Complexity in establishing clear priorities, leading to a dispersion of efforts and resources.
- ▶ Lack of clear guidelines to facilitate and guide the digital transition process.
- ▶ Difficulty in obtaining long-term commitment from industry, essential for the sustainability of initiatives.

4.5. Challenging Financial and Organizational Obstacles and Sustainability Challenges

One of the major challenges of digital transformation is finance and partnership related. Educational institutions struggle to establish solid public-private partnerships (PPPs), which are essential for sharing costs and expertise. This difficulty is compounded by an overreliance on external funding, particularly from donors, which is inherently unpredictable and does not guarantee the long-term sustainability of projects. At the same time, allocated core budgets are often insufficient to cover technology acquisition and maintenance costs, while institutions' ability to generate funds internally for these initiatives remains very limited. This situation causes constant financial pressure and hinders the investments needed to modernize digital infrastructure.

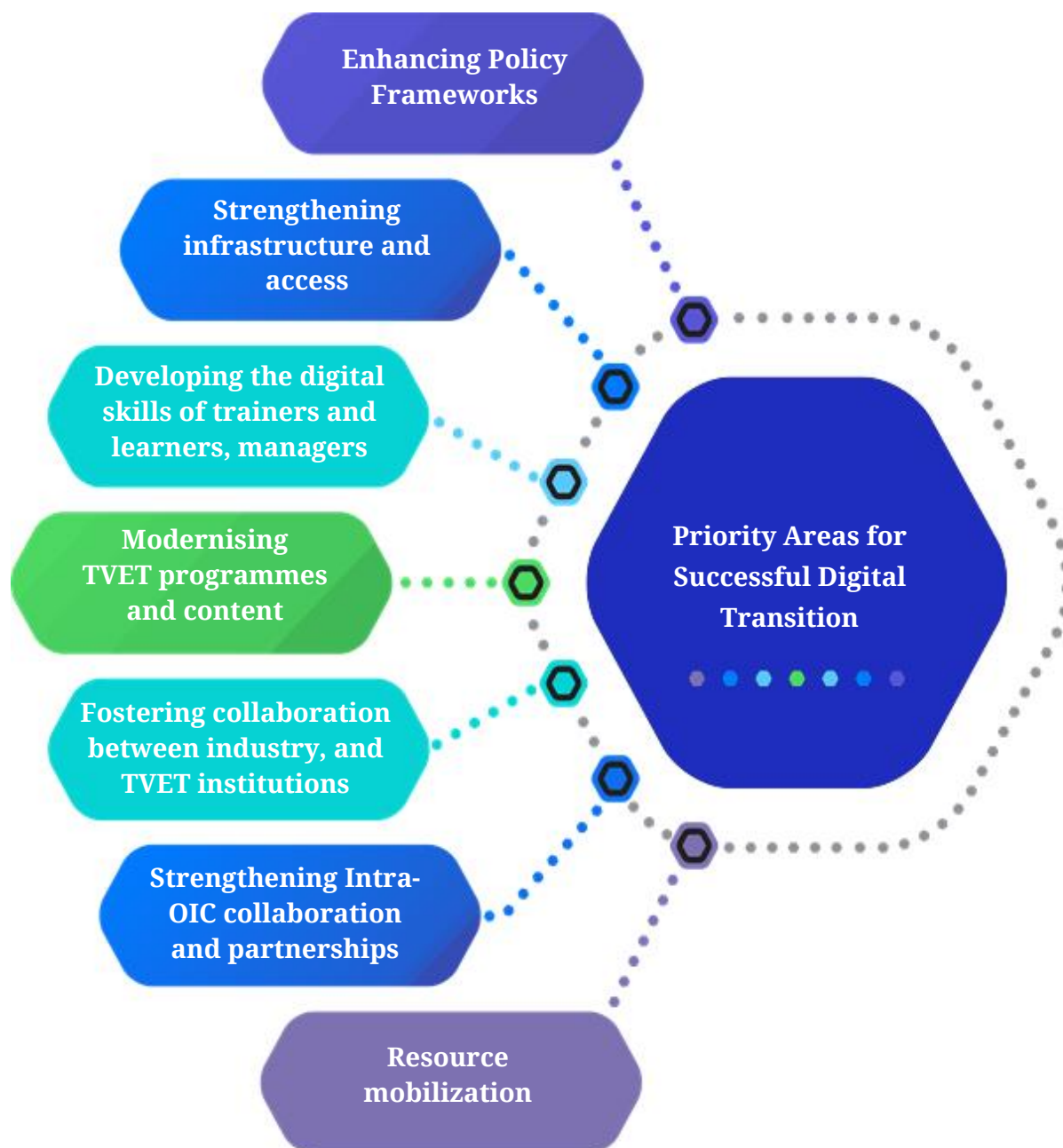
The success of these initiatives also depends on commitment and technological choices. A recurring obstacle is the difficulty in securing active and long-term participation from industry, whose input is crucial to ensuring that the skills taught are aligned with labour market needs. Without this commitment, training programs risk becoming obsolete. Furthermore, many institutions are reluctant to adopt low-cost, open-source technology solutions. This resistance, often due to a lack of knowledge or bias, prevents financial resources from being optimized and digital tools from being more accessible. Overcoming these challenges requires a strategic approach that combines long-term partnerships, diversified funding sources, and an openness to alternative technologies to build a resilient and sustainable digital infrastructure. Such an approach addresses the systemic resource gaps that hinder progress, especially in financing and sustaining digital transformation initiatives.

In this regard, the following emerge as the main challenges for finance and sustainability:

- ▶ Difficulty establishing effective PPPs to finance and implement digital initiatives.
- ▶ Insufficient funding allocated in institutions' core budgets to support digital transformation projects.
- ▶ Dependence on donor funding, which is often unpredictable and unsustainable in the long term.
- ▶ Lack of capacity to generate internal funds to finance technology investments.
- ▶ Difficulty ensuring active and long-term industry participation in program development and resource provision.
- ▶ Resistance to or lack of adoption of low-cost, open-source technology solutions needed to reduce financial barriers.

5. Priorities and Strategic Objectives for Digital Transition in TVET

5.1 Main Priority Areas



Priority Area 1: Enhancing policy frameworks towards a policy environment supporting digital TVET

► **Objective 1.1: Strengthen policy and legislative frameworks to support digitalisation**

- **Action 1.1.1** Develop a comprehensive digital TVET policy promoting inclusivity, accessibility, and process optimisation.
- **Action 1.1.2** Update or introduce legislation enabling the digital transition in TVET.
- **Action 1.1.3** Strengthen cybersecurity and implement national data protection policies.
- **Action 1.1.4** Develop data governance frameworks to enable evidence-based planning.

► **Objective 1.2: Establish quality standards and monitoring mechanisms**

- **Action 1.2.1** Define national quality standards for digital training.
- **Action 1.2.2** Develop digital monitoring and evaluation systems to measure programme impact.

► **Objective 1.3: Foster collaboration and international alignment**

- **Action 1.3.1** Exchange experiences with developed countries to adapt existing solutions.
- **Action 1.3.2** Conduct comprehensive regional consultations to identify the needs and priorities of OIC countries and organise regular thematic workshops on digital TVET among member countries to strengthen international collaboration to keep abreast of current trends

Priority Area 2: Strengthening infrastructure and access

► **Objective 2.1: Expand and modernise digital infrastructure**

- **Action 2.1.1** Invest in key infrastructures (5G, cloud, secure connectivity).
- **Action 2.1.2** Provide equipment, software, and necessary upgrades for TVET institutions.

- ▶ **Action 2.1.3** Ensure sustainable electricity supply and Internet access to support digital infrastructures.
- ▶ **Objective 2.2: Deploy advanced digital tools for training**
 - ▶ **Action 2.2.1** Utilise Virtual Reality (VR), Augmented Reality (AR), and simulators as cost- effective alternatives.
 - ▶ **Action 2.2.2** Digitalise programmes and specialised TVET institutions.
- ▶ **Objective 2.3: Establish digital governance systems**
 - ▶ **Action 2.3.1** Deploy data-driven decision-making systems.
 - ▶ **Action 2.3.2** Integrate digital governance tools into TVET management.

Priority Area 3: Developing the digital skills of trainers, learners and managers

- ▶ **Objective 3.1: Develop a national digital skills frameworks based on local needs and align global standards**
 - ▶ **Action 3.1.1** Convene stakeholders to design and standardise a national framework aligned with global models.
 - ▶ **Action 3.1.2** Conduct skills gap analysis and training needs assessment.
- ▶ **Objective 3.2: Accredited institutions and train centres and reskill and upskill trainers and managers**
 - ▶ **Action 3.2.1** Develop and accredit professional development courses on digital pedagogy and LMS use.
 - ▶ **Action 3.2.2** Collaborate with TVET Institutions in organising workshops on digital leadership and governance.
 - ▶ **Action 3.2.3** Implement reskilling and upskilling mechanisms for teachers and managers
- ▶ **Objective 3.3: Integrate digitalisation into curricula**
 - ▶ **Action 3.3.1** Revise curricula to include digital literacy and emerging skills (AI, cybersecurity).
 - ▶ **Action 3.3.2** Develop approaches and tools for transferring digital skills from trainers to learners through active tool use.
 - ▶ **Action 3.3.3** Establish a standardized AI Competency Framework for TVET managers to oversee the ethical integration, resource allocation, and strategic implementation of AI technologies within training institutions.

Priority area 4: Modernising TVET programmes and content

- ▶ **Objective 4.1: Align or adapt programmes to labour market and industries needs**
 - ▶ **Action 4.1.1** Conduct regular labour market surveys to inform curriculum review.
 - ▶ **Action 4.1.2** Integrate digital, green, and soft skills into all TVET programmes.
 - ▶ **Action 4.1.3** Introduce new programmes in soft skills, green skills and emerging technologies (AI, green energy).
- ▶ **Objective 4.2: Develop flexible and innovative learning pathways**
 - ▶ **Action 4.2.1** Create modular and flexible learning pathways for upskilling and reskilling.
 - ▶ **Action 4.2.2** Promote blended learning through Learning Management Systems (LMS).
 - ▶ **Action 4.2.3** Develop self-learning opportunities and Open Educational Resources (OER).
- ▶ **Objective 4.3: Strengthen TVET manager and teacher capacities and modernise pedagogical tools**
 - ▶ **Action 4.3.1** Train teachers in the use of modern and emerging technologies (e.g., VR in teaching).
 - ▶ **Action 4.3.2** Adapt teaching materials to learners' needs and responds disparities.
 - ▶ **Action 4.3.3** Develop national skills information systems accessible.
- ▶ **Objective 4.4: Develop monitoring and evaluation framework with third parties**
 - ▶ **Action 4.4.1** Create a digital dashboard to track implementation and results.
 - ▶ **Action 4.4.2** Submit of regular reports of evaluations in order to adjust programmes accordingly.

Priority area 5: Fostering collaboration between industry, and TVET institutions

- ▶ **Objective 5.1: Strengthen and align training with the needs of industries**
 - ▶ **Action 5.1.1** Design joint curricula that respond to the requirements of industrial institutions.
 - ▶ **Action 5.1.2** Develop and regularly updated training programmes tailored to industry demand.
- ▶ **Objective 5.2: Provide work-based learning and practical experience opportunities for learners**
 - ▶ **Action 5.2.1** Sign agreements with industrial institutions to train learners during their training.
 - ▶ **Action 5.2.2** Establish joint simulation laboratories, funded by industrial companies, to provide learners with real work environments.
- ▶ **Objective 5.3: Promote innovation and applied research**
 - ▶ **Action 5.3.1** Launch joint research projects between learners, professors, and industrial companies to solve real industrial problems.

Priority area 6: Strengthening Intra-OIC collaboration and partnerships

- ▶ **Objective 6.1: Encourage to actively participate in OIC-VET programme**
 - ▶ **Action 6.1.1** Establish an online collaborative platform connecting experts, policymakers, and practitioners under the OIC-VET programme.
 - ▶ **Action 6.1.2** Provide capacity-building activities focused on digital skills for officials and experts.
 - ▶ **Action 6.1.3** Share best practices, knowledge and experience through workshops, webinars, and online courses with OIC member countries.
- ▶ **Objective 6.2: Facilitate study visits and knowledge sharing**
 - ▶ **Action 6.2.1** Identify TVET institutions in OIC member countries with successful digital TVET initiatives.

- ▶ **Action 6.2.2** Organise study visits and short exchange programmes for trainers and experts.

▶ **Objective 6.3: Promote academic and research collaboration**

- ▶ **Action 6.3.1** Strengthen joint research and academic cooperation across OIC countries.
- ▶ **Action 6.3.2** Encourage learning and exchange programmes, scholarships, and digital learning initiatives

Priority area 7: Resource mobilization

▶ **Objective 7.1: Identify and quantify resource needs**

- ▶ **Action 7.1.1** Analyse and determine required resources (human, infrastructure, equipment, budget) and their scale.

▶ **Objective 7.2: Secure financing sources and mechanisms**

- ▶ **Action 7.2.1** Explore diverse funding sources (government budgets, CSR funds, international donors, private sector).
- ▶ **Action 7.2.2** Expand the role of the Islamic Development Bank to support joint OIC digital projects.
- ▶ **Action 7.2.3** Promote innovative financing tools and strengthen public-private partnerships (PPP).
- ▶ **Action 7.2.4** Take advantage of existing mechanisms (e.g., COMSTECH, COMCEC, IsDB)
- ▶ **Action 7.2.5** Align relevant projects with SDGs to attract external funding (e.g., EU, international agencies).
- ▶ **Action 7.2.6** Integrate key institutions (e.g., IsDB, national development agencies) into roadmap implementation.

▶ **Objective 7.3: Ensure effective and transparent resource use**

- ▶ **Action 7.3.1** Develop a framework to guarantee efficient, transparent, and accountable resource management.

6. KPIs (Key Performance Indicators) of the Priority Areas

6.1. KPIs for Priority Area 1: Enhancing policy frameworks towards a policy environment supporting digital TVET

► Objective 1.1: Strengthen policy and legislative frameworks

- ▶ **KPI 1.1.1:** Existence of a comprehensive digital TVET policy.
- ▶ **KPI 1.1.2:** Existence of legislations supporting digital TVET enacted.
- ▶ **KPI 1.1.3:** Adoption status of cybersecurity and data protection policies.
- ▶ **KPI 1.1.4:** Establishment of data governance frameworks and frequency of data-driven planning meetings annually.

► Objective 1.2: Establish quality standards and monitoring

- ▶ **KPI 1.2.1:** Status of the National Quality Standards Framework for digital training officially validated and published
- ▶ **KPI 1.2.2:** Percentage of TVET programs successfully integrated into the centralized digital monitoring and evaluation system.

► Objective 1.3: Foster collaboration and international alignment

- ▶ **KPI 1.3.1:** Number of international best-practice exchange programs or bilateral agreements established with developed countries for digital solution adaptation.
- ▶ **KPI 1.3.2:** Frequency of regional consultation reports and thematic workshops successfully conducted within the OIC member country network annually.

6.2. KPIs for Priority Area 2: Strengthening infrastructure and access

► Objective 2.1: Expand and modernise digital infrastructure

- ▶ **KPI 2.1.1:** Percentage of TVET institutions with upgraded digital infrastructure (5G, cloud, secure connectivity).
- ▶ **KPI 2.1.2:** Number/percentage of TVET institutions equipped with the latest equipment and software.
- ▶ **KPI 2.1.3:** Percentage of TVET institutions with uninterrupted electricity and internet access supporting digital tools.

► **Objective 2.2: Deploy advanced digital tools for training**

- **KPI 2.2.1:** Number of TVET programmes incorporating VR, AR, and simulators.
- **KPI 2.2.2:** Percentage of TVET programmes digitalised or specialised institutions digitalised.

► **Objective 2.3: Establish digital governance systems**

- **KPI 2.3.1:** Deployment rate of data-driven decision-making systems in TVET institutions.
- **KPI 2.3.2:** Integration level of digital governance tools into TVET management systems.

6.3. KPIs for Priority Area 3: Developing the digital skills of trainers, learners and managers

► **Objective 3.1: Develop a national digital skills framework**

- **KPI 3.1.1:** Completion and stakeholder endorsement of a national digital skills framework aligned with global standards.
- **KPI 3.1.2:** Number of skills gap analyses and training needs assessments conducted annually.

► **Objective 3.2: Accredit institutions and reskill/upskill trainers and managers**

- **KPI 3.2.1:** Number of accredited professional development courses on digital pedagogy and Learning Management Systems (LMS) use offered.
- **KPI 3.2.2:** Number of workshops held on digital leadership and governance in collaboration with TVET institutions.
- **KPI 3.2.3:** Percentage of trainers and managers who have completed reskilling or upskilling programs annually.

► **Objective 3.3: Integrate digitalisation into curricula**

- **KPI 3.3.1:** Percentage of curricula revised to include digital literacy and emerging skills (e.g., AI, cybersecurity).
- **KPI 3.3.2:** Number of digital skills transfer tools and approaches developed and implemented.
- **KPI 3.3.3:** Development and adoption status of AI management standards package for managers.

6.4. KPIs for Priority Area 4: Modernising TVET programmes and content

► Objective 4.1: Align or adapt programmes to labour market and industry needs

- ▶ **KPI 4.1.1:** Frequency of labour market surveys conducted annually to inform curriculum updates.
- ▶ **KPI 4.1.2:** Percentage of TVET programmes integrating digital, green, and soft skills.
- ▶ **KPI 4.1.3:** Number of new programmes introduced in soft skills, green skills, and emerging technologies (like AI, green energy).

► Objective 4.2: Develop flexible and innovative learning pathways

- ▶ **KPI 4.2.1:** Number of modular and flexible learning pathways created for upskilling and reskilling.
- ▶ **KPI 4.2.2:** Percentage of TVET programmes using blended learning via LMS.
- ▶ **KPI 4.2.3:** Number of self-learning opportunities and Open Educational Resources (OER) developed and accessible.

► Objective 4.3: Strengthen TVET manager and teacher capacities and modernise pedagogical tools

- ▶ **KPI 4.3.1:** Percentage of TVET instructors certified in the pedagogical use of modern and emerging technologies (e.g., VR/AR).
- ▶ **KPI 4.3.2:** Number of inclusive digital teaching modules successfully adapted to address diverse learner needs and accessibility disparities.
- ▶ **KPI 4.3.3:** Status of the National Skills Information System officially operational and accessible to all institutional stakeholders.

► Objective 4.4: Develop monitoring and evaluation framework with third parties

- ▶ **KPI 4.4.1:** Functional status of a real-time digital dashboard for tracking implementation milestones and performance results.
- ▶ **KPI 4.4.2:** Frequency of comprehensive evaluation reports submitted to governing bodies for evidence-based programme adjustment.

6.5. KPIs for Priority area 5: Fostering collaboration between industry, and TVET institutions

► Objective 5.1: Strengthen and align training with industry needs

- ▶ **KPI 5.1.1:** Number of joint curricula developed in collaboration with industrial partners.
- ▶ **KPI 5.1.2:** Frequency of updates to training programs based on industry demand (e.g., annually).

► Objective 5.2: Provide work-based learning and practical experience

- ▶ **KPI 5.2.1:** Number of formal agreements signed with industry for learner training placements.
- ▶ **KPI 5.2.2:** Number of joint simulation labs established and operational with industry funding.

► Objective 5.3: Promote innovation and applied research

- ▶ **KPI 5.3.1:** Number of joint research projects launched involving learners, faculty, and industry partners.

6.6. KPIs for Priority area 6: Strengthening Intra-OIC collaboration and partnerships

► Objective 6.1: Encourage active participation in the OIC-VET programme

- ▶ **KPI 6.1.1:** Number of users actively registered and participating on the online collaborative platform.
- ▶ **KPI 6.1.2:** Number of capacity-building activities delivered focused on digital skills.
- ▶ **KPI 6.1.3:** Number of workshops, webinars, and online courses conducted and number of participants from OIC countries.

► Objective 6.2: Facilitate study visits and knowledge sharing

- ▶ **KPI 6.2.1:** Number of TVET institutions identified with successful digital initiatives.
- ▶ **KPI 6.2.2:** Number of organised study visits and short exchange programmes held for trainers and experts.

► **Objective 6.3: Promote academic and research collaboration**

- **KPI 6.3.1:** Number of joint research and academic cooperation projects established.
- **KPI 6.3.2:** Number of scholarships, learning and exchange programmes, and digital learning initiatives launched across OIC countries.

6.7. KPIs for Priority area 7: Resource mobilization

► **Objective 7.1: Identify and quantify resource needs**

- **KPI 7.1.1:** Completion and official approval of a comprehensive National Resource Requirements Map (covering human, infrastructure, equipment, and budgetary needs).

► **Objective 7.2: Secure financing sources and mechanisms**

- **KPI 7.2.1:** Number of funding sources identified and engaged (government budgets, donors, private sector).
- **KPI 7.2.2:** Number of joint OIC digital projects supported by the Islamic Development Bank (IsDB).
- **KPI 7.2.3:** Number of innovative financing mechanisms and public-private partnerships (PPP) established.
- **KPI 7.2.4:** Utilization rate of existing OIC mechanisms (e.g., COMSTECH, COMCEC, IsDB) for resource mobilization.
- **KPI 7.2.5:** Number of projects aligned with SDGs to qualify for external funding.
- **KPI 7.2.6:** Number of key institutions integrated into roadmap implementation.

► **Objective 7.3: Ensure effective and transparent resource use**

- **KPI 7.3.1:** Adoption status of an officially ratified Resource Management and Accountability Framework, including clear transparency protocols and reporting standards.

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List of participated countries and institutions

Country	Institution
Azerbaijan	Ministry of Science and Education
	State Agency on Vocational Education
	DOST Digital Innovations Centre
	Ministry of Labour and Social Protection of Population
Chad	Ministry of Higher Education
Gambia	National Accreditation and Quality Assurance Authority (NAQAA)
	University of Science, Engineering and Technology (USET)
	Telecommunications and Multimedia Institute (GTMI)
	University of The Gambia
Iraq	Ministry of Planning
Jordan	Vocational Training Corporation
Malaysia	Ministry of Education
Nigeria	National Board for Technical Education (NBTE)
	Federal Polytechnic Daura
	Temple Gate Polytechnic, Aba
Pakistan	National Vocational and Technical Training Commission (NAVTTTC)
Qatar	Ministry of Education and Higher Education
Tunisia	National Centre for Instructor Training and Training Methodology (CENAFFIF)
	Ministry of Vocational Training and Employment
	National Centre for Continuous Training
	Tunisian Agency for Vocational Training (ATFP)
Türkiye	General Directorate of Vocational and Technical Education, Ministry of National Education