# CLOUD

Connecting Leaders Online for University Digital Transformation

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## Where Change Opens New Paths, Pioneers Come Into Focus

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## Dialogue with *CLOUD*: Two Centres, One Pursuit of Excellence

## The Future is Now: Beat of Digital Pioneering

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## WIDE ANGLE



## FRONTIER

# Where Change Opens New Paths, Pioneers Come Into Focus

**True educational transformation does not stem from passively following technology; it's rather actively curated by a group of proactive "pioneers". They are visionaries, practitioners, leaders, and change agents of transformation.** Under one of the key commitments of UNESCO's Education 2030 Agenda to **building inclusive and equitable quality education** for all, UNESCO-ICHEI, since its establishment, has regarded "leveraging digital technologies to promote innovation and transformation in the field of higher education" as its core mission. Innovation transcends the application of emerging technology, but to holistically enhancing the internal capabilities of higher education institutions, especially those in the Global South, thereby promoting a quality and equitable higher education future.

In 2023, UNESCO-ICHEI launched the "IIOE Higher Education Digitalisation Pioneer Case Award" (Pioneer Award). The Pioneer Award is based on the International Institute for Online Education (IIOE), an evolving educational digital ecosystem jointly constructed by global partner organisations. It recognises, encourages, and projects the influence of the best practices emerging in the digital transformation of higher education. Based on long-standing collaboration and localisation, authentic educational scenarios and demands of IIOE and its partners, the Pioneer Award continuously explores innovative practices with adaptability and transferability, promoting their dissemination and growing impact in the higher educational sector of the Global South.

In 2025, we observed a deepened understanding of digital transformation, moving from "emergency response" to "active change". The winning cases demonstrated more interdisciplinary, national and international collaborative practices, as well as explorations of integrating cutting-edge technologies, such as artificial intelligence (AI), in teaching, research, and management in a highly flexible and localised manner. The value of the Pioneer Award lies

in the open and exploratory spirit of UNESCO-ICHEI and its partners, as well as the belief in the core competency to "learn how to learn" in response to the constantly changing era, and the pursuit of lifelong learning. In the IIOE ecosystem, every practitioner is an advocate and practitioner of this value, adopting and adapting innovations and changes to solve the challenges and problems emerging in higher education. To record and amplify their achievements, we use the Pioneer Award as a prism, reflecting the experiences and suggestions behind these practices that can be referenced by global higher education stakeholders, and understanding the key elements contained in the transformation.

The process of selecting the Pioneer Award is also a process of finding exemplary power, which can be interpreted by three keywords: recognition, encouragement, and influence.

Firstly, **"Recognition"**. In the education sector, many innovative practices are happening quietly. The primary significance of the Pioneer Award is to discover and solemnly recognise these efforts. Through a rigorous and fair review mechanism - gathering anonymous reviews from established experts in the field with consideration of regional representation and gender balance - to ensure that the selected cases demonstrate frontier exploration and outstanding achievements in the respective context. For example, Mongolian University of Science and Technology transformed international AI courses into Mongolian and promoted them in 38 universities across the country, benefiting nearly 2,000 teachers. This practice demonstrates the team's profound insight into local needs and great dedication. Its local approach and processes are worthy of more attention and reference from regions lacking educational resources due to language barriers.

Secondly, **"Inspiration"**. Recognition is about discovering value, while inspiration is about sharing value, aiming to honor the resilience and innovative spirit of the pioneers in the path of transformation. The award is not only an affirmation of successful project outcomes, but also a tribute to the perseverance and persistence of the people behind it. It is like an amplifier, transmitting the voices of educators to a broader world, inspiring more collaborators to forge ahead. For instance, the team from Ain Shams University in Egypt, at the IIOE Egypt National Centre, has gradually evolved from a support role affected by the pandemic to a leader who attempts to integrate AI technology into teaching and learning programs, aiming to advance public health and life sciences with emerging technologies. The exemplary power and perseverance of this team are worthy of encouragement and sharing.

Finally, **"Influence"**. This is the core and most profound meaning of the Pioneer Award. Each pioneer practice offers valuable lessons that can be learned, providing practical experiences

for individuals, institutions, and higher education stakeholders at various stages of development, thereby promoting the collective progress of the entire ecosystem. The IIOE Zambian National Center, in collaboration with enterprises, integrates industry certifications into university classrooms, providing a highly influential practical path for the integration of industry and education. The Classroom-Practice-Entrepreneurship talent cultivation model jointly established by Xiamen University and Baidu PaddlePaddle offers a guide for AI talent cultivation. By promoting these cases, we will gather individual wisdom into collective wealth, providing a promising solution toolkit for global southern countries to address common challenges.

**Shaping the future of higher education**

With an open and exploratory spirit, the Pioneer Award seeks and supports those who advocate learning to learn, are courageous in practice, and adaptively innovate to address the challenges of higher education in the era of lifelong learning. The Pioneer Award is evolving into a significant platform that connects the educational needs of global southern countries with the UNESCO 2030 Education Agenda, promoting multilateral collaboration and common development through the sharing of replicable practice models. We firmly believe that the focus of the award lies in stimulating innovative ideas, becoming a change agent, rather than merely focusing on the current achievements.

Looking forward, we anticipate the award to continue serving as a platform, gathering collective wisdom, inspiring greater cooperation, and enabling every pioneer in the field of education to be recognised, inspired, and influenced to shape a more open, collaborative, and sustainable future for higher education.

# When Change Knocks: Inside the World of the Pioneer Award

Illustration as a medium for shaping the narrative and imagination of pioneers.

## Technology for Quality and Equity

As conversations around digital and AI technologies become increasingly sophisticated, the question of educational equity continues to press against the door. Uneven access to resources, disparities in digital competence, and fragmented institutional systems all shape the fundamental inquiry: who truly stands to benefit from new technologies? For institutions operating with limited means, for academic staff still developing essential digital skills, and for regions where governance structures remain nascent, the path forward is far from straightforward.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) has long stood at the forefront of this global transformation, championing the Education 2030 agenda and placing equity at the heart of international higher education. Its advocacy for accessible, high-quality technical, vocational and higher education, particularly for developing countries, remains

a critical anchor as the world navigates the accelerating demands of the digital age.

As a UNESCO Category 2 Centre, the International Centre for Higher Education Innovation (UNESCO-ICHEI) aligns its mission closely with the global education agenda. It actively advances UNESCO's priorities, anchors its work in Sustainable Development Goal 4 (SDG 4), and supports higher education institutions (HEIs) in harnessing technology to drive innovation, widen access to lifelong learning, and strengthen the quality and equity of education.

Central to this effort is the International Institute of Online Education (IIOE), established on the principle of "extensive consultation, joint contribution and shared benefits." More than a vehicle for technological empowerment, IIOE serves as a collaborative network that bridges ideas and implementation, connecting global vision

FOCUS

## The Inaugural Pioneer Award

Against the backdrop of the COVID-19 pandemic's profound disruption to face-to-face teaching, the 2023 inaugural award adopted the theme ***Reform and Innovation in Blended Learning in Higher Education***. It was a timely response to the global pivot towards blended modes of delivery. The selection process examined dimensions including classroom innovation, resource development, student support, institutional governance and educational equity.

The award drew submissions from 83 institutions and nine enterprises across 42 countries, recognising 22 outstanding cases that collectively highlighted the dynamic digitalisation efforts taking place in developing countries. The selection process examined key dimensions including classroom innovation, resource development, student support, institutional governance and educational equity. Together, these criteria encouraged the creation of flexible learning pathways that can meet the future needs of international education, maintaining quality while expanding adaptability, and helped narrow educational disparities both between countries and within them.

The Inaugural Pioneer Award Ceremony

A wave of outstanding cases emerges

> The Pioneer Award pays particular attention to the practices of institutions in the Global South, focusing on regional innovation.

with local realities. To capture, recognise and disseminate the innovative approaches emerging from this network, and to turn these experiences into models that others can adopt—**the Pioneer Award** was created.

At the same time, to bridge ideas with practice and link technology with education, the Pioneer Award was conceived as a platform for genuine multi-stakeholder collaboration. Its purpose extends beyond recognising innovators: it encourages institutions, practitioners and partners to jointly explore new pathways in industry–university collaboration, the integration of industry and education, and the wider digital transformation of higher learning. From the inaugural award supported by BYD to the current edition titled by the BGI Group, the growing involvement of the private sector has helped shift educational equity from an abstract aspiration into a mobilised, and increasingly amplifiable, social endeavour.

## An Award Mechanism that Inspires Innovation

UNESCO-ICHEI convened an International Review Committee made up of experts from across the UNESCO system, international higher education institutions, industry partners and other fields relevant to the award categories. Reviewing submissions anonymously, the committee brings a breadth of authoritative perspectives to the process. All decisions are reached through majority consensus, ensuring a review procedure that is both rigorous and fair.

**Innovation, inclusivity, equity, and sustainability** collectively form the four-

dimensional review framework of the Pioneer Award. They embody the pursuit of educational equity, the encouragement of collaborative innovation, and the emphasis on long-term mechanisms, aiming to inspire global innovation starting from local practices.

It encourages institutions to promote the capacity building of the higher education workforce through joint project development, application of the IIOE learning platform, or adoption of certification processes. The review focuses on whether new technologies such as AI and adaptive learning are used to empower teaching and learning, whether innovative collaboration models are formed that drive educational transformation at the regional level.

Equity and inclusion are the cornerstones of multiple Sustainable Development Goals and the core value of the Pioneer Award. In the face of multiple challenges confronting international higher education, including climate change, geopolitical conflicts, and fiscal pressures, particularly against the backdrop of technological disruption, equity and inclusion are especially crucial. Equity, as defined by the Pioneer Award, emphasises local adaptation and scalability.

Outstanding practices should tailor learning pathways based on local needs while possessing the potential for replication and promotion across institutions and regions, with particular attention to supporting HEIs with limited resources, enabling quality educational solutions to take root more widely. Promoting inclusion means ensuring fair representation in higher education for people from diverse backgrounds, encompassing social, economic, racial, gender, physical, and psychological characteristics, among others. Therefore, the Pioneer Award selection prioritises group diversity, focusing on whether projects benefit women, marginalised groups, and other vulnerable learners, and whether specific measures are integrated into the design to support their equal participation.

Furthermore, the award places great importance on project sustainability, i.e., systemic support. It encourages projects to gain recognition at the institutional or policy level, integrate micro-certification into institutional systems, and possess clear future development pathways, thereby achieving a smooth transition from pilot practices to routine implementation.

## Tangible Advances in Global Practices

A well-designed mechanism ultimately exists to uncover and empower the outstanding but overlooked practices taking shape at the grassroots. As an ongoing international award, each edition of the Pioneer Award adopts a theme that speaks to


The Inaugural Pioneer Award Ceremony

the moment, addressing the pressing digital needs of global higher education. From the inaugural award to the second, we can trace how these diverse practices have continued to evolve and deepen in step with the changing priorities of the times.

Following the inaugural Pioneer Award, the rapid evolution of emerging technologies such as AI opened new possibilities for personalised learning and pedagogical innovation. Online learning and micro-certification initiatives gained broader recognition and uptake worldwide, while the digital transformation of higher education shifted towards deeper institutional integration, giving rise to more mature and sustainable pathways for implementation. UNESCO has continued to monitor and shape this landscape, championing a human-centred and ethical approach to AI in education. Its publications (most notably the UNESCO AI Competency Framework for Teachers 2024) provide guidance for institutions and governments seeking to promote inclusive, equitable and high-quality AI applications across the education sector. During the same period, IIOE also made a decisive leap from platform to ecosystem, evolving into a digital transformation alliance linking countries across the Global South. Institutions within this network have achieved tangible progress in advancing localised digital empowerment, strengthening teacher capacity, and fostering curriculum innovation.

Therefore, this edition of the Pioneer Award aims to further deepen ecosystem building, focusing on the IIOE network and local practices. The theme is set as **"IIOE Ecosystem-driven Promising Practices: Empowering Workforce, Innovation, and Collaboration"**, highlighting four key areas: developing digital and AI competencies through IIOE micro-certification, enabling localised digital empowerment initiatives through IIOE National Centres, leveraging smart classroom operations for teaching

and learning innovation and excellence, and strengthening global industry-university collaboration for higher education digital empowerment.

This edition drew submissions from 48 HEIs and 13 enterprises across 29 countries, recognising 22 exemplary practices. They showcase some of the most forward-looking achievements emerging from the Global South, from strengthening teacher digital and AI competencies to driving curriculum innovation and upgrading digital infrastructure.

## The Pioneers' Echoes Keep Resounding

Over the past two years, we have been heartened to see many partner institutions make striking advances in their digital transformation efforts, with several teams earning recognition in consecutive editions of the award. These cases not only demonstrate the award's sustained role in inspiring educational innovation, but also reveal the vitality and enduring momentum of the projects themselves.

Institutions such as Ahmadu Bello University in Nigeria, Ain Shams University in Egypt, Cadi Ayyad University in Morocco, the Tashkent University of Information Technologies in Uzbekistan, and the University of Engineering and Technology in Pakistan, each recognised in both editions of the award, have continued to make significant, multilayered progress in advancing their initiatives. Their evolving practices offer a vivid illustration of how the Pioneer Award stimulates innovation and nurtures sustainable development.

In the pages that follow, this issue of *CLOUD* will explore these stories in greater depth. Through conversations with pioneering teams and by retracing the pathways of their projects, we invite you to step into the "cloud" and discover these bright and finely cut stories.

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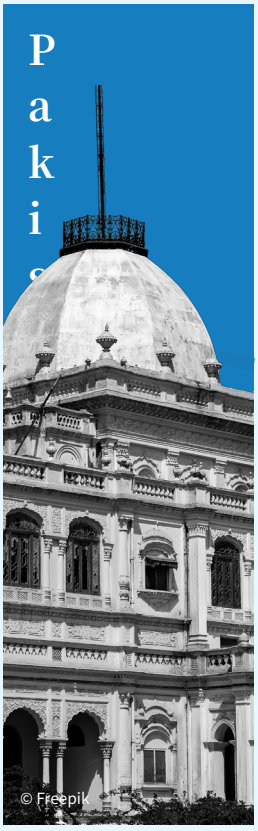
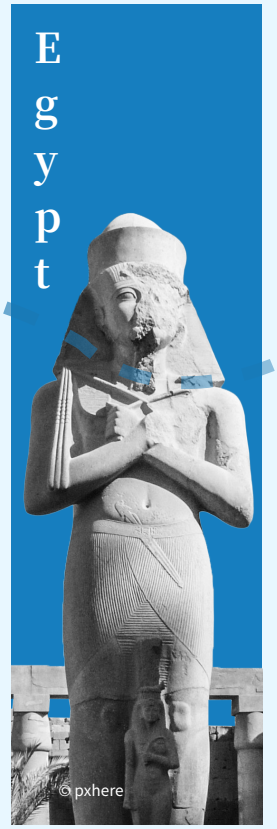
# **Dialogue with *CLOUD*:** Two Centres, One Pursuit of Excellence

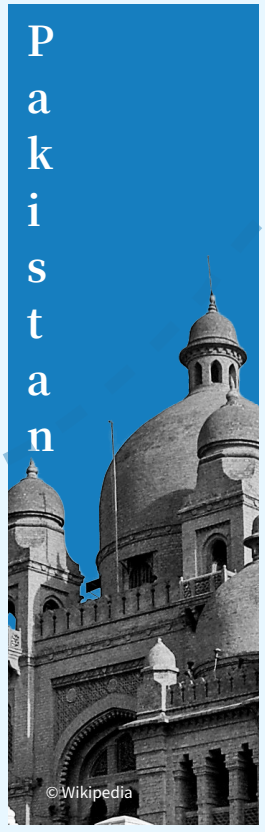
Within the IIOE global network, excellence reveals itself in many ways. In this edition, our interview column brings together two regional trailblazers, the Egypt National Centre in **North Africa** and the Pakistan National Centre in **South Asia**, to reflect on their journeys. In Egypt, the team behind the Pioneer Award is reshaping teaching culture through an expanding micro-certification ecosystem, enabling the IIOE network to take root across national institutions. In Pakistan, the award has become a springboard for innovation, fuelling a full arc of digital transformation from campus infrastructure to countrywide AI talent development. Through this conversation, we spotlight not only distinct routes to progress, but also the enduring value of IIOE as a global platform driving digital transformation in higher education.

Dialogue Participants:

Prof. Mona Abdel-Aal Elzahry, Director, IIOE Egypt National Centre
Dr. Waqar Mahmood, Director, IIOE Pakistan National Centre; and Ms. Sadia Gondal, Assistant Professor




# IIOE Egypt National Centre: The Change Driven by Micro-Certification

## Data-driven and Strategic Alignment

The core engine of the IIOE Egypt National Centre's operation is the micro-certification course system co-developed with IIOE. This system is highly aligned with Egypt's national Education 2.0 and National AI Strategy. The former aims to leverage digitalisation and competency-based education to enhance educational quality and equity; the latter views artificial intelligence as a core engine for building a sustainable digital economy. The IIOE Egypt National Centre translates these macro-strategies into institutional practice by: bridging the digital skills gap, with micro-certification directly targeting the digital literacy, blended teaching, and AI competencies outlined in the national strategies; building capacity and infrastructure, as the IIOE platform provides an online learning infrastructure shareable by universities, enabling the replication and scaling of training outcomes; and feeding data into policy, through Quality Assurance (QA) pilots and educational research, generating evidence-based insights to inform policy refinement.

In 2023, the IIOE Egypt National Centre received its first Pioneer Award recognition for its rapid establishment of a national digital teaching system and its promotion of professional teacher certification training, marking a key breakthrough in Egypt's development of standardised digital education infrastructure.

IIOE Egypt National Centre Team

By the time it received the award again in 2025, the Centre had undergone a profound transformation, evolving from pilot practices within a single institution into a systemic force driving the digital transformation of higher education nationwide. Through its micro-certification system, it spurred deep-seated change in teaching culture, expanding successful experiences from Ain Shams University to 24 universities across the country, building a continuously growing 'learning community'. This leap was not just about scale but also about the organic integration of faculty development, curriculum innovation, and policy dialogue, forming a self-reinforcing digital education ecosystem.

Behind the consecutive Pioneer Awards lies the exemplary practice and systematic outcomes of the IIOE Egypt National Centre's development model. It demonstrates that by precisely empowering teachers, activating institutional networks, and aligning with national strategies, a locally rooted, sustainable, and evolving model for educational digital transformation can be established.

Prof. Mona pointed out that the four micro-certification courses co-developed with IIOE were not conceived in a vacuum but were a strategic choice based on data. Before the project began, the IIOE Egypt National Centre team conducted a comprehensive needs assessment, identifying critical skill gaps among teachers during the digital transformation process. They prioritised four areas that form the foundational pillars for sustained digital transformation: **Digital Teaching Competencies, Online Course Design, Blended Learning, and Data Literacy.** These formed the basic framework for the micro-certificate course system, ensuring each course addressed real challenges in the teaching environment.

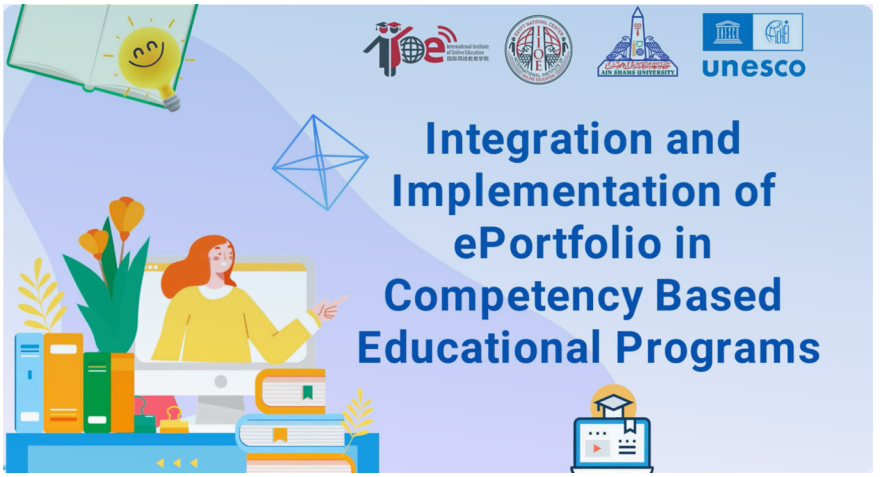
In terms of design, the micro-certification courses closely revolved around two primary teacher needs: practical application, as well as scalability and contextual relevance. On the one hand, teachers needed immediately applicable skills, not just theory. The courses, such as the Online and Blended Teaching and Learning (OBTL) Program, are designed to be hands-on, requiring participants to build their own digital teaching resources and skills as they learn. On the other hand, the micro-certification course format makes the training scalable and stackable, allowing teachers to learn at their own pace. Critically, the content had to be relevant to the Egyptian and Arabic context, ensuring examples and case studies resonate directly with our educators.

## Systematic Integration

To preserve the outcomes of the digital teaching transformation and ensure its continued growth, the IIOE Egypt National Centre institutionalised this training, giving it high value and sustainability. By integrating

> “
>
> The micro-certificate co-development project has impressed me the most. The reason is its tangible, multiplier effect. These micro-certificates (e.g., OBTL) represent the concrete, actionable application of those high-level standards and policies. They directly build the capacity of our faculty, creating a critical mass of digitally proficient educators who, in turn, impact thousands of students.
>
> This project demonstrated ICHEI's commitment not just to planning, but to sustainable, institutionalised, on-the-ground change, making it the most impactful manifestation of our partnership so far.
>
> — Prof. Mona Abdel-Aal Elzahry

Prof. Mona Abdel-Aal Elzahry




Micro-Certification Courses Co-developed

these Micro-certification into the official faculty development and promotion framework, this institutional arrangement fundamentally elevates digital teaching competency from an add-on skill to a core literacy closely linked to career progression, creating a powerful intrinsic incentive for teachers to engage in the transformation.

The results are already visible: a network of over 1,500 digitally proficient faculty has been formed. They are not just recipients of micro-certification but also act as digital mentors within their departments, radiating new teaching concepts and methods to a broader faculty community.

To ensure the sustainable operation of this system, the IIOE Egypt National Centre has established a professional local team fully responsible for course operation, certification, and quality monitoring. This mechanism not only guarantees efficient project execution but also creates a valuable feedback loop for teaching practices, providing a constant stream of real data and innovative inspiration for the continuous iteration and optimisation of the micro-certification courses.

## A Thriving Ecosystem

Another standout achievement of the IIOE Egypt National Centre is its "snowball" expansion across the country. Starting at Ain Shams University, teachers trained through IIOE returned to their own institutions to establish local training hubs, drawing more educators into the fold. This network of universities has created a chain of demonstration, replication, and scale, where momentum builds from one campus to the next. Throughout this process, the IIOE platform and its course resources have provided a consistent framework and the support needed to sustain nationwide growth.

Currently, a national learning community covering 21 public universities, 2 national universities, and 1 private university has taken shape. The vigorous growth of this network is driven not by top-down mandates but by teacher enthusiasm, policy encouragement, and international collaboration.

The IIOE Egypt National Centre is not only enhancing teacher capacity but also building a community of mutual learning and shared

Smart Classroom

growth. This makes its Pioneer Award more than just recognition for a project; it is the highest endorsement of the systemic innovation ecosystem it has constructed.

## Transforming Teaching Culture

The IIOE Egypt National Centre has not only achieved a shift from project to ecosystem but has also influenced teacher-student interaction, **leading to a deep-seated evolution in teaching culture.**

A senior professor was initially very skeptical, viewing online learning as a temporary inconvenience. After completing the Blended Learning micro-certification, he completely redesigned his Occupational Medicine course. He now uses the learning management system to host lecture videos and online quizzes, freeing up physical class time for collaborative problem-solving and project-based learning. He noted, "I am now having more meaningful discussions with my students than I did in 20 years of traditional lecturing." His students have since reported a significant increase in both understanding and engagement, confirming the shift from passive listening to active learning. This demonstrates a profound change in the teaching culture itself."

This cultural shift is also reflected in the evolution of teaching spaces. The Weidong Smart Classroom, established in 2020, has become a physical fulcrum for promoting interactive teaching. During the COVID-19 pandemic, it quickly became a strategic educational asset, converting into a high-quality lecture recording studio, with over 20 courses recorded and lecture content accumulating more than 100K views on YouTube. As part of the Center of Excellence in Sustainability, faculty used the interactive displays to present evidence and data; students, in real-time, activated servers and installed monitoring tools while the recording capabilities allowed for post-session review and feedback. This shifted the dynamic from a teacher-centric sage on the stage' to a facilitator of immersive, hands-on experiences. Teacher-student interaction is now more collaborative, project-based, and evidence-driven, turning the classroom into an active learning lab.

## Future Vision

Building on its achievements, the IIOE Egypt National Centre is moving towards a more ambitious future: establishing a National Digital Teaching Talent Development Framework. This involves creating clear, recognised pathways from foundational digital skills for undergraduates to advanced micro-certification for educators and professionals. The ultimate goal of the National Centre is to ensure the training it provides is fully recognised by industry and government, making Ain Shams University and the IIOE Egypt Centre the definitive hub for driving national digital lifelong learning.

Looking ahead, the IIOE Egypt National Centre plans capacity building by closely following technological trends, making forward-looking arrangements. It keenly captures the wave of AI + Education, clearly stating that the most urgent need for teachers is to enhance human-machine collaboration skills – i.e., how to use AI tools for instructional design, assessment, and providing personalised support, rather than being replaced by AI.

The competencies teachers need to develop most urgently are not just technical, but pedagogical and ethical. This includes AI literacy and critical evaluation, which means teachers should understand what AI is, how it works, and, just as importantly, what its limitations and ethical pitfalls are. They need the ability to critically evaluate and fact-check AI-generated content and tools. It also includes pedagogical integration for personalisation, the skill to intelligently integrate AI as a powerful teaching assistant – using it for personalising learning paths, generating realistic case studies, or providing automated, timely feedback, rather than seeing it as a threat. Also, prompt engineering for educators requires teachers to learn how to effectively prompt AI to create high-quality educational content, assessments, and learning activities tailored to specific course outcomes.

To this end, the IIOE Egypt National Centre team will prioritise developing interdisciplinary Micro-certification courses such "AI + Health", "AI + Engineering", and "AI + Sustainable Agriculture", aiming to cultivate the composite digital talent needed to support the development of Egypt's key industries. This initiative will elevate the digital capacity building of teachers from generic teaching skills to a new height closely aligned with the needs of the national economy.

Meanwhile, the partnership with UNESCO-ICHEI has truly evolved from a simple collaboration into a strategic, symbiotic alliance. It has moved beyond singular, project-based work to a shared vision for accelerating educational modernisation and digital capacity building in the region. What truly fuels our team is the visible transformation we witness in our educators and institutions, coupled with the global mission of the IIOE. Every time a faculty member shares a success story about using a new digital pedagogy, or an ASU student excels due to improved teaching methods, it reaffirms our purpose. The collaboration with IIOE provides a sustainable framework for this change, offering continuous learning, access to international best practices, and a supportive community of practice.

Our hope is to ensure that Egyptian higher education is not just keeping pace with the global digital economy but is actively shaping it, preparing every Egyptian student to be an innovator and leader.

# IIOE Pakistan National Centre: From Pioneers to Trendsetters

## A Century-old University's Epochal Awareness

As a century-old bastion of engineering education, the University of Engineering and Technology (UET) Lahore has always been a core force behind Pakistan's technological progress. Generations of engineers and innovators from UET have been deeply involved in building national infrastructure in energy, water, communications, and transportation. Yet, in the last five years, UET Lahore has undergone its most significant transformation to date that is, redefining its legacy from an engineering university to a solution provider for the education sector of Pakistan in the domains of digital

Dr. Waqar Mahmood

Ms. Sadia Gondal

In 2023, the University of Engineering and Technology (UET) received its first Pioneer Award recognition for its rapid mobilisation of the IIOE National Centre and its capacity to deliver large-scale, high-impact training. The Centre had institutionalised digital learning infrastructure and demonstrated readiness for global-standard online education. In 2025, UET was awarded again, signalling a more profound shift from capacity-building to systemic transformation for the Centre. Being honored with the second Pioneer Award reflects more than institutional excellence.

It is an acknowledgment of national leadership as UET Lahore, Pakistan model proves that an institution's global partnerships with local policy, results in self-sustaining system capable of scaling innovation, equity, and employment.

The journey from the first to the second Pioneer Award tells the story of a strategic and sustained evolution that led from building a platform to driving policy transformation. Behind the consecutive awards lies UET's leapfrog development path, from building digital infrastructure to influencing national policy through AI-integrated curricula, micro-certification, and professional development frameworks.

transformation, sustainable, smart, safe and green campus development, student life cycle automation as well as AI awareness and training provider for the public officers, policy and decision makers throughout the country.

The IIOE Pakistan National Centre team pointed out that this transformation was driven by the following strategic decisions: Initial short-term training bootcamps evolved into sustained national programmes in partnership with the National Vocational and Technical Training Commission (NAVTTC), expanding outreach to hundreds of more digital skills learners and practitioners annually; UET introduced internationally accredited certifications (Huawei, IIOE, and Coursera micro-credentials), ensuring measurable employability outcomes; IIOE-supported CPD integration plan ensures that digital training becomes an institutional mandate rather than one-time initiative. Through KICS, UET expanded joint research with firms such as CyberVision, Systems Limited, and Netsol by embedding internships, applied R&D, and real-world problem-solving within degree programmes.

## Digital and AI Capacity Building

UET's transformation journey has been consistently supported by IIOE. In 2022, the IIOE Pakistan National Centre was established and gradually developed into a platform for enhancing digital pedagogical capacity, advancing ICT skills, and bridging industry-academia divides. It serves as both a national model and a UNESCO-aligned hub for institutional digital transformation.
IIOE Pakistan National Centre's approach combines capacity building, curriculum innovation, and industry collaboration. Its courses span AI, Cybersecurity, Data Science, Cloud Computing, and Digital Pedagogy. The curricula, co-developed with IIOE experts, blend technical mastery with ethical and societal dimensions, ensuring that UET's graduates are not only skilled engineers but also responsible technologists. UET Lahore's partnership with Huawei ICT Academy exemplifies this model. Through the Academy, more than 3,500 students have earned globally recognised Huawei certifications,

making international credentials available for the students of the national degree programmes.

To deepen industry-academia integration, UET's Al-Khawarizmi Institute of Computer Science (KICS) along with IIOE provides a practicing platform for students by linking academic learning to applied research. KICS established the National Centers of Excellence in AI, Cyber Security, Robotics, Quantum Computing, Big Data Analytics and Cloud Computing. The significant projects also include the AI-based Digital Railway System for Pakistan Railways, enhancing operational safety through predictive analytics, the AI-based video analytics for Safe City Authority of Punjab providing automation to the largest surveillance authority of Pakistan, providing consultancy for integration of green energy solutions for many public organisations and universities in Pakistan, providing student life cycle automation and quality data collection platform to several universities in Pakistan, and facilitating them with AI enabled data-driven decision making and performance tracking.

> The stories of the IIOE National Centres show that digital education is not merely a technological endeavour, but a shared effort to shape human growth and the future of our societies.

UET and IIOE Pakistan National Centre has also been a core supporter in the Erasmus+ BRIDGE Project 2025, a €800,000 EU-funded initiative that brings together universities across Europe and Pakistan to advance Industry 5.0 skills and digital learning strategies. Through BRIDGE, UET is aligning its ICT and engineering curricula with European standards for employability and innovation.

These collaborations have initiated academic innovation at home. In 2025, UET launched three new undergraduate degrees: BS Artificial Intelligence, BS Cybersecurity, and BS Data Science. Each programme integrates AI ethics, transparency, and data governance as core competencies, aligning with

> During the last few years, the Centre has trained over **8000 students and 1000 faculty** across Pakistan's higher education institutions [1].

UNESCO's framework for AI and Education: Guidance for Policymakers [2].

After the establishment of the IIOE Pakistan National Centre, UET has operationalised the Smart Classroom initiative which is one of UNESCO–ICHEI's flagship contributions to deliver blended and asynchronous learning. The university's ongoing efforts to integrate micro-credentials and digital badges into academic pathways will make it Pakistan's first public-sector university to institutionalise lifelong digital learning for both students and faculty. Currently, UET Lahore, Pakistan is in its final stage to embed these micro-credentials into its **Continuous Professional Development (CPD) policy.** What began as a pilot project transformed into a permanent institutional framework. Through this policy, faculty will be required to complete IIOE-backed micro-credentials annually, ensuring continuous digital upskilling and pedagogical innovation.

Collectively, these efforts represent a complete transformation, supported by UNESCO IIOE's vision for equitable digital education. This positions UET Lahore as both a national leader and a global case study for how iconic institutions reinvent themselves to meet the demands of the Fourth Industrial Revolution. As these changes took root, the Centre began to influence international discourse on digital transformation. Its collaboration with UNESCO Bangkok for Case Study on "Exploring the Potential of Micro-credentials in Asia-Pacific" became a benchmark for how global partnerships can shape capacity-building frameworks.

## The Next Decade's Plan

### AI Talent Vision

Looking ahead, UET Lahore envisions transforming its IIOE National Centre into Pakistan's premier hub for AI talent cultivation and ethical digital leadership. The university's philosophy is clear: the next phase of digital transformation must go beyond literacy to fluency in Artificial Intelligence.

The Centre's AI vision rests on the following core competencies: Producing graduates proficient in Machine Learning, Data Analytics, Generative AI, and Natural Language Processing, supported by cross-disciplinary research and industry labs; Embedding topics like bias mitigation, algorithmic transparency, and social accountability across all AI curricula; Serving Pakistan's developmental needs by enhancing productivity, green energy management, and healthcare innovation.

The IIOE Pakistan National Centre's AI strategy focuses on the following target groups: Faculty trained as "AI Pedagogy Champions" through IIOE-led courses on

smart teaching, AI integration, and virtual lab simulation; Students empowered as AI Architects through mentorship programmes, hackathons, and co-supervised research with industry experts; Administrators equipped as "AI Strategy Leaders" to implement data-driven decision-making in institutional governance.

To strengthen this vision, UET and IIOE have launched a suite of AI-oriented micro-credentials. The first micro-credential, ***AIGC-Enabled Human-Machine Collaborative Learning: Fostering Human-Computer Collaborative Learning through Integration of AI-Generated Content,*** has already been rolled out globally, while two more micro-certification courses are under development. The model's success has inspired interdisciplinary expansion. Under IIOE's guidance, UET's Centre for Language and Learning has progressed using AI-driven analytics to enhance English and Urdu language instruction, linking communication skills with employability in the digital economy.

> The Centre's commitment to inclusivity has resulted in over **60%** female participation, resulting in direct contribution to narrowing Pakistan's gender digital divide.

This integrated vision is a self-reinforcing cycle where curriculum innovation, faculty training, and industry engagement will continuously accelerate national AI capacity and shall create a sustainable reservoir of ethical and responsible AI leaders for Pakistan and beyond.

UET Smart Classroom Launch Ceremony

## Strengthening Partnerships

UET's efforts through the IIOE National Centre are fully aligned with Pakistan's Digital Pakistan Policy [3], HEC Policy on Online and Distance Learning [4], and the university's own Strategic Plan 2025. These frameworks exhibit one goal: creating a digitally empowered, globally competitive workforce. Within this context, IIOE provides not just resources but a strategic architecture for transformation by linking local priorities with international standards. The partnership enables UET Lahore to design globally benchmarked yet locally contextualised curricula, ensuring relevance to Pakistan's economic and cultural realities.

Looking forward, UET and IIOE envision following three major areas of expansion: Firstly, UET will collaborate with HEC and IIOE to design a standardized competency framework for digital teaching across Pakistan's universities. This will incorporate IIOE micro-credentials as the national benchmark for teacher qualification; Secondly, building on its dual Pioneer Awards, UET aims to evolve into a Regional Hub for Micro-Credential Strategy under UNESCO's umbrella for mentoring South Asian universities in digital transformation, policy integration, and content localisation; Thirdly, UET will co-develop new courses with IIOE on Generative AI for Human-Machine


Collaboration, AI for Climate Resilience, and Digital Pedagogy for Inclusive Learning. These will be open educational resources available to IIOE's global network.

From empowering 8,000 learners to embedding AI ethics into national curricula, from pioneering micro-credentials to influencing higher education policy, UET Lahore exemplifies the transformative power of collaboration. The model's replicability lies in combining global expertise, national policy, and institutional ownership. By aligning with UNESCO's digital education agenda, UET Lahore has created a blueprint that can be adapted by other developing countries seeking to localise global best practices in ICT and AI education.

As UET Lahore looks toward the next decade, its mission remains clear by transforming education into opportunity, opportunity into innovation, and innovation into a sustainable, inclusive digital future for Pakistan and the Global South.

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# **Consensus-Driven Digital Transformation:** How the IIOE Nigeria National Centre is Pioneering an AI-Ready Academic Future

**The IIOE Nigeria National Centre has exemplified consensus-driven digital transformation. Through comprehensive initiatives including teacher capacity building, it has consolidated campus-based practices into institutional consensus on AI applications, catalysed national policy dialogue, and produced the landmark *The Draft Nigerian Higher Education AI Framework*. This capacity to translate broad consensus into national policy positions it as a standout model within the IIOE global network.**

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## From Institutional Dialogue to National Transformation

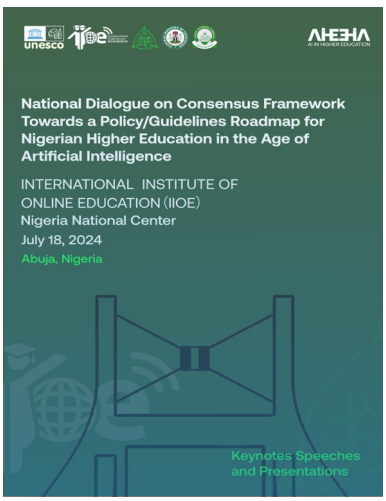
As early as 2023, a UNESCO report emphasised that a critical near-term need — regardless of location or resources — is equipping higher education leaders to advance artificial intelligence implementation responsibly. However, there are significant disparities in the process of building consensus. According to the latest survey, approximately two-thirds of higher education institutions hosting UNESCO chairs or participating in UNITWIN Networks have either established or are currently developing guidelines for the use of AI, of these around 70% of institutions in Europe and North America have developed or are developing guidance, compared to 45% in Latin America and the Caribbean.

A Series of Policy Dialogues Led by the IIOE Nigeria National Centre

In West Africa, the rapid adoption of AI in teaching, learning, research, and administration in Nigeria has outpaced the development of formal governance frameworks.

As AI tools become increasingly prevalent in Nigeria's higher education ecosystem, despite the absence of a national or institutional regulatory framework, there is an urgent need to build capacity among policymakers and stakeholders. This involves deepening understanding of AI's possibilities, limitations, and risks, creating interdisciplinary and cross-sectoral platforms for discussion, and engaging a broad range of voices. Such dialogue should aim to develop consensus frameworks (and subsequent policies) for the responsible, ethical, and safe use of AI in higher education institutions (HEIs). It should also address practical requirements such as connectivity and infrastructure for AI deployment, professional training (including micro-courses for teacher development),

National Dialogue in Abuja



and interdisciplinary AI research. Importantly, these initiatives must promote equity, inclusiveness, and access — helping to bridge the digital divide and prevent new forms of marginalisation in Nigeria's higher education system due to AI deployment.

As the IIOE Nigeria National Centre and the 2024 rotating presidency unit, Ahmadu Bello University had astutely identified both the opportunities and challenges presented by AI. In response, it had launched a nationwide capacity-building initiative, adopting a pragmatic and consensus-driven approach to chart a responsible pathway for AI adoption that genuinely aligns with Nigeria's national context.

This approach was predicated on a two-stage engagement model. First, an institutional dialogue at ABU Zaria on November 28, 2023, titled "Generative AI and Higher Education". There were two key presentations: "GenAI: The Technology Explained" by Prof. M. A. Aibinu (Vice Chancellor, Summit University, Offa, Nigeria) and "Exploring GenAI: Ethical Dimensions and Governance" by Prof. M. B. Mu'azu (Director, IIOE Nigeria National Centre) followed by a panel session consisting of faculty, administration and students. These activities provided the platform for comprehensive discussions and analysis of the impacts, challenges, and opportunities presented by generative AI (GenAI) tools and the need for institutional governance frameworks.

The second stage was the one-day National Dialogue in Abuja on July 18, 2024, that brought together federal ministries, regulatory agencies, enterprise partners, academic leaders, faculty, students, and international organisations. The overarching objective of the national dialogue was the need to discuss and formulate a consensus framework towards the development of policy/guidelines for the responsible, ethical and safe use of AI in teaching, learning, research, and decision-making processes within the higher education sector in Nigeria. Others included the need to

identify challenges related to the responsible, ethical and safe use of AI and cybersecurity concerns within the higher education landscape as well as the need to facilitate collaboration among academia, industry, and government to ensure a holistic approach to the integration of AI, fostering innovation and knowledge exchange.

## Building the Foundation: The 2023–2024 Dialogue Journey

The 2023 institutional dialogue at ABU Zaria laid the groundwork by addressing the ethical, technical, and governance implications of GenAI. It was followed by advocacy visits involving federal ministries and regulatory agencies, including the National Universities Commission (NUC), National Board for Technical Education (NBTE), National Commission for Colleges of Education (NCCE), National Information Technology Development Agency (NITDA), and Nigerian Communications Commission (NCC), industry partners, and student representatives.

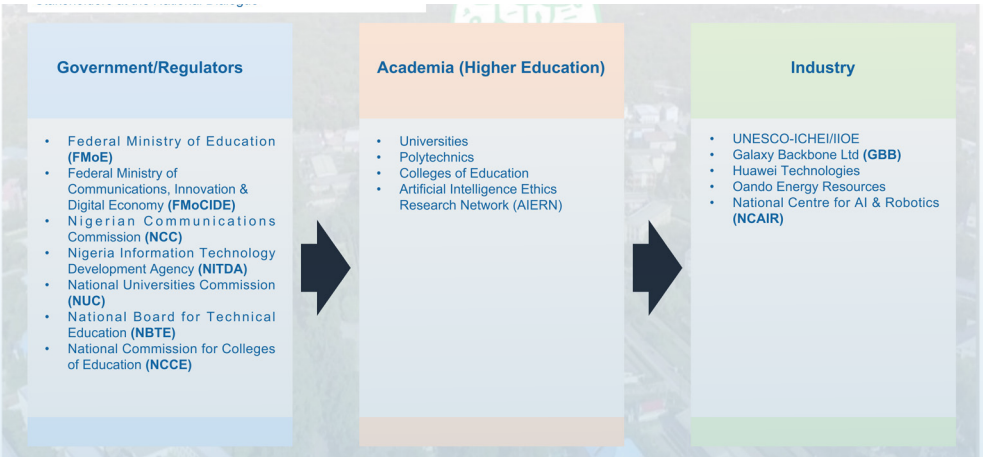
Building upon the solid foundation laid by prior engagements, the 2024 National Dialogue successfully forged a core consensus: the imperative to ensure AI is used responsibly, ethically, and safely within the higher education sector. Distinguished national and international experts at the Dialogue jointly called for Nigeria to expedite the introduction of a National Higher Education AI Framework.

Drawing on global best practices, insights from leading institutions, and contributions from local experts, the Dialogue produced a realistic yet ambitious roadmap for AI integration in the Nigeria's higher education ecosystem. This roadmap was aligned with Nigeria's *2024–2028 National AI Strategy* of the Federal Ministry of Communications, Innovation and Digital Economy (FMCIDE).

## The Draft National Higher Education AI Framework

The 2024 National Dialogue produced Nigeria's first structured roadmap for integrating AI into higher education: *The Draft National Higher Education AI Framework.* Its key objectives include supporting

National Dialogue's Stakeholder Breadth



## Women Leading Change in Africa

Technological empowerment cannot be achieved without broad and inclusive participation. In 2025, the *Women Leading Change in Africa* project, jointly promoted by the IIOE Nigeria National Centre and UNESCO-ICHEI, is dedicated to providing women in academia with more equitable opportunities for AI literacy enhancement and leadership development. The project integrates sensitisation, training, and micro-certification activities to ensure that women, from faculty and administrators to technical and support staff, are actively involved in shaping AI's future in education.

The project has scheduled a series of blended online and offline activities, attracting nearly 1,300 participants and significantly enhancing the visibility and influence of women in Nigeria's AI and digital transformation landscape. More importantly, a growing community of women educators and administrators is emerging as active practitioners of AI. They are not only accumulating digital competencies but also proactively applying their learning to curriculum innovation, institutional leadership, and policy advocacy.

Women Leading Change in Africa Workshop at ABU


policymakers, promoting ethical AI use, and identifying opportunities and challenges. The framework was submitted to the Federal Ministry of Education and the National Universities Commission (NUC), and formed the basis for the development of two policy documents by the NUC: *Towards Responsible AI Integration in the Nigerian University System and Roadmap for the Integration of Artificial Intelligence into the Nigerian University System.*

## Micro-Certification and Smart Classroom: Localising IIOE Global Initiatives

The IIOE Nigeria National Centre has effectively localised global initiatives such as the micro-certification project and Smart Classroom (SCR) deployments, aligning them with Nigeria's higher education needs.

Taking the IIOE Micro-Certification Project for Higher Education Workforce Digital Competency Building as an example, the IIOE Nigeria National Centre became the first National Centre to complete the full cycle of a localised micro-course implementation. This milestone was achieved through the domestication of the B1 micro-course, which focused on designing and producing micro-courses to address specific needs in Nigeria's educational environment.

In line with UNESCO-ICHEI's commitment to collaboration and co-development, the Centre also co-designed two new micro-courses: A3 (Design and Produce Presentations) and T1 (Conducting Collaborative Instructional Research with Online and Offline Integration). Both courses are now live on the IIOE portal and accessible to educators across the global network.

Furthermore, the Smart Classroom at ABU Zaria (ABU-CreateView SCR) exemplifies how technology can redefine teaching and learning spaces. It serves as both a demonstration hub and a capacity-building centre for partner institutions. The facility enables richer hybrid delivery, recording and reuse of quality content, more interactive sessions, and the integration of analytics into feedback loops.

## Best Practices

The IIOE Nigeria National Centre's approach is grounded in replicability and scalability. Across teacher training, policy engagement, and research, several practices stand out. It champions a Quadruple Helix model that brings government, academia and students, industry, and society into the same conversation; advances fit-for-purpose frameworks that help institutions shape AI policies suited to their own contexts; builds a micro-certification ecosystem that links digital skills to lifelong learning pathways; and nurtures collaborative research networks exploring AI ethics and governance.

Together, these efforts have expanded the IIOE Nigeria Network from eight to 16 partner institutions across the country, demonstrating how strategic design can catalyse national impact.

### The Beliefs Behind the Mission

At the heart of the IIOE Nigeria National Centre's work are some guiding beliefs. It holds that consensus matters over competition, progress through collective ownership; that capacity must come before technology, because genuine transformation lies in awakening human potential. With an unwavering commitment to equity over advancement, innovation must bridge divides, not create new ones; that equity comes before advancement, so innovation must close, not widen, divides. These convictions flow like a silent river, through every partnership, training, and dialogue, reminding the National Centre why it embarked on the journey of digital transformation, and keeping a human-centred approach.

### From Consensus to Continuity

The IIOE Nigeria National Centre's journey from the 2023 institutional dialogue to the 2024 national framework redefines what "consensus-driven digital transformation" means in practice. It demonstrates how inclusive dialogue, grounded research, and genuine localised implementation can guide Nigeria's higher education system into the AI era in a responsible, ethical, and collaborative manner.

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# Bridging the Digital Divide Through GenAI Empowerment: The Mulungushi University Experience

**As the host institution of the IIOE Zambia National Centre, Mulungushi University provides a compelling illustration of the institutional drive celebrated by the Pioneer Award. Its commitment to localised digital empowerment has expanded equitable access to digital competence, strengthened institutional agility, and built the foundational capacity needed for responsible and inclusive AI integration across diverse learning environments. In this article, the National Centre's director reflects on this journey, offering an insider's view of how a digital future is taking shape in southern Africa.**

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**Dr. Brian Halubanza**

Director, IIOE Zambia National Centre

Mulungushi University's recognition at the 2025 IIOE Higher Education Digitalisation Pioneer Case Award, announced in Singapore on 1 September, signals the growing maturity of Zambia's higher education sector and affirms the national commitment to technology-enabled transformation.

The foundation of this work is the Centre's philosophy of **localised digital empowerment.** At its core, this philosophy emphasises that digital transformation must respond to local realities rather than replicate external templates. Africa's education systems face unique challenges of access, infrastructure, affordability, and contextual

the approach views AI as a tool whose value emerges when educators, students, administrators, and leaders gain the competence and agency to use it meaningfully. This philosophy recognises that sustainable digital change depends on contextualised pedagogy, ethical guidance, cultural relevance, and careful attention to national developmental goals. Through anchoring digitalisation within Zambia's lived realities, Mulungushi University ensures that technology becomes a path to equity and opportunity rather than a new form of exclusion.

To turn this philosophy into practice, the IIOE Zambia National Centre employs a four-phase strategic framework that has proven both scalable and sustainable.

## Capacity Building

**The first phase, capacity building, lies at the heart of the Centre's work.** Through a series of structured programmes, workshops, and technical trainings, the Centre supports educators in integrating GenAI into teaching and learning in purposeful ways. These efforts do not treat AI as a shortcut or a replacement for professional judgment. Instead, educators are empowered to use AI as a co-design tool for developing contextualised lesson plans, constructing adaptive assessments, enriching course materials, and stimulating students' analytical and

relevance, and these demands require solutions tailored to local contexts.

Localised digital empowerment therefore seeks to develop the human capacity, institutional cultures, and governance frameworks necessary for Zambia to shape its own AI trajectory.

Rather than treating technology as a standalone achievement,

creative capacities. The Centre's initiatives, including the IIOE Technical Workshop held in June 2025 and the GenAI Policy Drafting Workshop in July 2025, equip educators with practical skills while reinforcing ethical considerations such as authorship, originality, and critical evaluation of AI outputs. As a result, AI becomes not only an instructional aid but also a catalyst for pedagogical reflection, innovation, and improved student engagement.

**Students, likewise, are central to the Centre's capacity-building mission.** By introducing them to GenAI as a partner in research, innovation, and problem solving, the Centre cultivates a generation of learners who are not only digitally literate but also capable of applying AI responsibly. Training emphasises creativity, ethical reasoning, academic integrity, and confidence in navigating AI-enhanced environments. These competencies prepare students to participate actively in Zambia's evolving digital economy while enabling them to develop a deeper understanding of the societal, cultural, and ethical dimensions of AI technologies.

Beyond teaching and learning, digital transformation requires institutional leadership that is strategic, informed, and adaptive. The Centre therefore includes university leaders, senior administrators, deans, and strategic planners, as key participants in its capacity-building programmes. Leaders are trained to use AI-driven insights to strengthen decision-making, anticipate emerging trends, and design institutional strategies aligned with national digital priorities. This ensures that AI adoption does not occur in fragmented or ad-hoc ways but is embedded in coherent institutional frameworks.

Leadership training also enhances accountability, resilience, and the ability to guide universities through periods of technological disruption. By cultivating leaders who understand both the opportunities and risks associated with AI, the Centre promotes governance cultures that are ethical, evidence-based, and forward-looking.

**Administrative and support staff** also play an essential role in the transformation process. Their daily responsibilities form

the backbone of institutional functionality, and the ability to harness AI in these areas can significantly improve efficiency. Through targeted training, support staff learn to streamline documentation, enhance communication workflows, improve student services, and automate routine processes such as reporting and data organisation. This leads to more responsive and agile institutions, capable of meeting the needs of both students and faculty with greater precision and speed. By engaging every category of university personnel, the Centre ensures that digital transformation becomes an institution-wide movement rather than a specialised endeavour.

## Network Expansion

**Once foundational capacity has been built, the Centre's strategy advances to the second phase: network expansion.** The National Centre has established a strong and growing national network of over 15 universities and TVET institutions in Zambia and neighbouring countries, each formally integrated through Memoranda of Understanding. This network provides a platform for shared learning, collaborative experimentation, and collective problem solving. Importantly, it reduces disparities between well-resourced and underserved institutions by enabling them to share tools, access training, and participate in joint programmes. The Centre is transforming digital empowerment from an isolated institutional project into a coordinated national priority. This network approach promotes sustainability, encourages peer support, and ensures that digital innovation diffuses across the entire sector rather than becoming concentrated in a few urban centres.

## Policy Leadership

**The third phase of the Centre's strategy, policy leadership,** reflects Mulungushi University's role in shaping Zambia's national digital education agenda. Through high-level engagements such as the AI in Education Summit hosted in May 2025 and subsequent policy roundtable discussions, the

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University has brought together policymakers, researchers, educators, and industry partners to develop informed, inclusive approaches to AI governance.

One of the most significant outcomes of this engagement is the development and eventual endorsement of the Artificial Intelligence Draft Education Policy by the Ministry of Education. The Centre contributed substantive insights to this policy, drawing on practical lessons from its workshops, pilots, and institutional initiatives. This includes input on ethical guidelines, governance mechanisms, capacity-building structures, and implementation pathways. The endorsement of this policy positions Zambia as one of the early adopters of a coordinated approach to AI in education and provides a foundation for long-term, ethically grounded integration of AI across the education sector.

## Industry Integration

**The fourth phase, industry integration, ensures that higher education remains aligned with evolving labour market demands.** By collaborating with technology firms, innovation hubs, and professional associations, the Centre exposes students and staff to real-world AI applications. These partnerships facilitate hands-on learning experiences, mentorship opportunities, innovation challenges, and collaborative research projects. Integrating industry perspectives into academic training not only enhances employability but also strengthens Zambi's capacity to participate competitively in global AI-driven knowledge economies. It also ensures that AI adoption is not confined to theoretical discourse but is grounded in practical, context-relevant applications that address genuine societal needs.

## Good Practices

Mulungushi University's recognition as a Pioneer Award recipient is a reflection of distinct practices that underpin its achievements. These include an unwavering commitment to human-centred teaching and learning, ensuring that educators guide rather than defer to technological tools, a focus on distributed leadership that empowers individuals at all levels of the institution; and a strong practice-to-policy feedback loop that ensures innovations in the classroom directly inform national strategies.

The Centre's ability to adapt training models to low-bandwidth or resource-limited environments demonstrates its dedication to equity. Its culture of multisector collaboration, linking government, academia, industry, and international organisations, further strengthens its capacity for sustainable and high-impact transformation.

As Mulungushi University and the IIOE Zambia National Centre look to the future, the 2025 Pioneer Award serves not only as a marker of progress but also as a call to deepen their ambitions. The university remains steadfast in its efforts to broaden AI literacy, strengthen institutional leadership, improve policy coherence and champion responsible innovation across its expanding network. By anchoring its work firmly in Zambia's development priorities while drawing on global best practice, Mulungushi University is helping to shape a higher education system that is digitally assured, strategically agile and internationally competitive. In doing so, it is ensuring that Zambia's entry into the AI era is not merely technologically advanced, but inclusive, ethical and centred on human potential.

# **Indonesia Cyber Education Institute:** Connecting Islands through Micro-Certifications

**Collaborating with IIOE and multiple global partners, ICE-I has built a national micro-certification ecosystem designed to address pressing challenges in online education, such as course quality, trusted certification, and social recognition of online education, while precisely improving the digital and AI competencies of higher education workforces.**

## National Micro-certification System

### High-quality and "recognised" courses

The core innovation of ICE-I lies in the creation of a micro-certification ecosystem deeply integrated with the national education system.

In terms of course development, unlike traditional MOOC platforms, ICE-I functions more like a "course marketplace". It offers various courses for teachers and students from different academic backgrounds. On one hand, the platform curates high-quality courses from global provides such as edX and Coursera, while aligning them with Indonesia's local educational and employment demands. These resources not only meet different professional learning requirements but also allow learners to choose the most suitable learning modes, such as the metaverse and gamified learning [1]. On the other hand, unlike most MOOC platforms that mainly target students, ICE-I focuses on the shared learning needs of both

> A micro-certification is more than a certificate; it is a quiet mechanism of trust in education. It redefines the relationship between informal learning, assessment, and recognition [2].

teachers and students. It provides teachers with specialised teacher training and lifelong learning programmes, which has become one of its distinguished advantages.

Consequently, ICE-I's micro-certification courses are closely aligned with cutting-edge fields such as AI, data analytics, digital pedagogy, and virtual simulation-based learning. They are designed to connect students' degree pathways with their further career development, and address the urgent need to strengthen teachers' digital competencies. This dual-focus design, serving both learners and educators, distinctly differentiates ICE-I from other platforms.

On the technological front, ICE-I integrates a Learning Management System (LMS) with AI-driven personalisation tools. These tools help learners plan individualised learning paths. Thus, the average course completion rate is increased to over **60%**, which is well above the industry average. Meanwhile, an integrated real-time data analytics dashboard enables instructors and administrators to monitor learning progress, allowing for targeted assistance and data-informed decision-making.

Equally important, ICE-I ensures the credibility and sustainability of its micro-certifications through robust policy and institutional design. The micro-certification have received official recognition from Indonesia's Ministry of Education, Culture, Research, and Technology. It has been incorporated into teacher promotion frameworks and university accreditation systems, leading to adoption by over 40 universities. Operationally, the platform sustains itself through a revenue-sharing model with content providers,

covering premium certification costs and ensuring long-term financial viability. This successful model has been showcased at global forums and has attracted international attention, demonstrating its strong potential for wider global replication.

## Making learning outcomes trustworthy: Assurance by blockchain

While ensuring course quality and attractions, ICE-I also aims to make online learning outcomes widely recognised in higher education and future career pathways. To achieve this, ICE-I has introduced a blockchain-based certification mechanism. Through this key innovation, each micro-certification provides an immutable and verifiable record of learning records. These records are accessible to HEIs and employers for validation and integration.

## Empowering Rather Than Replacing

ICE-I recognises that technology cannot replace teachers, it should empower them. The platform therefore places teachers at the heart of digital transformation, helping them evolve from traditional knowledge transmitters into facilitators and enablers of learning.

Cooperating with UNESCO-ICHEI, ICE-I launched the Capacity Building Programme

### Blockchain Technology in Micro-Certifications:

Blockchain technology replaces the traditional, centralised certification system with a decentralised trust mechanism. In this way, it can address challenges such as limited recognition and the risk of forgery in e-learning certifications.

Each learner's progress is assigned a unique record code, creating a digital "fingerprint" that is permanently stored on the blockchain. This ensures the record cannot be tampered with and can be easily traced and verified by authorised institutions when needed [3].

As a result, blockchain-enabled micro-certifications offer high levels of authenticity, efficient verification, long-term preservation, and cross-platform usability. These advantages not only reduce the time and cost of manual verification but also enhance the credibility and fairness of digital credentials in academic advancement and employment.


UNESCO-ICHEI at the "Embracing the Digital Era with Micro-credential" policy dialogue in Indonesia

for Lecturers in Digital Transformation. This programme is based on the "IIOE Digital Competency Reference Framework for Higher Education Workforce". This initiative provides a series of micro-certification courses that systematically strengthen teachers' digital pedagogical skills, ultimately improving teaching quality.

Alongside teacher development, ICE-I leverages multiple technologies to ensure inclusive access to education. The platform integrates asynchronous learning, low-bandwidth compatibility, and mentorship mechanisms. These measures have allowed students across varying connectivity conditions and learning stages to enjoy high-quality educational experiences. ICE-I also pays attention to underrepresentive learners, establishing blended learning centres in resource-constrained areas such as Eastern Indonesia. By partnering with female associations and disability support institutions, ICE-I extends learning opportunities to broader communities.

## Micro-Certifications Bring Macro-Impacts

By offering a wide range of targeted digital learning resources, ICE-I's micro-certification system has successfully integrated into Indonesia's higher education system. As higher education workforces' digital literacy improves, now they are better equipped to utilise digital tools and resources. They are able to support students' remote learning. To date, the platform has attracted over 44,000 learners and provides them with more than 2,300 courses. As of 2024, courses linked to the edX platform alone have generated over 7,000 enrollments, totaling 16,000 learning hours and resulting in the issuance of hundreds of professional certificates and micro-certifications.

Even more encouraging is the growing recognition of these achievements in the labour market [4]. A growing number of

> “Nowadays, female trainees account for 48% of ICE-I's participants, marking a significant step toward narrowing the digital education divide.”


employers value the practical competencies demonstrated by micro-certifications, which have become a significant advantage for graduates when they are seeking employment. This shift affirms the core vision championed by the Pioneer Award: empowering educators and learners through innovation, and forging a closer link between learning and livelihood.

At a broader level, ICE-I's influence has expanded beyond individual institutions. Many Indonesian universities now allow students to earn up to 40% of academic credits through ICE-I courses. It greatly enhances the flexibility and inclusiveness of the degree system while lowering the cost of curriculum expansion. At the national level, ICE-I's provision of high-quality digital education resources has effectively transcended geographical barriers. Their endeavors create a practical pathway toward educational equity. By aligning course content with vocational skills, the platform has also played a crucial role in narrowing Indonesia's gap in digital skills.

## Best Practices

The Pioneer Award fully recognises ICE-I's digital transformation approach, namely its integration of policy, learner-centred design, and innovation driven by inclusiveness. For developing countries or universities seeking to advance their digital transformation, especially those facing challenges such as geographical dispersion and unequal access to educational resources, ICE-I offers valuable lessons. As the jury noted, ICE-I "aligns precisely with national education strategies, builds robust partnerships, and establishes a student-centred credit recognition system".

Alignment with national development planning has been the foundation to ICE-I's success. Its educational model translates Indonesia's Golden Indonesia 2045 Vision and Kampus Merdeka initiative into concrete action by embedding the micro-credential system within teacher promotion frameworks and university accreditation structures. This strong policy

integration not only institutionalizes innovation but also ensures stable public funding for long-term sustainability.

In addition, the application of technologies must serve the building of trusted systems. ICE-I's forward-looking adoption of blockchain technology established a decentralised micro-certification framework connecting learning, certification, and employment. With its traceability and cross-platform verification features, blockchain enhances the credibility of digital certifications, motivating learners to actively pursue online learning while equipping them with career-relevant skills.

Equally important, ICE-I consistently places teacher empowerment at its core. By taking actions such as the "Capacity Building Programme for Lecturers in Digital Transformation", the platform systematically enhances teachers' digital teaching capabilities. Meanwhile, features like asynchronous learning, low-bandwidth support, and mentorship mechanisms ensure that teachers can effectively deliver instruction under diverse real-world conditions, transforming them from passive participants into active facilitators of digital learning.

Another of ICE-I's major contributions lies in its collaborative design framework and diverse partnership network. Within this framework, local instructors, instructional designers, and industry experts work together to localise global content, adapting it to Indonesia's context. By balancing international quality with local relevance, ICE-I ensures that digital education genuinely meets learners' needs. This approach is particularly evident in modules co-developed with the IIOE, such as those focused on data-driven personalized learning and virtual space-based skill development.

ICE-I's experience demonstrates that digital transformation in higher education must be viewed as an integrated ecosystem, linking policy, technology, teachers, and operations. Only when technology becomes organically embedded within the educational ecosystem can it foster a learning environment that is both trusted and shared, paving the way for a sustainable digital future.

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# The Power of Regional Collaboration: IUCEA's AI "Training of Trainers" Programme


The "Training of Trainers" (ToT) programme on AI, a collaboration between the Inter-University Council for East Africa (IUCEA) and IIOE, exemplifies a best practice in synergy between international institutions and regional organisations. The programme's success lies in a clear, actionable roadmap: IIOE provides high-quality resources and platform support, while the regional organisation leads localised co-creation, embedding capacity within the local network of university lecturers.

## Higher Education Integration in East Africa

Across the East African Community, demand for digital skills in the labour market is rising by an estimated 10%-12% each year, yet only 5%-10% of graduates leave university with the competencies required to meet it. Some countries, such as Uganda and Kenya, are already taking active steps to integrate AI technologies into their education systems, while others, including Ethiopia and Tanzania, are strengthening their capacity-building efforts. To ensure that digital and AI advances benefit a wider community of teachers

and learners, the region now needs more coordinated, cross-border initiatives in the use of digital tools and the development of locally relevant curricula.

As a pivotal organisation promoting the synergistic development of higher education in the region, the Inter-University Council for East Africa (IUCEA) possesses institutional advantages and policy foundations for regional AI capacity building. In June 2023, at its 14th Annual Meeting, adjusting higher education curricula to integrate AI education was explicitly listed as a priority. Based on this consensus, IUCEA began upgrading teaching mechanisms by introducing new methods widely adopted by international higher education and industry. This strategic adjustment also laid the groundwork for its collaboration with IIOE, initiating a joint practice to advance AI education capacity building in East Africa.

## Training of Trainers

IUCEA and IIOE jointly designed and implemented the AI "Training of Trainers" Programme. Focusing on scalability and local applicability, the programme innovatively adopted an "online initiation + offline co-creation" model, ensuring training content


> This training marked the beginning of several strategic initiatives to integrate AI into higher education in the East African region. Future initiatives will include developing a policy framework for incorporating AI into higher education, establishing a regional AI Centre of Excellence, setting programme benchmarks for AI-related disciplines, and fostering regional and global partnerships and networks.
>
> *——Prof. Idris A. Rai, Deputy Executive Secretary of IUCEA*


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was deeply integrated into the specific context of East African universities. The first phase involved two online training sessions conducted via the IIOE platform in March and April 2025. Eighteen core faculty members were selected from IUCEA member universities. The training focused on AI fundamentals and teaching methodologies, while also familiarising trainers with the IIOE platform and its micro-credential course system, establishing a foundation for subsequent training activities.

The second phase was an offline workshop held in Zanzibar, Tanzania, in May 2025. Lecturers from member universities were divided into groups to conduct in-depth discussions on AI teaching modules. During the workshop, participants identified the sequence of AI modules, assessed the applicability of tools, and provided customisation suggestions, resulting in the localised adaptation of the AI content. The emphasis on combining AI technology with actual East African teaching scenarios is crucial; while AI's potential is vast, it can be counterproductive if disconnected from existing curricula. Therefore, technological integration must serve effective learning and ensure pedagogical continuity is maintained. Consequently, these adaptations paid special attention to the quality, flexibility, adaptability, and equity of the courses, making them more relevant to East Africa's diverse cultures and resource conditions.

Following the successful localisation of seven AI literacy courses, the project entered its third phase, expanding online training to more faculty from IUCEA member universities to drive transformation and innovation in teaching philosophies and models across the region. On 30 July 2025, during the 16th IUCEA Annual Meeting, IUCEA and IIOE jointly launched the programme. Leveraging the IIOE platform and its rich resources, it provides teachers with systematic AI literacy and practical application training, supporting local exploration and practice for East Africa's educational digital transformation.

Now, the programme has attracted over 500 teachers to participate in learning. More than 300 of them have received micro-credentials, representing an issuance rate exceeding 60%. These outcomes reflect the strong demand for AI training among regional teachers and demonstrate the applicability of the course content within the East African higher education context.

## Best Practices

The judging panel for the Pioneer Award highly commended the project's innovation in regional co-ordination mechanisms and its successful practice of effectively expanding training reach and impact through the "Training of Trainers" model. As the judges noted, regional synergy fully facilitates resource sharing among neighbouring countries, reflecting a balanced commitment to East African higher education integration, and achieves an organic combination and complementary advantage between IIOE resources and localised content.


> Javan Okello, a participant who received a micro-certification for Teaching with AI: Practical Tips and Prompts, shared on social media:
>
> "For East Africa, and Kenya in particular, the significance of this training lies in its alignment with IUCEA mandate to build institutional capacity and promote regional collaboration. Integrating AI into our classrooms can help educators manage large and diverse cohorts, contextualise teaching resources, and support students in acquiring skills for a digitally driven economy. As universities in our region strive to enhance quality, equity, and relevance, adopting these tools responsibly will be key to shaping the future of higher education."

Particularly commendable are IUCEA's innovative efforts in fostering multilateral collaboration. The AI ToT programme features a clear implementation plan: IIOE provides quality course resources and platform support, IUCEA undertakes regional co-ordination and standard-setting, and member universities are responsible for on-the-ground execution.

The programme's results demonstrate the unique and powerful driving role of IUCEA as a regional organisation in boosting platform usage rates, expanding course coverage, and amplifying project influence.

Another innovation lies in the blended online-offline, content co-creation empowerment model. The programme employed a hybrid training approach where participating teachers

jointly determined learning paths, assessed AI tool applicability, and proposed customisation suggestions. This process transformed the end-users (teachers) into co-developers of the product (courses), enhancing both practicality and acceptance. More importantly, it deeply empowered the teachers, enabling them to progress from "learning" to "knowing how to teach" and "knowing how to adapt."

The programme's focus on cultivating a local trainer network forms the bedrock of its sustainability. The core outcome is not merely the number of participants trained but the cultivation of a team of trainers composed of local educators.This ensures that AI education capacity can diffuse and deepen autonomously and continuously within the region.

Finally, the programme consciously transforms short-term outcomes into long-term institutional arrangements. For example, integrating the developed AI modules into the sustainable capacity-building system for university faculty members and integrating the co-operation model into IUCEA's quality assurance and faculty development strategies. This moves AI literacy enhancement beyond the limitations of a "one-off project," positioning it to become a regular, sustained component of the East African higher education system, providing solid institutional support for digital transformation.

AI literacy is blowing like a sea breeze into East African universities. The practice of IUCEA's AI ToT programme is not just a successful attempt but a vivid demonstration of continuous transformation. As follow-up trainings progress and the regional AI Centre of Excellence is established, more local teachers will master this key technology, truly converting the potential of artificial intelligence into a driving force for the advancement of higher education in East Africa.

This path also represents a tangible route for Global South countries towards an inclusive digital future.

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# **Cadi Ayyad University:** Optimising Research Management and Leadership through Open Educational Resources

**The author offers a first-hand look at how Cadi Ayyad University in Morocco is helping to strengthen research management across Africa. By introducing modular training, open-access resources and dedicated support for women researchers, the university is equipping its academic community with practical skills in areas such as project management, research ethics, intellectual property and technology transfer.**

**Author**

Prof. Bouchra Lebzar, Director, L-QUALIMAT-GRTE Research Laboratory

## A Shifting Innovation Space

There is a growing demand for increased investment in research and development within Africa to catalyse innovation and create business opportunities, ultimately enhancing the continent's quality of life. However, the reality for researchers within many higher education institutions remains challenging: constrained funding, inadequate infrastructure, and a dearth of research management capacity have made the strategic allocation of limited resources a critical competency.

As African universities progressively expand their research ambitions, this deficit in research management expertise has become increasingly pronounced. Investigations reveal that, although research investment is growing, the majority of institutions still lack specialised research management teams, only three out of ten have dedicated structures (Science For Africa, 2024). It is within this context that the imperative to cultivate research management professionals who possess


Cadi Ayyad University

domain knowledge, administrative acumen, and collaborative skills has emerged as a shared priority. This underscores the importance of equipping researchers with the necessary skills to effectively manage the limited research resources available to them.

Cadi Ayyad University (UCA) in Marrakech positions itself as a leading actor in research management. It brings together academic strength, smart teaching methods, and global partnerships. One key initiative is the Research Management and Leadership for Enhanced Quality and Efficiency in African Research Institutions (RML), funded by the Africa-UniNet programme. The project gathers African and European partners who exchange practices while respecting shared standards.

UCA understands that importing international models alone is not enough. Therefore, the RML project's design emphasises local relevance, interpreting internationally established research management practices, such as ethical governance, intellectual property management, and technology transfer, through the lens of real-world cases from Morocco, Nigeria, and Gabon. This approach not only enhances participant comprehension but also ensures the acquired knowledge is directly applicable in their professional contexts. The collaborating universities are further committed to developing structured training modules that are closely aligned with regional needs, collectively fostering the enhancement of research management capacity across Africa.

## Training Modules

Over the proposed two-year project duration, the RML training will be implemented in a phased and structured manner: the first year will focus on modules development and train-the-trainer activities, while the second year will emphasise two sessions of intensive online trainings, designed to extend these competencies to a broader audience.This approach prioritises the cultivation of self-learning capabilities and capacities, ensuring that project objectives are not only met but sustained beyond its duration. The curriculum will encompass topics such as research and innovation management, research ethics and governance, intellectual property rights, technology transfer, and grant management. The project will be delivered through a

comprehensive and flexible modular-based online platform, allowing for both synchronous and asynchronous learning.

UCA and its partners designed a set of modules to address research management needs, the programme is not only grounded in theory but is also rigorously oriented towards equipping participants with immediately applicable competencies. Each module mixes theory, practice, and flexible learning formats. These modules combine theoretical knowledge, practical skills and innovative methods, while adopting a flexible format that facilitates both online and face-to-face learning. For instance, Introduction to Scientific Project Management foucses on setting measurable goals and use resources well within resource-constrained environments. Ethical Governance in Scientific Research employs representative case studies to teach how to handle conflicts of interest and legal duties and uses case studies on fraud, falsification, and plagiarism to explain the role of ethics committees. Meanwhile, Intellectual Property and Technology Transfer concentrates on the pathways for translating research outcomes from the laboratory into societal application. Despite the diverse range of topics, each module is fundamentally oriented around the core objective of solving practical problems.


Research Management and Leadership Project

*Interdisciplinary Capstone Module* stands as a defining feature of the curriculum, letting participants work on real cases through mini-projects, encouraging critical thinking and collaboration across fields and connects participants with global scientific and entrepreneurial networks.

Overall, the modular structure of the RML programme facilitates both scalability and adaptability to the specific conditions of different institutions. The mix of synchronous and asynchronous learning keeps participants engaged. More importantly, this design ensures that the project's outcomes are embedded within the host institutions, creating a self-sustaining and continuously evolving knowledge chain.

## Inclusive Teaching Approach

To widen access to training, UCA combines MOOCs with intensive sessions, enabling researchers who cannot attend in person to take part. Inclusion is a central priority. With women holding only 24% of research leadership roles in sub-Saharan Africa (UNESCO, 2019), the university actively supports gender balance by creating more supportive conditions for female researchers. The course is also offered in French, English and Arabic, reducing language barriers and opening the programme to a more diverse community of researchers across different regions and backgrounds.

This project aligns seamlessly with our strategic vision: to position research as a key driver of sustainable development. By empowering our researchers with the necessary tools to manage limited research resources more efficiently, we aim to amplify the societal impact of their work.

——Prof. Blaid Bougadir, President of Cadi Ayyad University- Marrakech


## Outcomes

The project trains at least 80 researchers and managers from partner institutions. They gain skills in strategic planning, ethics, funding, intellectual property, and technology transfer. The train-the-trainer component ensures long-term adoption of these practices.

At the institutional level, the initiative also promotes the modernising research structures. The project supports the professionalisation of research offices across institutions, improving clarity of roles, transparency, and accountability in project management. These systemic improvements represent a critical step towards enhancing research efficiency. Simultaneously, training on intellectual property helps researchers protect their results and collaborate with industry, which can lead to applications with economic and social value and support local development. The project significantly enhances inclusivity within the research ecosystem. The project promotes women's participation in training and scientific leadership. It also reduces language barriers by offering materials in French, English, and Arabic, improving representation within African research spaces.

To ensure the sustainability of its outcomes, the project has established a long-term training network. The project includes an online platform with flexible access to training materials. It supports ongoing learning and updates. The network of trained trainers will help spread good practices across institutions .

Furthermore, digital transformation in higher education sets positive impact. The project encourages hybrid teaching methods and the use of digital tools. It supports the integration of AI in teaching and aims to reduce digital gaps. It integrates pedagogical AI tools and strengthens the use of digital technology in the curriculum to help narrow the digital divide. This dynamic could facilitate distance learning and modernise the African university ecosystem. As these technologies are progressively embedded into curricula, African institutions will be better positioned to develop modern learning environments and participate more fully in the global digital transformation of higher education.


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Digitalisation Pioneer Case
Award

# 2025 Pioneer Award Ceremony

The ceremony brought together higher education partners from across the IIOE network, alongside representatives from international organisations and several enterprises who attended to receive their awards. The winning teams took photographs with the presenting guests, capturing this important moment.

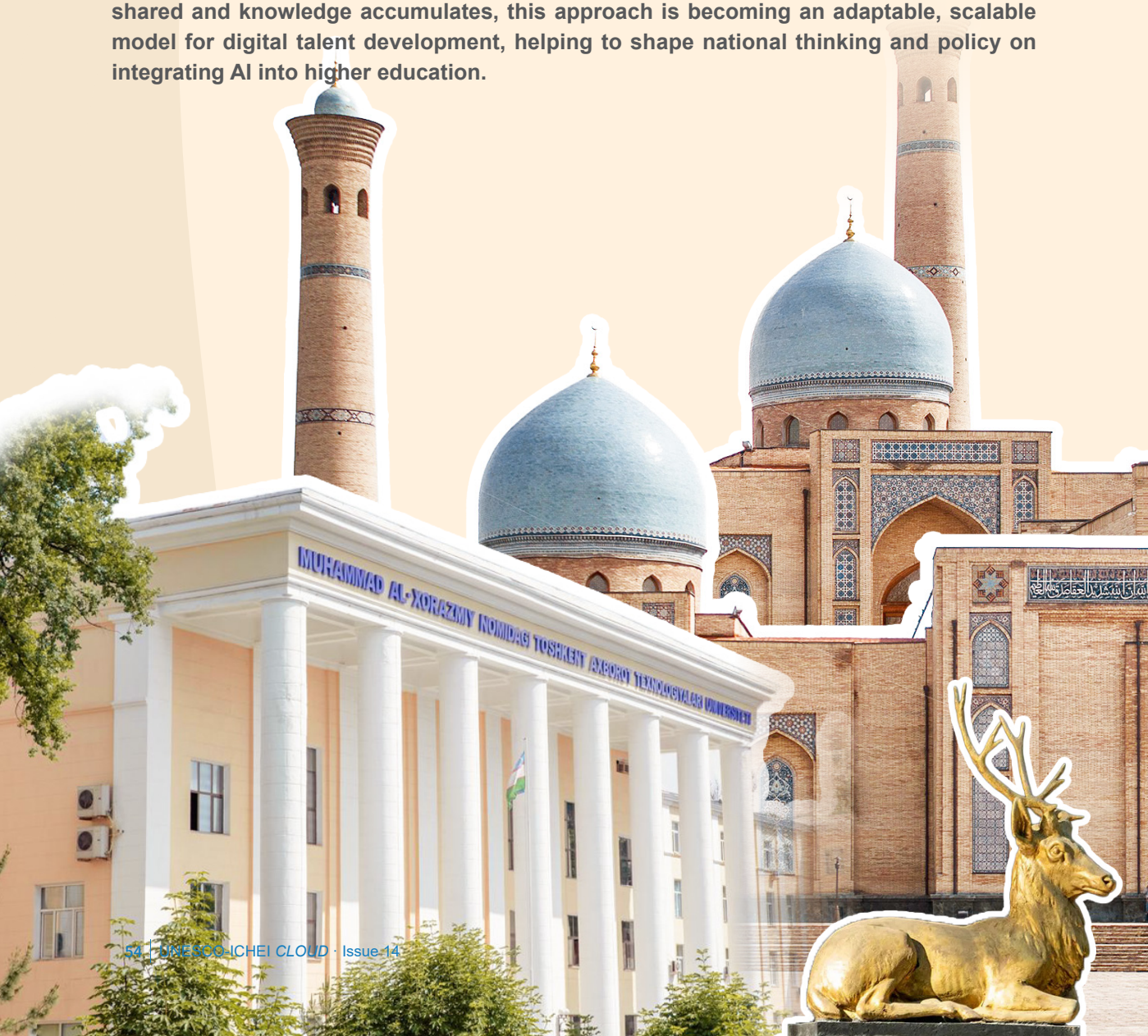

The award-winning team from Ain Shams University presented the digital innovation achievements of the IIOE Egypt National Centre through a video shown at the award ceremony.


The on-site decoration of the award ceremony.


More than 2,000 participants from over 30 countries attended the ceremony, engaging in lively exchanges and discussing the emerging trends shaping today's higher education landscape.

# Tashkent University of Information Technologies: The Library at the Frontier of AI Education

**Beginning with the library and its information systems, the IIOE Uzbekistan National Centre brings together training, smart facilities and broad collaboration, allowing its AI-in-education efforts to grow from a small but effective starting point. As experience is shared and knowledge accumulates, this approach is becoming an adaptable, scalable model for digital talent development, helping to shape national thinking and policy on integrating AI into higher education.**



## Stirring the "Heart of Information" to Life

Under the "Digital Uzbekistan 2030" strategy, artificial intelligence is gradually being integrated into the digital transformation of both public and private sectors. However, the question of how to systematically cultivate AI talent remains a pressing challenge.

Faced with limited experience and resources, Tashkent University of Information Technologies named after Muhammad ibn Musa al-Khwarizmi (TUIT) has taken an innovative path by turning its focus to the "heart of information" of the campus, the library. To enhance the AI capacity of the entire academic community, the most effective leverage point may lie with those who understand information best: library specialists and their management systems.

## Talent Empowerment

### From Local Needs to a Global Vision

In times of educational reform, decision-makers are often confronted with a maze of competing priorities. Which issues should be prioritised?

TUIT chose to begin at the ground level, listening closely to the digital-skills challenges faced by teachers and librarians. The research team gathered these needs through surveys and interviews, while also looking outward and analysing the library systems of more than a thousand leading universities around the world to understand how AI is being used at the forefront of information management.

TUIT has made the library its gateway for bringing AI and information management together. The aim is not only to improve the efficiency of searching for knowledge, but also to give teachers, students and researchers the chance to experience how AI works and "thinks" as they use it. Through these encounters, users begin to develop a stronger sense of information ethics and critical awareness, shifting from passive receivers of information to active learners capable of navigating technology with confidence. At

the same time, the AI-enabled library has become a powerful accelerator for research. With the support of library specialists skilled in AI tools, staff and students are freed from the heavy burden of filtering information and can devote more time to reflection and creative inquiry. This balance, drawing on the strengths of technology while preserving the depth of human thought, is precisely the future-oriented competence that TUIT hopes to nurture for Uzbekistan.

TUIT Team Awarded Inaugural Pioneer Award


In response, the university moved quickly. It began by revitalising its own educational resources and steadily expanding its digital collections, while at the same time bringing in high-quality online courses from IIOE and leading global academic tools. Together, these efforts have enabled TUIT to build a rich and locally grounded digital resource ecosystem.

## Jointly Creating Smart Learning Spaces

Collaboration has also played a key role in developing hardware and training capacity. Through multilateral cooperations with enterprises and UNESCO-ICHEI, the IIOE Uzbekistan National Centre has been equipped with smart screens, synchronised tablets, and generative AI tools. These facilities have made knowledge more lively and interesting. In these smart classrooms, library specialists in training use advanced digital tools to bridge theoretical instruction with hands-on practice, achieving deep integration between learning and doing. This approach has significantly enhanced the effectiveness and engagement of AI skills training in information retrieval and management.

More importantly, TUIT's AI-based information management training is not limited to library specialists. Students from related disciplines are also included. This programme enabled them to master research databases, literature management tools, as well as simulation and modelling software for self-directed learning. Meanwhile, teachers can use AI-powered analytical tools to assess students' understanding and apply data visualisation in teaching. Through these practices, TUIT has not only strengthened librarians' AI competencies but also established an innovative educational environment aligned with the bachelor's and master's degree global standards in library and information science[1].

## Building a Collaborative Network

TUIT's collaborative vision extends far beyond building physical infrastructure. The same spirit of partnership is woven deeply into its AI training system, creating a wide network


that links government bodies, universities and industry. In close alignment with national priorities, TUIT has forged strong partnerships with public institutions such as the UzArchive Agency-Laboratory and the Institute for Retraining and Advanced Training of Higher Education Personnel (IRAT-HE), as well as private organisations like ProInfo Lab.

Among these, its collaboration with IRAT-HE stands out. Established by the Uzbek government in 2024 to lead continuing education across the higher education sector, IRAT-HE brings with it a nationwide network of more than 200 universities. This reach provides essential coordination for TUIT's AI training programme, from annual planning and progress monitoring to learner management and course organisation, ensuring that training is delivered regularly and systematically to academic librarians and researchers across the country.

Building on its partnerships, the project also adopts a pilot testing and course iteration approach. TUIT continuously refines curricula and training methods based on real-world feedback and lessons learned. This adaptive strategy is closely tied to TUIT's development of a localised knowledge management system.

## The Knowledge Cycle

After completing infrastructure development, partnership building, and training implementation, TUIT created a localised knowledge management system that collects course materials, case studies, and teaching methodologies generated during the project.

> “How to keep the spark of innovation alive and transform it into reusable knowledge assets?”

By turning the tacit knowledge held in the minds of teachers and students into structured texts and data, TUIT has created a teaching resource base that can be continually updated and shared across universities nationwide. Through the IIOE Uzbekistan National Centre database, project insights, pilot results and related materials are gathered and preserved with care. This approach ensures that valuable experience is not lost, but becomes a foundation for future improvement and wider adoption. As a national hub within the local university network, TUIT is helping to nurture a healthy cycle of knowledge—one that allows learning to circulate, grow and return to the community in new and meaningful ways.


## Information Literacy and National Competitiveness

Contribute to these sustained efforts, TUIT's AI talent development initiative has achieved substantial progress. The university has introduced advanced courses such as Information Retrieval Systems, and the IIOE National Centre provides AI application training to hundreds of educational workforces and students. Its library-centred AI training programme alone has served over 200 participants, totaling more than 670 hours of learning. Notably, these courses have now been integrated into the IRAT-HE system, becoming an essential component of Uzbekistan's continuing education framework for library specialists.

This success is now extending to the broader education sector. In collaboration with Korea's Kookmin University and other partners, TUIT is advancing the construction of a global digital campus and facilitating academic exchanges[2]. During the 2024 Central Asia High-Level Regional Policy Dialogue, TUIT also contributed to regional and national efforts in shaping policies and action plans that promote the use of generative AI in higher education governance and faculty development. As TUIT's smart classroom is established in 2025, micro-certification courses delivered through the IIOE platform will further empower local learners. Currently, measurable improvements can be observed across local universities, from bibliometric performance and information service quality to user satisfaction, as well as increases in academic publishing, AI-based retrieval and service applications, and library readership.

Looking ahead, with the launch of smart classrooms and micro-certification projects, TUIT's AI talent cultivation model is being localised and scaled regionally through the IRAT-HE network and partner universities. The Memorandum of Understanding signed in September 2025 between Uzbekistan's higher education authorities and UNESCO-ICHEI marks a new milestone. This milestone signals the country's commitment to systematically integrating global best practices and accelerating the digitalisation and internationalisation of higher education.

## Best Practices

For universities with limited resources seeking to launch AI talent development quickly, TUIT's experience offers valuable inspiration.

**A fast-iteration, and incremental innovation approach aimed at small entry points** can be highly effective. When resources are limited, pursuing perfection from the start is unnecessary. TUIT began with a focused and strategic entry point, the AI transformation of its library, a concrete and pivotal setting that allowed the university to validate the feasibility of AI-enhanced teaching at a low cost. Once proven successful, these experiences were gradually scaled up across broader talent development initiatives. This step-by-step approach minimised innovation risks and established a credible model for future expansion. Before rolling out its programmes nationwide, TUIT first conducted internal pilot testing, iterating and refining through small-scale experiments, a pathway that significantly boosted both success rate and efficiency.

Equally essential is the creation of an innovation ecosystem built on broad collaboration. Moving forward alone can often be difficult, yet TUIT has drawn strength from bringing together public institutions, private organisations and international partners, forming a network where resources, technology and policy work in concert. Each actor contributes its own strengths, complementing one another and giving the digital education landscape both vitality and resilience. This approach echoes the spirit celebrated by the Pioneer Award, reflecting a belief that meaningful educational innovation and capacity building grow from ecosystems of cooperation rather than isolated efforts.

Good innovation is only the beginning; what matters just as much is ensuring that experience is preserved and that good practices can be shared. TUIT chose to let its work settle into a lasting form, creating a cycle of knowledge that others can draw upon. By building a localised knowledge-management database, the university has carefully documented teaching feedback, successful cases and course pilots, turning them into a resource that can be accessed by institutions across the country. In doing so, these valuable experiences are continually reused, enriched and passed on, forming a self-reinforcing "knowledge cycle" that supports sustained growth and collective learning.

As a key policy advisor to Uzbekistan's Ministry of Education and Ministry of Technology, TUIT is advancing AI talent cultivation both within its own institution and across Central Asian universities through the IIOE National Centre. Its achievements not only demonstrate the potential of locally driven digital empowerment, but also vividly illustrate how scalable and replicable models can promote educational innovation, capacity building, and regional cooperation.

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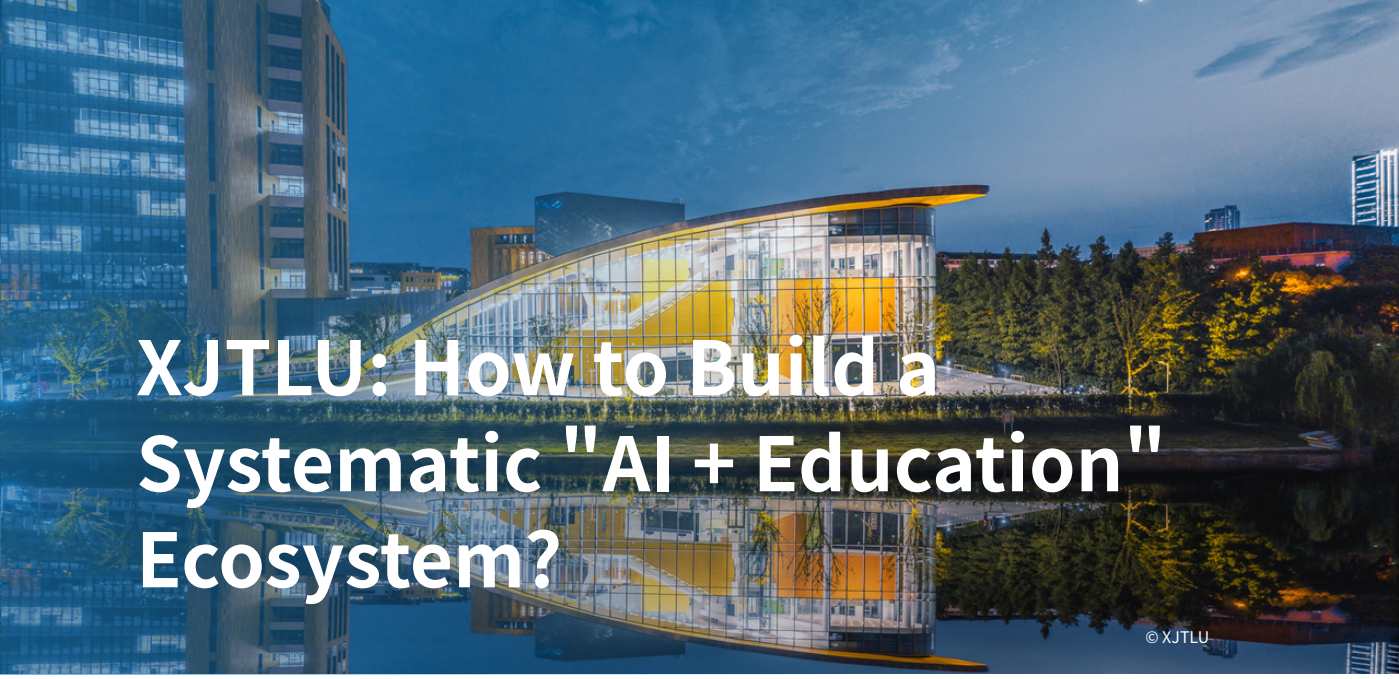



# XJTLU: How to Build a Systematic "AI + Education" Ecosystem?

**The Pioneer Award shines a light on technology-enabled ecosystems and the real change they deliver. On this front, XJTLU distinguished itself with clarity. Its expansive AI + Education ecosystem, spanning teaching, research and institutional administration, offers a compelling example of how innovation can take root and flourish. In the following pages, the team shares a first-hand account of how this ecosystem came to life, and what it reveals about the future of digitally empowered higher education.**

**Dr. BI Xin**

Xi'an Jiaotong-Liverpool University's Chief Officer of Data, Director of the Centre for Knowledge and Information, and the Director of the Digital Transformation Research Centre of the College of Industry-Entrepreneurs. Responsible for university-wide policy-making, strategic implementation, and the promotion and execution of initiatives related to digitalisation, AI, and data management.

## Origins and Exploration

Since its founding in 2006, Xi'an Jiaotong–Liverpool University (XJTLU) has carried digital innovation in its DNA.

The university places great emphasis on the systematic application of technology across campus and has developed two major software ecosystems: one for teaching and learning, centred on the Learning Mall's Moodle-based learning management system, and another comprising various applications that support research and administrative work. Together, these systems ensure comprehensive coverage of the university's information infrastructure, helping departments standardise workflows and enhance the quality of services. Just as importantly, the university has worked

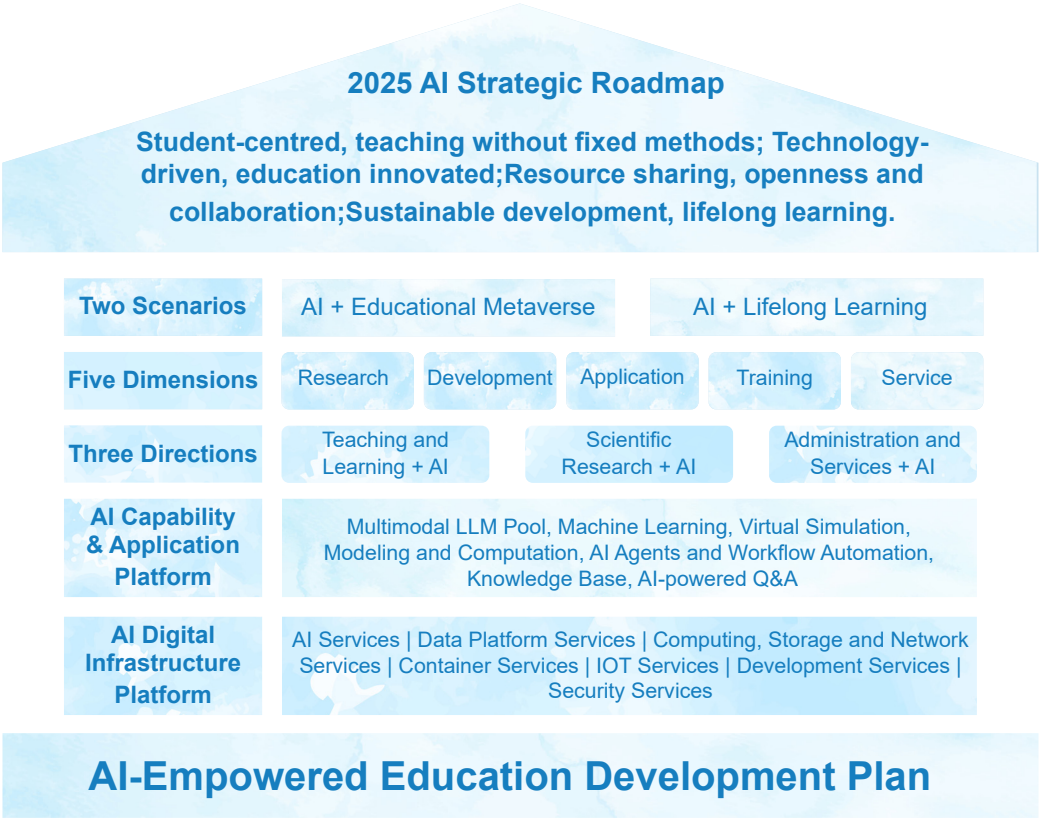
to break down long-standing data islands between units by developing a unified data bus, enabling data exchange while reducing integration and maintenance costs.

As a new international university oriented toward the future talent cultivation, XJTLU has always maintained acute perspection to emerging trends. After China's Ministry of Education released the AI Innovation Action Plan for Institutions of Higher Education in 2018, XJTLU organised the "International Education Innovation Forum" in Beijing in June. The forum was themed on artificial intelligence. Benefiting from years of solid accumulation in digitalisation and a guiding pedagogical principle that encourages innovative use of technology, XJTLU quickly identified the enormous potential unleashed by new developments in AI at the end of 2022. In the first half of 2023, XJTLU integrated the most advanced and accessible AI large language models (LLMs) into its digital platforms. Through the unified digital portal, all students and staff can freely access AI tools.

Definitely, provision of the tools alone are not enough, clear guidance on effective usage is also essential. XJTLU, therefore, rapidly developed a university-level policy and strategic framework to guide teachers and students in using AI reasonably and effectively in teaching and learning.

## From Digitalisation to Intelligent Transformation

Before 2023, XJTLU's digitalisation efforts focused on several core areas. First was student-centred approach for learning




design, including educational environments, resources, faculty, pedagogy, and educational technologies. Second was the adoption of future-oriented models of education and research, such as blended teaching and learning, on- and off-campus collaboration, academia-industry collaboration for teaching and research, ecosystem partnerships and resource sharing, the "digital ubiquitous university", lifelong learning, and building inclusive, equitable, and high-quality education aligned with SDG 4. It also includes a flat and networked model of operational management, covering areas such as university governance, data governance, technology empowerment, efficiency enhancement and cost reduction, as well as agile development. Naturally, this also requires strengthening the foundational infrastructure for digital and intelligent operations, including networks and storage, software applications, computing power centres, and learning management systems.

After 2023, with the construction of XIPU AI Platform, XJTLU's new Education+AI ecosystem has been reconfigured into a framework of "Two Platforms, Three Directions, Five Dimensions, and Two Scenarios". Its core elements include an AI digital foundational platform, an AI capability and application middle platform, and the deep integration of AI into three domains: teaching and learning, research, as well as institutional management and services.

Throughout this process, the role of the technology team has also evolved. Our work now centres on five dimensions aforementioned, including conducting in-depth research to guide technical development, building and delivering software and AI service platforms, driving the effective application of new technologies to improve operational efficiency, providing training to strengthen user capabilities and digital awareness, and finally, maximising value and extending impact through both internal and external service provision.

## AI Agents Driving Transformation

These developments have enabled XJTLU to move from digitalisation to intelligentisation in

education. The university is now further committed to educational innovation with a broader future vision. One direction is to expand learning spaces from the physical environment to digital environments through the integration of AI and metaverse technologies. Another direction is to combine AI and lifelong learning, encouraging learning beyond formal education system, crossing individuals lifetime needs.

Since September 2024, XJTLU has organised around 40 AI training sessions, including approximately 10 dedicated to AI agents. The adoption of the AI Tutor has expanded rapidly. In the 2024–2025 academic year, AI tutors supported about 280 courses and facilitated 2.2 million interactions. By the 2025–2026 academic year, nearly all 900 degree courses across the campus will incorporate AI tutors. Comparative data from two consecutive academic years show that after integrating the AI Tutor, student failure rates dropped significantly, and students' average performance improved noticeably. In June 2025, the launch of the AI Agent Platform ignited strong creative momentum among faculty and students. Around 2,200 users participated in development activities, generating roughly 170 AI agents. The platform recorded more than 12,000 total visits and over 250 million tokens consumed. Among these agents, about 70 support teaching-related functions and around 40 support administrative tasks.

Notably, combined with the previous promotion of no-code and low-code development, preliminary estimates suggest that these tools saved nearly 10 million RMB in software development costs in the previous academic year.

> “Research and development are rarely the hardest part. The real challenge comes afterwards: ensuring that well-designed technologies are used effectively, and that they deliver the impact they were built to achieve. It is users who determine whether a technology fulfils its promise.”

## "Intelligent XIPU"

### Value Creation and the User-Centred Perspective

At XJTLU, the application of technology cannot be driven simply through administrative directives. Therefore, one of the key initiatives within the "five dimensions" framework is a value-creation-driven approach. By engaging directly with users on the frontline and providing hands-on support, the university gather authentic operational needs to guide our technology development. Meanwhile, the university teams work closely with teachers to help them apply technologies in their teaching and daily work, cultivating the first group of "seed users".

XJTLU encourages teachers to document their experiences and develop case studies, which are published on the Learning Mal's Centre for Excellence in Innovation in Education (CEIE) website. Outstanding and representative cases are further recommended to the "Campus+" XJTLU column, jointly run by the XJTLU and Times Higher Education (THE). It allows these practices to achieve broader impact. As the case library continues to grow, **experienced teachers are encouraged to become trainers** who share their insights with colleagues inside and outside the school. In this way, we are helping to build a community of practitioners. Looking back, it's a process of advancing technology-empowered education and AI application from individuals to broader groups and participants. Its core lies in user-centeredness and value creation.

With respect to the integration of AI and teaching, I believe it can be summarised into two pathways. For teachers, it involves "teaching AI" (imparting AI knowledge) and "teaching with AI" (using AI as teaching support). For students, it consists of "learning AI" (acquiring AI knowledge and skills) and "learning with AI" (using AI to support learning). The former concerns the study of AI as a course, whereas the latter views AI as a tool or method to enhance the learning experience.

### Joint Course Development and Global Sharing

Courses are the indispensable vehicle to bring AI meaningfully into education. At XJTLU, this begins with university-wide AI literacy courses for first- and second-year undergraduate students, as well as discipline-based courses that apply AI into different majors. Our school has also strengthened its existing programmes in computing and intelligent engineering. We set up a new AI major, and provided students with related curriculum. Our training follows a user-centred approach, focusing on practical needs and real-world scenarios.

For example, we designed and conducted trainings based on everyday teaching scenarios. Our joint training programme on AI-related policy-making with UNESCO

IIOE has also been widely recognised by participants. This reflects a shared concern across sectors, as AI is revolutionising rapidly and being applied broadly, people are eager to understand how to use AI responsibly, unleash its potential, and avoid the risks it brings.

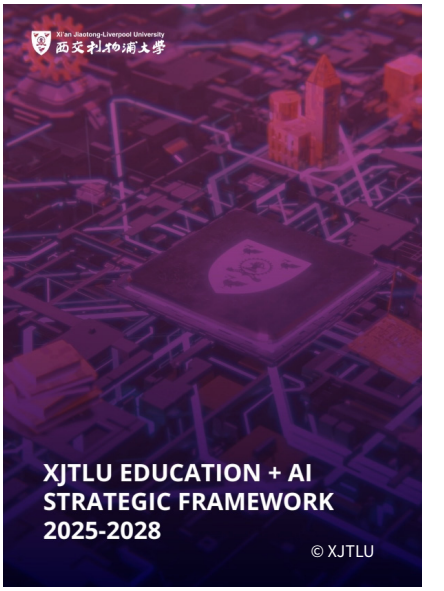
In the non-degree programmes, the Learning Mall, XJTLU's non-degree education platform, also established an AI micro-degree in 2024. It's open to all learners publically, including XJTLU students. The micro-degree is designed with market needs and aimed at cultivating interdisciplinary & application-oriented talents by deepeningknowledge, broader perspectives, and strenghened competitiveness.

The micro-degree provides a centralised online certification that supports skill improvement and career transitions. Its structured courses offer short-term but highly efficient learning experiences. By combining theoretical study with hands-on practice, it allows students to develop their vocational skills. The micro-degree is designed in alignment with academic education to ensure that its content meets the same high standards.

The AI micro-degree is geared towards working professionals and students. It provides them with fundamental and core knowledge of AI technologies and applications. By taking this course, learners


**Intelligent XIPU from Technology, Business, and User Perspectives**

are able to upgrade their skills, work more efficiently, and be well-prepared for improving themselves or promoting the transformation of traditional enterprise management towards AI-empowered one. We believe that graduates will gain the ability to apply AI tools in their work and studies, enabling their academic progress, career development, and the digital transformation of their organisations.
Like the earlier online courses co-developed by the Learning Mall and UNESCO-ICHEI, these new programmes can also be shared through the IIOE platform. In this way, XJTLU's replicable experience can be widely spread to universities around the world.




## Global Inspiration

XJTLU has released a strategic framework for Education + AI, covering six key areas: AI governance, AI-empowered learning and experience, AI-driven research and innovation, AI-industry collaboration and entrepreneurship, institutional organisation and operations, and AI infrastructure and support. Moving forward, XJTLU will continue to deepen the application of AI in fields like teaching, research, administration, and services. By drawing on the power of AI, the university aims to reshape workflows and organisational culture. It will also advance the vision of an "Intelligent XJTLU" through platform transformation, revolution in user experiences, and developing new forms of interaction.

Through the College of Industry-Entrepreneurs (CIE) and its industry collaborations, XJTLU will also promote lightweight AI solutions, strengthen its partnership with UNESCO-ICHEI, and integrate sustainability into education. Together, these efforts will gradually form a replicable, adaptable, and evolving AI + Education ecosystem.

> “This ecosystem not only strengthens XJTLU's path towards becoming a centre of excellence and innovation, but also offers the world an inclusive, high-quality and sustainable pathway for digital transformation in education — a realisation of the vision to move "from XJTLU practice to global inspiration."”

The Pioneer Award ceremony was held at the Sands Expo & Convention Centre in Singapore, on 1 September 2025.

# New Growth: The IIOE Ecosystem · 2025

Progress in education is smooth and enduring, yet carries long-term significance in quiet. The six-year journey of the International Institute of Online Education (IIOE) stands as the best testament to this statement. Since its launch in late 2019, IIOE has established over 10 National Centres worldwide. Each National Centre utilises its unique regional advantages and local resources to build diverse, high-quality educational repositories, organise localised capacity-building programmes. These endeavours aim to nurture higher education workforces with innovative mindsets and excellent teaching practices.

Looking back on six years of development, the IIOE has embodied a distinctive value in practice under an era calling for the application of digital technologies and AI. It promotes the integration of educational resources with local characteristics into global networks. In 2025, the IIOE ecosystem has reached a new milestone: IIOE Ghana National Centre has been established in University of Cape Coast, IIOE Serbia National Centre has been launched at the University of Belgrade's Faculty of Education. Meanwhile, IIOE Singapore Training Centre and IIOE Kyrgyzstan National Centre are officially established. All these achievements allow IIOE to make positive progress in regional cooperation, promoting educational equity and digital transformation.

## West Africa | Ghana National Centre

The 13th IIOE National Centre, the IIOE Ghana National Centre, was established at the University of Cape Coast (UCC). As the top-ranked higher education institution in Ghana and West Africa for last five years according to Times Higher Education (THE), UCC is translating its academic excellence into a driving force for leading the region toward a digital education future.

On July 31, 2025, the Smart Classroom jointly built by IIOE, SUSTech, UCC, and other partners was officially inaugurated, marking the establishment of the IIOE Ghana National Centre on the same day. This milestone not only extends the IIOE ecosystem's global footprint but also supports UCC in playing a pivotal role in the digital transformation of higher education in Ghana.

13th IIOE National Centre,
University of Cape Coast


July, 2025

14th IIOE National Centre,
University of Belgrade

October, 2025

IIOE Singapore Training Centre,
Temasek Polytechnic


October, 2025

15th IIOE National Centre,
Kyrgyz National University

November, 2025


UCC Smart Classroom Launch Ceremony

Equipped with advanced facilities and supported by IIOE's extensive digital resources, the Smart Classroom provides dual support in technology and content, injecting fresh momentum into the modernisation of higher education across the nation. Moving forward, the IIOE Ghana National Centre will focus on building university networks, enhancing faculty capacity, and fostering policy dialogue, working collectively to cultivate a modern and sustainable higher education ecosystem. The Ghana Ministry of Education has also expressed its strong support for its development.

This milestone reflects IIOE's deeper conviction: the true value of global collaboration and regional empowerment lies in sharing a common educational ecosystem. What IIOE treasures, and what partners like UCC undertake, is the belief that technology becomes a force of warmth and humanity in education when it operates in a equal and open collaboration.

## Central and Eastern Europe | Serbia National Centre

At the Center for Robotics and Artificial Intelligence in Education (CRAIE), University of Belgrade, IIOE inaugurated its 14th National Centre and it's the first node of IIOE's ecosystem in Central and Eastern Europe. This new centre bridges Europe's academic traditions with Asia's innovative educational technologies, aiming to empower higher education workforces and learners with future-oriented digital and AI competencies.

The daily operation of this National Centre is managed by CRAIE, which is a result of multi-stakeholder collaboration itself. It's jointly established by the Ministry of Education, Science and Technological Development of the Republic of Serbia, the Faculty of Education of the University of Belgrade, and NetDragon Websoft Holdings

Limited. As a product of advancements in AI, robotics, and virtual reality–based intelligent learning systems, CRAIE embodies Serbia's commitment to knowledge innovation and the strategic use of digital resources. The University of Belgrade, as one of the leading academic institutions in Serbia and the broader Central and Eastern European region, provides fertile academic ground for the professional growth and development of the IIOE National Centre.

Positioned as a hub for higher education innovation in Central and Eastern Europe, this IIOE National Centre will focus on several key areas: building a regional university network to integrate digital and AI technologies into higher education; exploring future learning paradigms with an emphasis on AI and robotics education; facilitating national dialogues and professional exchanges to advance talent development; coordinating the co-creation and sharing of

## IIOE: Beyond Connection, an Invitation Forward

Born from the shared aspiration of developing countries for inclusive global public goods in education, IIOE has grown through the collective wisdom of its partner institutions. As a network for knowledge sharing and capacity building, joining IIOE means more than accessing a wealth of courses and digital platforms. It means becoming a part of the global community of practice, learning from pioneers, and avoiding repetitive exploration. Every newly established national centre empowers local higher education workforces and administrators with new tools, while their best practices in turn enrich the collective vision of the alliance.

This is a story of mutual growth, shared achievement, and the very source of IIOE's vitality.

For example, IIOE's National Centre mechanism is helping universities in Africa build an organic collaborative ecosystem. When the IIOE Ghana National Centre was established, the IIOE Nigeria National Centre at Ahmadu Bello University and the IIOE Zambia National Centre at Mulungushi University took the initiative to share their experiences, including organising national policy dialogues to conducting faculty digital training and planning new initiatives such as women's empowerment programs in Africa. This kind of interaction among alliance partners aims to build their individual practices into a unified network of digital education innovation, planning and implementing projects to turn cooperation from a concept into joint action.

IIOE online course resources; and promoting flexible, context-sensitive training models for educators and learners.

This initiative also demonstrates the maturity of the IIOE ecosystem: each National Centre operates deeply within its local cultural and educational context, advancing educational innovation through targeted university network building, capacity enhancement, and outcome-driven dialogue. Together, these efforts establish both regional and global benchmarks for collaborative, technology-enabled higher education transformation.

## Southeast Asia | Singapore Training Centre

On 23 October 2025, UNESCO-ICHEI and the International Leading Education Alliance (ILEA) jointly established the IIOE Singapore Training Centre. Serving as the Asia-Pacific hub of the Healthy Lifestyle Coach Certification (HLCC) programme, the centre is dedicated to transforming knowledge in the health field into practical, transferable professional skills, thereby advancing the deep integration of quality education and public health on a global scale. Based on Singapore's open innovation ecosystem and technological foresight, the centre represents a key milestone in IIOE's efforts to explore sustainable education and career pathways.

The establishment of the Singapore Training Centre also offers a new lens through which to understand a more flexible and diversified IIOE. By extending its reach to developed regions and emphasising the practical value and commercial sustainability of course resources, the centre injects new vitality and possibilities into the IIOE ecosystem.

## Central Asia | Kyrgyzstan National Centre

In November 2025, the 15th IIOE National Centre was formally established at Kyrgyz National University (KNU), marking a new anchor point for the initiative across the Russian-speaking world and opening a fresh chapter for digital education cooperation in Central Asia. The creation of this Centre builds not only on UNESCO-ICHEI's long-standing partnerships in the region, but also on the continued engagement of Kyrgyz higher education institutions in UNESCO-related initiatives. Their active participation in policy localisation, advisory work and the development of smart learning environments has laid foundations for collaboration. The Kyrgyz Smart Classroom, launched on campus in September 2025, stands as a tangible expression of this shared vision.

The establishment of the Kyrgyz National Centre also brings the IIOE Russian-language platform into full operation at the local level. On 26 November 2025, Kyrgyz National University hosted an online workshop introducing the platform's features and IIOE's course ecosystem to more than 400 educators and administrators from over 50 universities across the country. The strong and enthusiastic response underscored the growing demand within Russian-speaking institutions for access to high-quality global learning resources.

The IIOE Kyrgyz National Centre will take on several important roles: organising regular

KNU Smart Classroom Launch Ceremony

regional training to support systematic uptake of new IIOE courses and tools; serving as a focal point for gathering the needs of partner institutions across the Russian-speaking and Central Asian regions, thereby driving course iteration and ecosystem development; and acting as a connector within local networks, strengthening links among universities, teachers and regional organisations to ensure that platform resources take root in everyday educational practice.

This strategic presence not only extends IIOE's footprint in Central Asia, but also injects new vitality into the platform's linguistic diversity, content localisation and cross-regional cooperation.

These new centres may appear as a geographical expansion, yet in essence, they collectively contribute to building a more interconnected and resilient IIOE ecosystem. IIOE's operational model continues to evolve through exploration, adjustment, and innovation. A notable trend is the growing engagement with government bodies and regional organisations, expanding cooperation beyond the university level to encompass broader education systems. By integrating initiatives such as local teacher qualification frameworks, IIOE is increasingly aligning its projects with national education development agendas.

Change always begins with understanding and action. Looking ahead, the IIOE will continue to deepen its localisation efforts, empowering national centres and partner universities to take the lead in developing courses, organising training, and managing implementation. In designing content, national centres will serve as anchors, drawing local experts into the process to ensure that each initiative takes root meaningfully within its own context.

# How Kazakhstan localised the UNESCO IITE course and scaled training via National Center for Professional Development "Orleu"

**IIOE champions co-creation and shared progress built on multilateral cooperation, advocating for close collaboration among universities, international organisations, and local institutions to translate global standards into locally meaningful resources. The collaboration between Kazakhstan's National Centre for Professional Development "Orleu" and UNESCO IITE is a vivid example of this model in the Russian-speaking region, and a story we are delighted to feature in this special issue of *CLOUD*.**


About 4 thousand teachers were trained with the help of an educational project in Kazakhstan.

In recent years, Kazakhstan has taken a confident step towards the accelerated digital transformation of its education system and the thoughtful integration of AI. Ethics and safety are considered as important as practical classroom use, and the teacher remains at the heart of innovation. Technologies are meant to enhance rather than replace professional judgement and empathy.

According to TALIS 2024, teachers in Kazakhstan are highly engaged in training related to digital tools, and many already encounter AI-related topics in their professional learning. At the same time, TALIS points to a growing interest amongst teachers in developing more practical skills for working in technology-rich learning environments. A needs-assessment questionnaire of more than 8,000 teachers conducted by the National Centre for Professional Development "Orleu" shows that whilst attitudes towards AI are largely positive, about one third of respondents view their AI skills as initial or


Ramil Kabdualiev, a teacher and methodologist of educational projects at Ustaz Pro participated in teaching activities.

insufficient. Many reports need more practical examples, clearer guidance, and supportive frameworks to apply AI confidently in their teaching.

In response, Kazakhstan has adopted a thoughtful and phased approach to integrating AI into its education system. The Government has approved the Concept for the Development of Artificial Intelligence in the Republic of Kazakhstan for 2024–2029, which outlines priorities for the coming years and also draws upon a series of guidance documents from UNESCO, the Organisation for Economic Co-operation and Development (OECD), and the European Union (EU) concerning the integration of artificial intelligence within higher education[1] Preparation for PISA-2029 (The OECD's Programme for International Student Assessment), where the new domain "Media and AI Literacy" will be assessed for the first time, has further strengthened national attention on equipping both teachers and students with essential AI-related knowledge and skills [2].

Within this context, teacher professional development has become one of the central drivers of progress. Educators now need opportunities that show how AI can be used in practical, classroom-centred ways – from adapting materials and designing tasks to easing routine workload and supporting more efficient, thoughtful teaching. The national programme implemented by Orleu in partnership with the UNESCO Institute for Information Technologies in Education (UNESCO IITE) reflects this priority and represents a carefully planned step towards supporting teachers in an evolving digital landscape.

## UNESCO IITE Course and its Adaptation in Kazakhstan

In autumn 2025, UNESCO IITE, in cooperation with Orleu, launched a large-scale national training programme for teachers on the effective and ethical use of AI. The initiative aimed to strengthen teachers'practical skills in integrating AI into lesson planning, content development, and assessment.

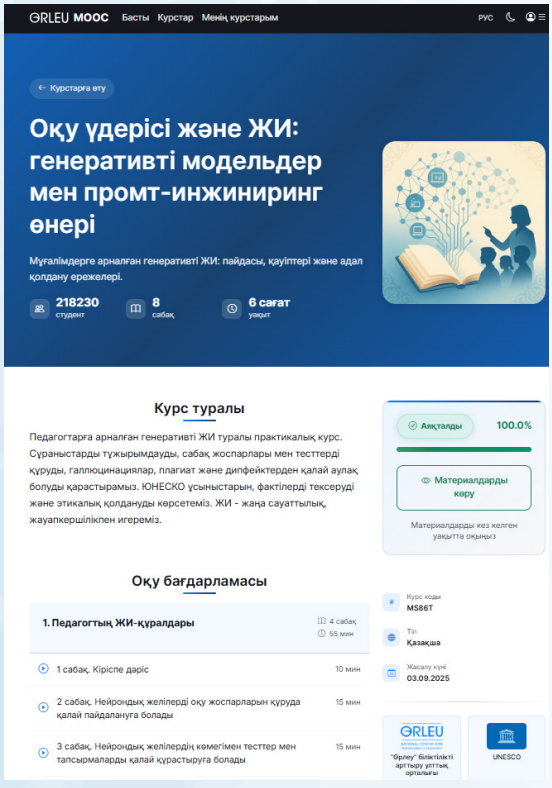
The course content developed by UNESCO IITE and UNESCO-ICHEI was adapted to

**Aidana Shilibekova**

Aidana Shilibekova is Chair of the National Centre for Professional Development "Orleu", Kazakhstan. She is the developer of the national criteria-based assessment system and author of teacher professional development programmes and methodological resources. She leads national initiatives advancing AI-driven professional learning in partnership with UNESCO IITE and other international organisations.

Kazakhstan's educational context. Materials were localised into Kazakh and Russian, whilst examples were aligned with national priorities – functional literacy, cross-curricular integration, and differentiated instruction. The programme emphasised practical use: formulating effective prompts, creating lesson plans and assessments, and designing visuals with Generative AI tools.

Implemented through the Orleu MOOC (mooc.orleu.edu.kz), the course became part of the national in-service training framework, ensuring recognition of certification and allowing rapid nationwide scaling. The structure of the programme corresponds to the first stage – "Acquire" – in the progression Acquire → Deepen → Create, outlined in the UNESCO AI Competency Framework for Teachers [3]. This entry-level course was designed to provide a broad professional introduction to AI, focusing on foundational tools and prompt literacy, whilst preparing teachers for deeper and more creative engagement with AI in future stages.




Orleu MOOC

## Implementation and Participation

The training programme was offered free of charge and delivered entirely online, providing open access to teachers from all regions, including rural areas. The simple registration process and flexible scheduling attracted unprecedented interest. In a short period, over **324,000 teachers** registered for the course, and more than **252,000 participants** (77%) successfully completed the training

and received certificates. The majority of participants were teachers aged 31 to 50, representing a broad spectrum of subjects and educational levels.

The course consisted of three thematic modules with a total of eight lessons and a final assessment, taking about 2 hours and 40 minutes to complete. The first module, Teacher's AI Tools, introduced generative AI applications for lesson planning, assessment, and the creation of digital learning materials. The second module, Prompt Engineering and Visualisation Skills, explored effective communication with neural networks, strategies for building high-quality prompts, and AI-based visual content generation. The final assessment tested participants' understanding of prompt design, using various neural networks, and the ability to apply AI tools in teaching practice.

Public communications by the government and national media in August–September 2025 emphasised that the development of AI competencies amongst teachers and students was a strategic priority [4]. The success of the Orleu & UNESCO IITE course reinforced this vision, showcasing Kazakhstan's readiness to implement responsible AI in education at scale.

## Outcomes and Future Directions

The first phase of AI training for teachers – implemented at the Acquire level – has successfully established a baseline of AI literacy and a culture of responsible practice amongst educators across Kazakhstan. Teachers now understand the mechanics of generative tools, the logic of prompts, and the ethical principles of digital work. They have begun to apply AI in their everyday teaching – from content creation and visualisation to feedback and adaptive learning materials.


"This course is highly practice-oriented, concise, and systematically structured. It clearly explains the main tools for working with AI, the methodology of writing prompts, and the capabilities of generative models through concrete examples.
After completing the course, my understanding of how to work with AI has significantly deepened. I now see more ways to use it in school lessons and to diversify assignments and tasks. It also inspired new thoughts related to academic freedom and professional growth.
The video lessons are of high quality, meaningful, and well-thought-out. Given the limited time teachers have, the format allows them to master new skills quickly and efficiently."

—— Teachers' feedback after completing the course

Survey data confirmed a high level of engagement and motivation amongst participants. Many educators emphasised that the course provided practical, immediately usable techniques and inspired them to experiment with new lesson formats. Half of the respondents expressed interest in deeper, more practice-oriented study of AI, whilst younger teachers found the course particularly relevant and motivating. Mid-career teachers showed some uncertainty about practical application, and more experienced educators demonstrated strong readiness and confidence in using AI tools.

Building on these results, Kazakhstan is now expanding professional development to more advanced levels of Acquire → Deepen → Create progression. At the Deepen level, more than 15,000 informatics teachers in urban and rural schools will receive specialised training focused on in-depth application of AI in pedagogy. In parallel, 56 existing professional development programmes have been updated with a dedicated module titled *Using Digital Technologies to Enhance Students' Functional Literacy*. Between 2024 and 2025, this module has already been completed by over 160,000 teachers nationwide.

Another key element of continuous professional support will be the upcoming national platform "Ustaz" for teachers' lifelong professional development. Based on AI and big data technologies, this platform will enable the analysis and personalised design of teachers' individual professional growth trajectories throughout all stages of their careers. These functions will be supported by integrated AI assistants, ensuring targeted, data-driven support and learning personalisation at scale.

## Conclusion

AI is becoming the foundation of Kazakhstan's new educational architecture. The Orleu & UNESCO IITE initiative has demonstrated how international frameworks can be effectively localised and implemented through national professional development systems. The project's success confirms that meaningful change depends not only on policy and infrastructure but also on the active participation and innovative mindset of every teacher.

As Kazakhstan continues to advance its AI in education agenda, the next stages will focus on expanding advanced training, integrating AI-based personalisation tools like the "Ustaz" platform, and maintaining a strong ethical and human-centred approach. The country's experience shows that the future of education is being shaped not by technology alone, but by empowered teachers who know how to use AI wisely, creatively, and responsibly in the service of learning.

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# AI Micro-Certifications in Latin America: Lessons from the Central University of Venezuela

**Across Latin America, the digital divide and the pressure to upskill teachers have long shaped the region's education landscape. At the Central University of Venezuela (UCV), the response has been deliberately paced and sustainably designed: using the IIOE's Micro-Certification courses in AI to help lecturers understand and apply AI in a responsible, pedagogically sound way. Through this case, we also hope to offer a glimpse of what AI-era teacher development might look like for universities across Latin America.**

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## UCV-IIOE Training Mode

In Latin America, the digital divide, limited technological infrastructure and the mounting pressure to strengthen teachers' readiness for hybrid learning have long posed significant challenges for the higher education sector. At the Central University of Venezuela, there was early recognition that building AI literacy would be vital not only for safeguarding educational quality, but also for ensuring fair and equitable access to knowledge. This awareness stems from more than a global surge in AI-enabled teaching tools and an expanding demand for professional development. It also reflects UCV's own institutional priorities and the urgent need to refresh curricula so they remain relevant to an era defined by rapid technological change.

To address these needs, UCV selected teachers who were already active on the


university's virtual campus platform, which is built on the Moodle learning management system, as the primary participants for training. The aim was to support them in using generative AI to improve teaching strategies and enhance classroom outcomes. The entire implementation followed a gradual and well-structured teaching model. After an announcement from the Office of the Academic Vice Presidency, teachers were guided to enter a dedicated learning space on the IIOE platform. There, they completed four micro-certification courses covering AI fundamentals, course design, and digital storytelling with video production. The learning pathway starts with basic concepts and moves step by step toward practical applications, supported by consultation services and progress monitoring. Teachers were invited to submit a questionnaire to provide feedback on their learning experience and the impact on their teaching.

## Training Outcomes

| Course | Enrolled | Approved | Unfinished | Approval percentage (%) |
|---|---|---|---|---|
| Teaching with AI: Practical Tips and Prompts | 179 | 41 | 138 | 23 |
| Fundamentals of Generative AI in Higher Education | 179 | 37 | 142 | 21 |
| Co-Design Engaging Courses with Generative AI | 179 | 24 | 155 | 13 |
| AI-Powered Videos and Digital Avatars for Effective Storytelling | 179 | 25 | 154 | 14 |

Table 1 Teachers' participation rates

In the first phase, the project attracted teachers from a wide range of faculties and disciplines, including sciences, agriculture, pharmacy, dentistry, and the humanities. 127 participants successfully obtained their micro-certifications.

The post-course questionnaire results were largely positive. Most teachers expressed satisfaction with the programme and believed that the training helped them better understand how AI can be applied in teaching. Many had already begun experimenting with AI in lesson preparation, assessment design, the creation of teaching materials, and personalised student support. Notably, more than 70 percent of certified teachers felt confident in sharing their

experience with colleagues and guiding them in the use of AI. This indicates the emergence of impact multipliers of the content provided in the courses.

Teachers also noted that they now had clearer ideas about course planning, pacing, the use of digital resources, and the development of assessment criteria. Taken together, the feedback shows that the micro-certification programme is meaningfully shaping teaching practices and providing UCV with foundations for integrating emerging technologies into its educational processes.

In addition, teachers offered several valuable suggestions for improvement. They expressed hopes for more cases that reflect the realities of Venezuela, for a more advanced learning pathway, for additional opportunities to engage in guided practice, and for stronger efforts to build a learning community. These comments show that teachers have a strong desire to continue enhancing their technological skills and teaching capacities, and that they are willing to take more concrete steps in their professional development.

## Educational Innovations

In this project, the UCV–IIOE model brought a series of thoughtful innovations to teacher training. Among them were the integration of generative AI tools into instructional design, the use of virtual avatars and digital storytelling to produce more structured and engaging teaching videos, and the systematic inclusion of content on AI ethics and responsible use to ensure that technological adoption remains firmly grounded in academic standards.

Meanwhile, some teachers noted that the predominance of English materials created challenges in comprehension. This further highlights the need to develop more Spanish-language course resources and language support measures, so that more teachers can participate in future training with confidence and ease.

> “Rather than supplanting teachers' existing expertise, these approaches provide new methods and fresh perspectives, helping educators link traditional pedagogy with emerging technologies in a more organic and confident way.”

## Lessons and Insights

The evaluation of the IIOE courses shows that the project has achieved notable results in strengthening the technological and pedagogical capacities of UCV teachers. The active participation of educators from diverse disciplines reflects the university's steady and forward-looking approach to integrating AI into teaching. This direction aligns with global trends and continues UCV's strong academic tradition of supporting teachers' ongoing professional development.

Overall, teachers demonstrated clear progress in course activity design, AI tool integration, and the creation of dynamic learning materials. They also showed increased awareness of responsible technology use, which is essential for advancing AI in education while safeguarding academic integrity.

Although there was a gap between the number of teachers who enrolled and those who completed the courses, such patterns are common in online learning and often relate to scheduling constraints, workload, or language barriers. What matters is that the teachers who completed the programme now form a core group with strategic potential. Among them, 20 teachers finished all four courses, providing a strong foundation for building an innovation-driven teacher workforce grounded in ethics and sound pedagogical principles.

The cooperation with IIOE has also inspired directions for future improvements at UCV. These include strengthening mentor support, expanding Spanish-language resources, and fostering a more connected learning community.

## The Road Ahead

In the near future, the university plans to build on this foundation by developing a three-level training system that ranges from basic knowledge to AI-based instructional design and advanced specialisation courses. It also aims to establish a group of "multipliers", teachers who have been certified and are capable of guiding others, to encourage broader participation among colleagues.

UCV is also working with UNESCO-ICHEI to explore the development of new micro-certification courses. These will cover topics such as self-directed learning, AI ethics, and advanced digital teaching resource design. In the future, UCV will also engage more deeply with the IIOE network and strengthen collaboration with IIOE in course development and training practices.

Through these efforts, UCV is advancing digital transformation in a steady and forward-looking manner. It continues its academic traditions while reinforcing its role within both the national and regional education systems.

# Weaving a National Digital Ecosystem: ITC and the Making of CCUN

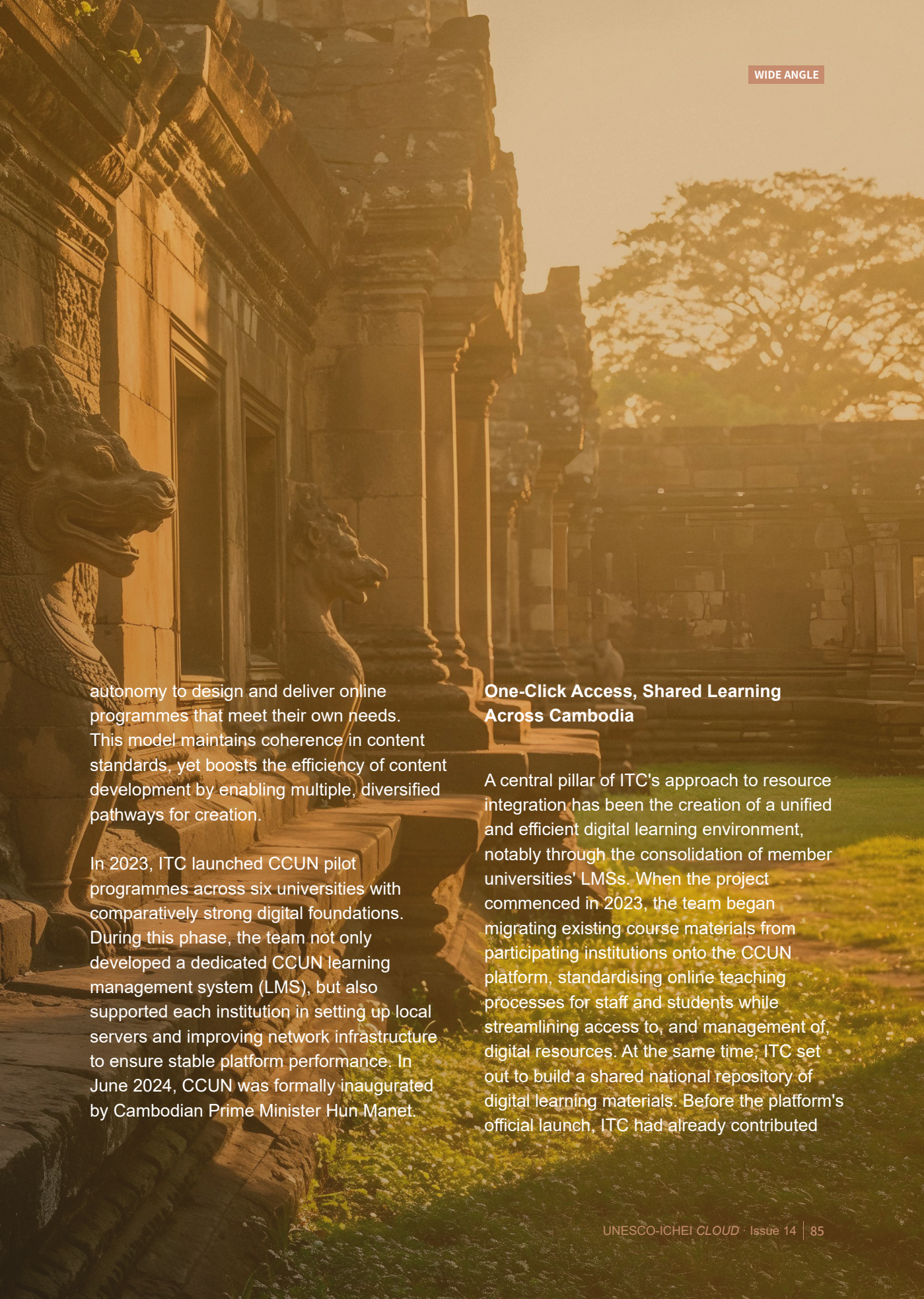
**The experience of the Institute of Technology of Cambodia shows that systematic local innovation, paired with steady ecosystem building, offers a powerful path toward advancing educational equity and quality. It's a model at the very heart of what the Pioneer Award recognises and seeks to champion.**

The Institute of Technology of Cambodia (ITC) has been exploring the possibilities of digital education for well over a decade, ever since it joined the ASEAN Cyber University (ACU) project in 2009. But after 2020, when ACU support ended and the push for digital transformation gathered pace, long-standing gaps in Cambodia's higher education system became increasingly difficult to ignore. High-quality digital resources were in short supply, and collaboration between institutions remained limited.

To tackle these, ITC worked with the Ministry of Education, Youth and Sports (MoEYS) to launch the Cambodia Cyber University Network (CCUN) in 2022. The national platform now links 18 public and private universities, creating shared spaces for resources, facilities and ideas, and supporting new models of online learning designed to improve quality and resilience across the sector. As the project's technical lead, ITC has been integrating systems, building capacity and helping universities make the leap into a more connected digital future.

## Cambodia's Version of a "National Online University"

At the heart of ITC's approach is a standardised, centralised teaching platform that serves as the system's core, while allowing member universities substantial



autonomy to design and deliver online programmes that meet their own needs. This model maintains coherence in content standards, yet boosts the efficiency of content development by enabling multiple, diversified pathways for creation.

In 2023, ITC launched CCUN pilot programmes across six universities with comparatively strong digital foundations. During this phase, the team not only developed a dedicated CCUN learning management system (LMS), but also supported each institution in setting up local servers and improving network infrastructure to ensure stable platform performance. In June 2024, CCUN was formally inaugurated by Cambodian Prime Minister Hun Manet.

**One-Click Access, Shared Learning Across Cambodia**

A central pillar of ITC's approach to resource integration has been the creation of a unified and efficient digital learning environment, notably through the consolidation of member universities' LMSs. When the project commenced in 2023, the team began migrating existing course materials from participating institutions onto the CCUN platform, standardising online teaching processes for staff and students while streamlining access to, and management of, digital resources. At the same time, ITC set out to build a shared national repository of digital learning materials. Before the platform's official launch, ITC had already contributed

## Connecting with IIOE, Reaching the Global Stage

ITC's efforts have not been confined to the national level. It has proactively brought the achievements of the CCUN project onto the international stage. In 2024, ITC signed a Memorandum of Understanding with UNESCO-ICHEI, marking the start of CCUN's integration into a wider global digital education network. This partnership has not only enabled the exchange of knowledge and experience, but has also given Cambodia's digital transformation efforts much-needed international visibility.

In June the following year, the two institutions jointly delivered an online training programme for CCUN member universities, offering a comprehensive introduction to IIOE platform and its course resources. Through hands-on demonstrations, the training equipped Cambodian academics with essential skills for using AI tools in teaching and research. While AI adoption in Cambodia remains at an early stage, the development of AI-literate faculty and students is already recognised as a strategic national priority.

more than 340 of its own online and traditional courses to CCUN. These were soon joined by courses from other member universities, hosted centrally by ITC, forming the backbone of a rich and shareable national digital course library.

Through this platform, faculty and students across the network can access a wide range of learning materials through a single, unified entry point. Crucially, ITC's approach to resource integration goes far beyond simple consolidation. It involves a process of reconstruction that places quality and practical relevance at the forefront. Working with subject specialists and technical staff, each course is standardised, structurally refined, and supplemented with appropriate assessments. This ensures alignment with

> “CCUN member institutions are encouraged to collaborate on sharing data centre resources, considering some universities cannot afford a data centre.
>
> ——Hun Manet, Prime Minister of Cambodia”

shared quality benchmarks while remaining closely attuned to Cambodia's local teaching needs.

By building a standardised and centralised teaching platform—consisting of a unified learning management system and a shared data center—ITC has integrated previously fragmented teaching systems, course content, and data standards into an interconnected national-level digital ecosystem. This model not only reduces platform development and maintenance costs for member universities, but also enables genuine resource sharing, greater standardisation in teaching, and deeper collaboration across institutions.

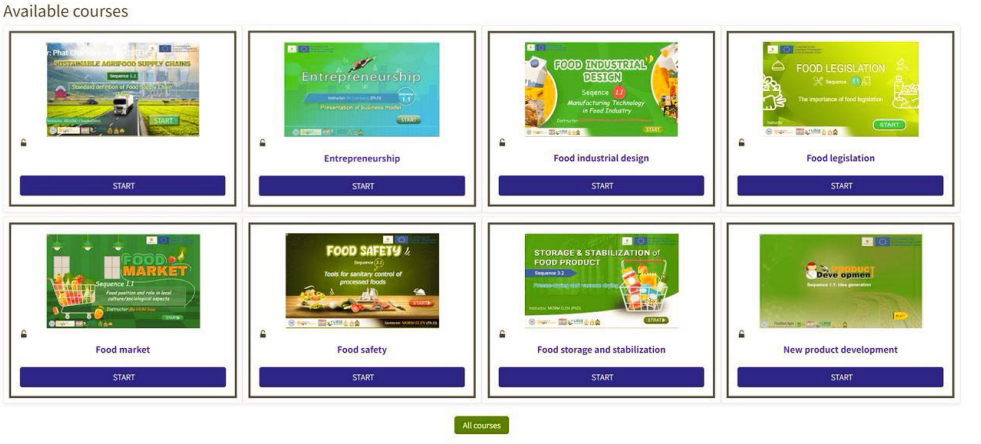
### Training and Localised Support

Alongside the construction of the unified platform, ITC has also delivered systematic digital skills training for faculty and researchers from partner institutions. Training topics span key areas such as online course development, digital resource production, platform management, and network operations. This practical capacity-building system has already covered the vast majority of member universities. Beyond centralised training sessions, ITC places strong emphasis on localised, on-site support. The team regularly visits member institutions to provide hands-on guidance, ranging from network configuration and troubleshooting to content creation and system operation. In addition, ITC offers tailored training sessions addressing specific issues encountered by instructors in their teaching practice, such as how to upload teaching materials or how to organise online classes.

## Outcomes of Digitalisation

The CCUN LMS has quickly evolved into a nationwide hub for digital learning, greatly enhancing the circulation and use of high-quality educational resources. In just two years, the number of participating institutions has grown from 6 to 18. The unified platform also makes it possible to track learners' learning progress and engagement across universities, enabling ITC to refine teaching practices and raise instructional quality.

The initiative has also driven a marked increase in digital participation among both




Part of Course Resource Pages on the CCUN Official Website.

CCUN launch ceremony

faculty and students. Between the 2023 and 2024 academic years, more than 5,000 ITC students took part in online learning through the CCUN platform. Faculty engagement has improved significantly as well: since 2023, a total of 563 instructors from member universities have received training, while more than 300 ITC academics have actively contributed to platform-based teaching. Together, these efforts have strengthened educators' capacity to develop digital learning materials and created an essential pool of digitally skilled teaching personnel for Cambodia.

When it comes to content, ITC has built an impressive base for the platform to grow on. By December 2024, its e-Learning Centre had created 222 learning modules, ranging from tailored courses for the Ministry of Rural Development to eleven national-level modules produced under UNESCO's Basic Education Equivalency Programme (BEEP).

What truly sets CCUN apart is the way a centralised platform is paired with hands-on, local support. This approach not only keeps

> “For many institutions in the Global South that face similar resource constraints, the value of ITC's experience lies not so much in the technology itself, but in how technological capacity can be converted into platform resilience, pedagogical innovation, and expanded educational opportunities.”

resource development efficient and of high quality, but also gives universities the space to shape their own programmes. Member institutions are now not just confident users of the CCUN system, but are also creating their locally tailored courses that reflect the needs of their communities. The result is a stronger sense of ownership among faculty and students, and a digital education ecosystem that is beginning to take root, grow under its own strength, and gather lasting momentum across Cambodia.

## Platforms and Training: What are We Focusing On?

One of the most striking features of CCUN is its digital ecosystem, built on architecture that blends centralised management with distributed innovation. By coupling a unified national platform with hands-on, localised training, CCUN manages to strike a balance: course quality is standardised, yet universities retain the freedom to design programmes that speak to their own needs. This approach tackles the very real challenges Cambodian universities face in their digital transition, while deepening engagement and a sense of ownership among both staff and students. It offers a locally grounded, sustainable development pathway, and a valuable illustration of what it takes for a national digital education platform to genuinely take root.

**More importantly, it is worth remembering that even the most sophisticated platform delivers little value if the people using it are not equipped to do so.** This is why ITC puts human capacity at the heart of its work, building a comprehensive training system that spans the full spectrum of skills, from course design and platform management


to network operations. Through a mix of centralised workshops, on-site support and practical sessions on everything from day-to-day system use to instructional design, the programme helps teachers build both competence and confidence in digital teaching. Crucially, it also ensures that the benefits of digital education can take root and grow over time. This human-centred, training-led approach is what ultimately underpins the long-term sustainability of Cambodia's digital transformation efforts.

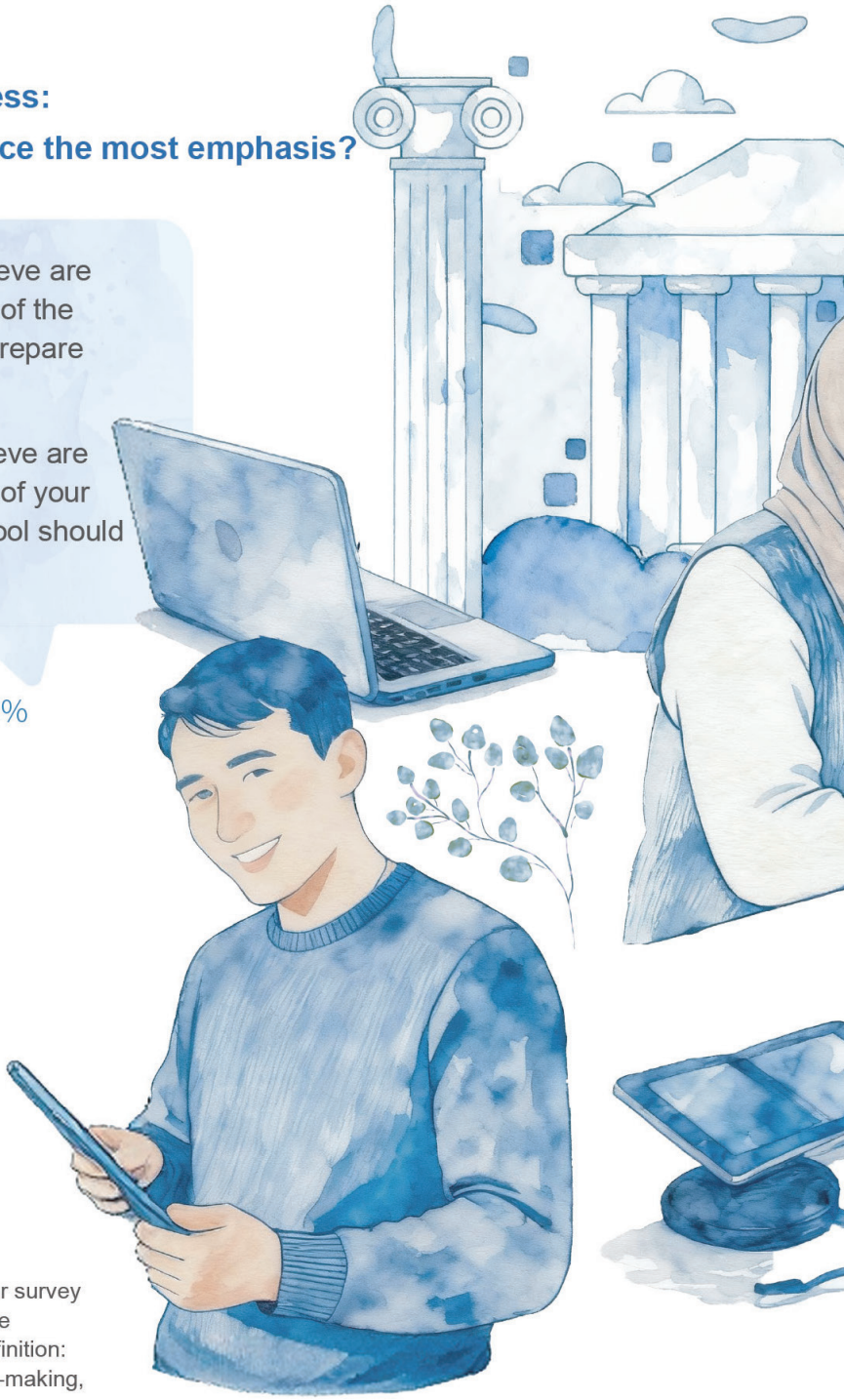
# Future-Ready Skills:

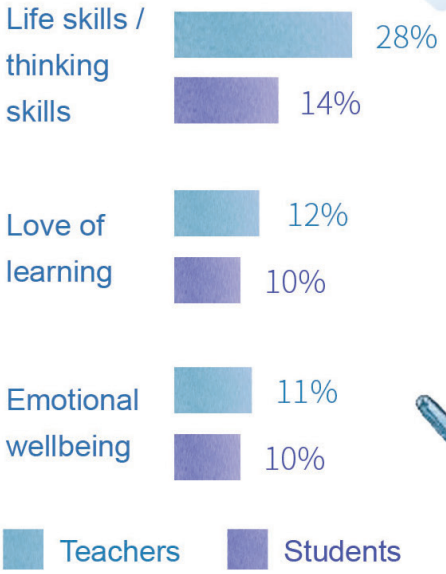
# We Can Do Better

**Developing future-readiness:**
**where should schools place the most emphasis?**

Teachers: What do you believe are the most important aspects of the future that schools should prepare students for?

Students: What do you believe are the most important aspects of your future that your current school should prepare you for?

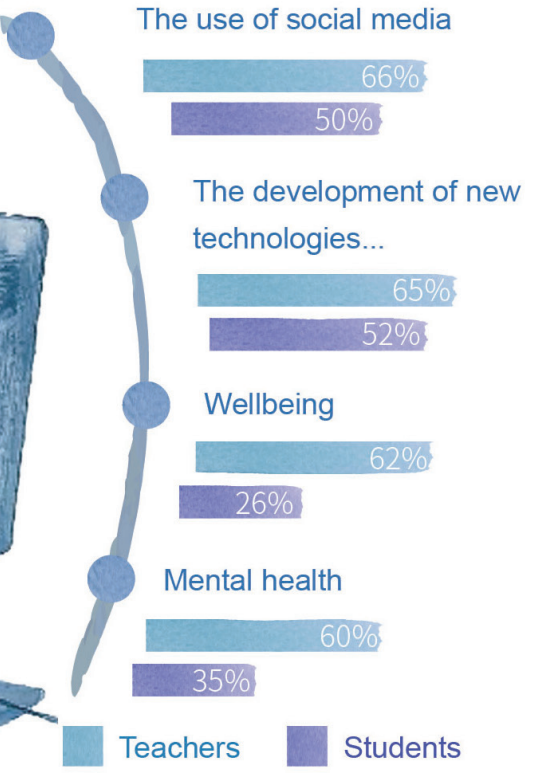





*"Life skills" was included on the teacher survey and "Thinking skills" was included on the student survey – both had the same definition: "for example, problem-solving, decision-making, and critical thinking".

Teachers: Which of the following, if any, do you discuss with your students?

Students: Which of the following, if any, do you discuss in lessons / with your teachers?




Our research reveals that many students do not feel well prepared for their future. Where does this underestimation on the part of students come from?

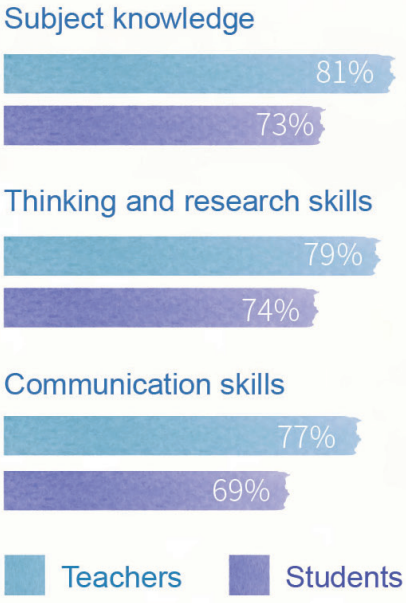
They may not recognise all the skills they are developing alongside deep subject knowledge, nor see the different ways in which their learning experiences at school could translate into future success.

# Subject knowledge and skills

## Next step in education

Teachers: Which of the following, if any, do you view as important for students to learn to be ready for their next step in education?

Students: Which of the following, if any, do you view as important to learn to be ready for your next step in education?



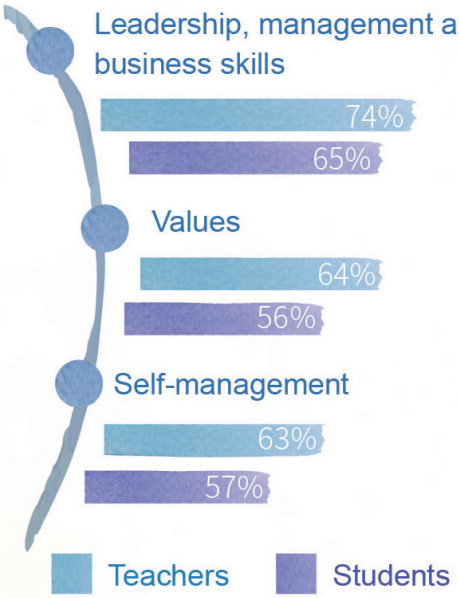

## Self-management skills


Technology is widely embraced by teachers and students to support learning and effective self-management. Over 90% of teachers feel that technology helps them to plan and deliver lessons and allows them to explore innovative teaching practices.

## Future after education

Teachers: Which of the following, if any, do you view as important for students to learn to be ready for their future after finishing education?

Students: Which of the following, if any, do you view as important to learn to be ready for your future after finishing education?




## Technology and learning

Teachers: Which of the following, if any, do you view as benefits of technology in preparing students for the future? And which of the following, if any, do you view as the greatest benefit of technology in preparing students for the future?

Skill development

Engagement and activity

Collaboration and communication

Ability to synthesise information

A major new report, *Navigating the future*, from the International Education group at Cambridge University Press & Assessment, aptures the voices of nearly 7,000 teachers and students across 150 countries. This report maps the core competencies needed for tomorrow's societies, framing this issue's Pioneer Award cases. These frontline practices respond to present challenges while exploring future learning ecosystems.

# Programme Updates

**All pictures in Programme Updates are based on real photographs and have been stylised using AI technology.**

## UNESCO-ICHEI Explores AI-Driven Sustainable Education with Turkmenistan

On 29 August 2025, the Ministry of Education of Turkmenistan, together with the UNESCO Institute for Information Technologies in Education (UNESCO IITE), convened the International Conference on the Potential of Artificial Intelligence in Achieving Sustainable Development Goals for Education. The event brought together senior government officials, university leaders, representatives of international organizations, and education technology platforms to explore strategic directions and practical pathways for leveraging AI to drive educational transformation and sustainable development. Ms. BI Xiaohan, Deputy Director of UNESCO-ICHEI, attended the conference and delivered a keynote speech.

## UNESCO-ICHEI attended 2025 UNESCO Digital Learning Week

On September 2, 2025, the 2025 Digital Learning Week opened at UNESCO Headquarters in Paris, France. Centered on the theme "AI and the future of education: Disruptions, dilemmas and directions", the event brought together government representatives, educators, the private sector, youth groups, and other stakeholders from around the world. Its aim is to capture the pulse of AI in education and to reshape and realign the vision of education in the AI era. The delegation of UNESCO-ICHEI attended the event and participated in a series of activities.

The delegation from UNESCO-ICHEI visited officials at UNESCO Headquarters during their participation in Digital Learning Week 2025, including the Division for Policies and Lifelong Learning Systems, the Future of Learning and Innovation Team, and the Division of Priority Africa Coordination. The parties held a series of working discussions on topics including the application of artificial intelligence and emerging technologies in higher education, as well as the development of higher education in Africa.

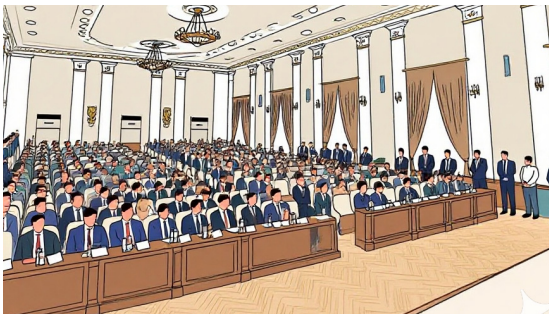
## IIOE Webinar | AI-Assisted Adaptive Teaching and Learning


The rise of Artificial Intelligence is transforming education worldwide. From smart classrooms to personalized learning platforms, AI is no longer a distant concept—it is already reshaping how teachers teach and how students learn. Yet one critical question remains: how can we ensure that technology truly adapts to the needs of every learner, instead of forcing them into one-size-fits-all models? To address this challenge, IIOE and Dr. Hong-Zheng (Shawn) Sun-Lin present a webinar on AI-Assisted Adaptive Teaching and Learning on September 18th, 2025. Dr. Sun-Lin is the Executive Director of the WisdomGarden Educational Research Institute, an Invited Researcher at Shanghai Open University, and Co-director of the Smart Instructional Technology Joint Lab at Zhejiang University. This session will provide educators with insights into using AI to design flexible, learner-centered approaches that make teaching smarter, more responsive, and more human.

## UNESCO-ICHEI Attends the Conference of Digital Trade at CIFTIS

On the afternoon of September 11, 2025, the Conference on Innovation and Development of Digital Trade in Xiong'an New Area, a key thematic event of the 2025 China International Fair for Trade in Services (CIFTIS), was held in Xiong'an New Area under the theme "Digital Chains Connect the World, Trade Bridges the Future." Ms. BI Xiaohan, signed a strategic cooperation framework agreement on behalf of the Centre with Mr. TIAN Guofeng, Executive Deputy Secretary-General of the China Association of Trade in Services (CATIS). Mr. SIT Fung, Assistant Director and Chief of the IIOE Management Centre at UNESCO-ICHEI, outlined the recent plans and long-term vision of the collaboration between the two parties.

## UNESCO-ICHEI Joins TUIT in Celebrating Its 70th Anniversary



On 24 September 2025, Tashkent University of Information Technologies (TUIT) marked its 70th anniversary with a grand celebration, accompanied by an international conference titled "Development of Engineering Fields and Economic Sectors in the Process of Digital Transformation: Challenges and Solutions". As the host institution of the IIOE Uzbekistan National Center, the event brought together ambassadors to Uzbekistan from multiple countries, presidents/rectors of partner universities from around the world, and renowned scholars. UNESCO-ICHEI was invited as the representative of international organisations, delivering congratulatory remarks during the celebration and a keynote address at the conference.

## Smart Classroom Launch Ceremony Held Grandly in Central Asia

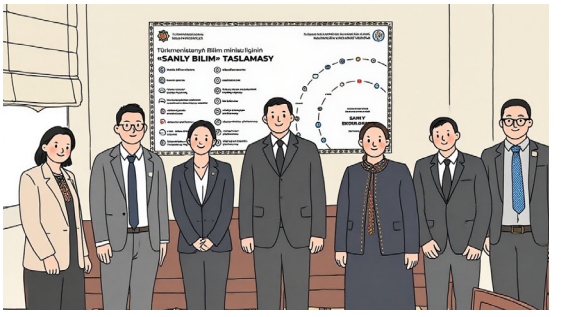
From September 24 to 29, 2025, the Dazzleview Smart Classroom Project, led by the UNESCO-ICHEI and jointly implemented by Southern University of Science and Technology (SUSTech) and Guangzhou Dazzleview Intelligent Technology Co., Ltd. (Dazzleview), was successively launched at universities in two Central Asian countries, including Uzbekistan and Kyrgyzstan. The successful implementation of these projects marks a significant breakthrough for the "Quadripartite Cooperation" model promoted by UNESCO-ICHEI in the Central Asia region.

## UNESCO-ICHEI Visited Uzbekistan Research Centre for the Developement of Higher Education

On September 26, 2025, a delegation from UNESCO-ICHEI visited the Research Center for the Development of Higher Education under the Ministry of Higher Education, Science, and Innovation of the Republic of Uzbekistan. The two parties held cooperative talks and signed a Memorandum of Understanding, initiating national-level cooperation in the digital transformation of higher education between China and Uzbekistan. Attendees included Ms. BI Xiaohan; Mr. Xoliqov Abduvali Jonizoqovic, Director of the Research Center; and Mr. Zhang Zhao, Vice General Manager of Guangzhou Dazzleview Intelligent Technology Co., Ltd.

## UNESCO-ICHEI Reached Consensus with Ministry of Education of Turkmenistan on Establishing the IIOE Turkmenistan National Centre

From October 8 to 10, 2025, at the invitation of the Ministry of Education of Turkmenistan, a delegation from UNESCO-ICHEI visited Ashgabat. During the visit, the delegation held high-level discussions with Mr. Azat Atayev, Deputy Minister of Education, reaching a consensus and outlining a cooperation framework for the establishment of the IIOE Turkmenistan National Centre. Both sides agreed to collaborate closely with the UNESCO-IITE to advance the centre's development. The initiative will leverage the IIOE platform to provide AI and digital competency training for university faculty members and administrators across Turkmenistan. During the visit, UNESCO-ICHEI also conducted in-depth exchanges with several leading higher education institutions, laying a solid foundation for the localised implementation and expansion of IIOE's initiatives in Central Asia.




## UNESCO-ICHEI Attended the Conference on Digital Lifelong Learning

From October 18 to 19, 2025, UNESCO-ICHEI attended the 2025 International Conference on Digital Lifelong Learning: Innovation·Intelligence·Integration, co-hosted by Shanghai Open University (SOU), UNESCO-UIL, and UNESCO-IITE. During the conference, a Roundtable on the Global Network for Digital Lifelong Learning was held to review progress of 2025 and discuss future directions. Professor LI Ming, Founding Director of UNESCO-ICHEI and Secretary-General of IIOE Secretariat, expressed high appreciation for the progress achieved by the Global Network. He reaffirmed ICHEI's continued commitment to supporting the network's long-term development as one of its founding members. Ms. BI Xiaohan, delivered a comprehensive presentation on the development and ecosystem building of IIOE.

## Kazakhstan Launches Nationwide AI Training for Teachers with Support from UNESCO-IITE and UNESCO-ICHEI

Since late August 2025, the National Centre for Professional Development "Orleu" under Kazakhstan's Ministry of Education has launched a nationwide AI training programme for teachers, supported by UNESCO-IITE. Within a short time, about 252,000 teachers have enrolled, and over 181,000 have completed the course and received certification. Meanwhile, UNESCO-IITE and UNESCO-ICHEI are jointly advancing the

"Digital Transformation of Higher Education in Central Asia" project. The initiative develops free, open-access Russian-language online courses to help teachers apply generative AI in education. Courses such as "Generative AI as a Teaching Tool in Higher Education" and "Prompt Engineering for Higher Education Teachers" are now available on the IIOE platform.

## IIOE Singapore Training Centre Officially Inaugurated

On October 23, 2025, the inauguration ceremony of the IIOE)Singapore Training Centre, jointly established by UNESCO-ICHEI and the International Leading Education Alliance (ILEA), was held at the American Club in Singapore.The HLCC (Healthy Lifestyle Coach Certification) certification system, powered by the IIOE multilingual AI learning platform, offers standardized and replicable course resources that are internationally recognized and employment-oriented. It is committed to fostering the deep integration of education and public health worldwide, injecting new momentum into achieving the United Nations Sustainable Development Goals — SDG 3: Good Health and Well-being and SDG 4: Quality Education.In the speech at the ceremony, Mr. JIN Li stated that the IIOE Singapore Training Centre will serve as a key hub for the "HLCC Healthy Lifestyle Coach Certification" program in the Asia-Pacific region and beyond. The centre aims to bring together the collective strengths of education, industry, research, and government to transform educational achievements into real industrial momentum, create new employment opportunities, and expand the scope of international cooperation.

## UNESCO-ICHEI Participates in the "SIECAIP"

From 28 to 30 October 2025, UNESCO-ICHEI was invited to participate in the "Sympisium on ICT and AI in Education for Central Asian Countries, Iran and Pakistan (SIECAIP)" organised by the UNESCO Almaty Office in Bishkek, Kyrgyzstan. Ms. SU Rui, Chief of the Knowledge Production and Communications Centre at UNESCO-ICHEI, shared the practices of UNESCO-ICHEI and IIOE in empowering higher education institutions in the Global South with AI and digital competencies. This is achieved through various solutions and cooperation models, including the global partner network, IIOE National Centres, the IIOE Micro-Certification Project, and the Smart Classroom Project.


## Cross-Border E-Commerce Consultation Meeting Concluded

On November 5th, 2025, UNESCO-ICHEI, together with China Association of Trade in Services (CATIS) and China Cross Border E-commerce 50 Person Forum jointly hosted the "Digital Intelligence Talent Development: Expert Consultation on the Cross-border

E-commerce Micro-certification Framework". The meeting focused on developing a micro-certification framework for cross-border e-commerce, exploring new pathways for cultivating internationally oriented e-commerce talent, building a talent pool to support the global expansion of cross-border trade, and serving the educational cooperation and industrial development needs of the Global South. Grounded in international standards while emphasising regional adaptability, the curriculum system seeks to provide flexible learning pathways for learners from different countries and skill levels, combining global recognition with local relevance.


## UNESCO-ICHEI Attended Global Forum on TVET Digital Transformation

On November 11, 2025, the Global Forum on Digital Transformation in TVET (Shenzhen) 2025 was held at the Shenzhen Polytechnic University. The event was organised by the Shenzhen Polytechnic University and the UNESCO Chair on Digitalization in Technical and Vocational Education and Training (TVET) in collaboration with UNESCO-ICHEI and other organisations. Under the theme "Accelerating TVET Transformation with Emerging Tech for an Inclusive and Intelligent Furture," the conference brought together over 100 experts, scholars, and industry representatives from 36 countries and territories. Participants discussed the transformative impact of frontier technologies such as AI on global skills development systems and explored practical strategies to address changes. Ms. BI Xiaohan, delivered a thematic speech during the session titled "Strengthening Global Collaboration for Equitable, Inclusive and Intelligent TVET Systems."

## UNESCO-ICHEI Attended China-Gulf States Dialogue on Higher Education

On November 9, 2025, the China-Gulf States Dialogue on Higher Education Cooperation was successfully held during the 2025 International Forum on Higher Education. The event was hosted by the College of Education at Zhejiang University and aimed to promote higher education collaboration between China and Arabian Gulf countries. Attendees included Regional Programme Specialist for Higher Education and TVET at the UNESCO Regional Office for the Gulf States and Yemen; as well as delegations of university leaders from Oman, including President of the National University of Science and Technology, and President of the University of Technology and Applied Sciences. Other attendees included President of Applied Science University in Bahrain; President of the University of Doha for Science and Technology; and Ms. BI Xiaohan.

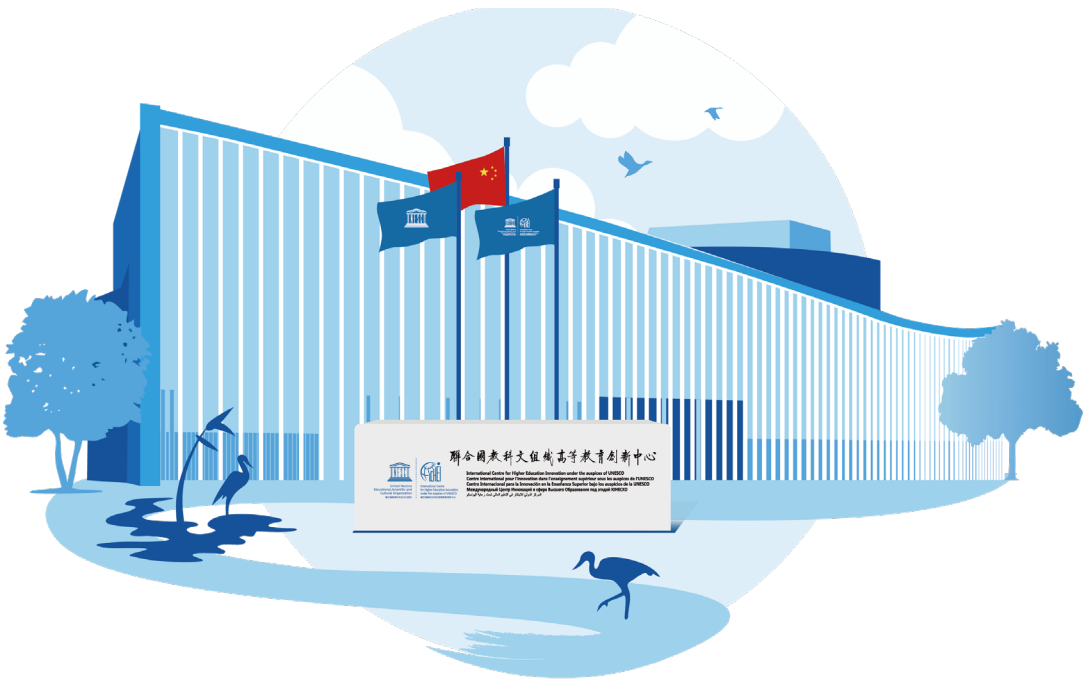
In her speech, Ms. BI Xiaohan, highlighted that in Gulf countries, partner universities of IIOE are actively leveraging the IIOE platform and its high-quality course resources, combined with localised faculty training practices, to steadily advance the digital transformation of higher education.

## Delegation from UNESCO ROSA Visited UNESCO-ICHEI

On 13 November 2025, Peter Wells, Head of Education Unit at the UNESCO Regional Office for Southern Africa, and KONG Qingling, Education Programme Specialist at UNESCO ROSA, visited UNESCO-ICHEI. Prof. LI Ming, Founding Director of UNESCO-ICHEI and Secretary-General of the Secretariat of IIOE, along with Ms. BI Xiaohan, Deputy Director of UNESCO-ICHEI, attended the meeting. The parties held in-depth discussions on topics such as strengthening the digital and AI capacity-building of higher education professionals in Southern Africa and enhancing policy dialogue in the field of higher education.


## UNESCO-ICHEI Joined Dialogue to Advance Indonesia's Micro-Certification

On November 17, 2025, UNESCO-ICHEI was invited to attend the "Embracing the Digital Era with Micro-credential" policy dialogue in Tangerang, Indonesia. Jointly organised by the Indonesia Cyber Education Institute (ICE-I) (also the IIOE Indonesia National Centre) and Universitas Pelita Harapan (UPH), the event aimed to strengthen the policy recognition and coordination of micro-credential systems at the regional level, including the IIOE Micro-Certification Project. A panel discussion themed "Regulation, Policy, Recognition, and Practices of Micro-credentials in the Region" was held during the policy dialogue, featuring remarks and exchanges by Mr. CAO Zian, Chief of the Global Parternship and Programme Office of UNESCO-ICHEI. He introduced the IIOE Micro-Certification Project and its successful implementation in multiple countries, including Egypt and Mongolia, showing the initiative's significant impact in enhancing educators' digital capacities, AI literacy, and teaching innovation.

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