



全球发展学院
Institute of Global Development



浙江(浙江大学)国际发展与治理研究中心
Centre for International Studies on Development and Governance,
Zhejiang & Zhejiang University

Second CAREC Leadership Training for Regional Economic Cooperation Empowering Education: Harnessing AI for Learning and Digital Transformation

27-31 July 2026 | Hangzhou, PRC

Training Report

August 2026

Disclaimer

This report summarizes the discussions and outcomes of the Second CAREC Leadership Training for Regional Economic Cooperation, titled “Empowering Education: Harnessing AI for Learning and Digital Transformation.” The training, held in Hangzhou, Zhejiang, the People’s Republic of China (PRC) from 27 to 31 July 2026, was organized by the CAREC Institute in partnership with Zhejiang University and the CAREC Program. It was prepared by Dr. Ilhom Abdulloev (Chief, Capacity Building Division) and Mr. Gary Huang (Capacity Building Specialist) of the CAREC Institute, with significant contribution by Professor Gong Sen, Vice Dean of the Institute of Global Development and Director of the Center for International Studies on Development and Governance of Zhejiang University.

We extend our heartfelt gratitude to Zhejiang University’s Institute of Global Development, Center of International Studies on Development and Governance, and School of Continuing Education for co-organizing the training, and to the Asian Development Bank (ADB), the CAREC Program’s Secretariat, for providing essential financial support for this flagship CAREC Institute capacity building event. This flagship CAREC Leadership Training for Regional Economic Cooperation was supported by the ADB Technical Assistance (59103-001: Supporting the Central Asia Regional Economic Cooperation Institute’s Reform).

The views expressed in this report are the views of its authors, contributors and participants of the training and do not necessarily reflect the views or policies of the CAREC Institute, its funding entities, or its Governing Council, or stakeholders of the country involved. The CAREC Institute does not guarantee the accuracy of the data included in this report and accepts no responsibility for any consequences of its use. The terminology used may not necessarily be consistent with the CAREC Institute’s official terms. The CAREC Institute accepts no liability or responsibility for any party’s use of this publication or for the consequences of any party’s reliance on the information or data provided herein.

By making any designation of or reference to a particular territory or geographical area, or by using country names in the report, the authors did not intend to make any judgment as to the legal or other status of any territory or area. Boundaries, colors, denominations, or any other information shown on maps do not imply any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries, colors, denominations, or information.

This work is available under the Creative Commons Attribution 3.0 IGO license (CC BY 3.0 IGO) <https://creativecommons.org/licenses/by/3.0/igo/>. By using the content of this report, you agree to be bound by the terms of this license. This CC license does not apply to other copyright materials in this report. If the material is attributed to another source, please contact the copyright owner or publisher of that source for permission to reproduce it. The CAREC Institute cannot be held liable for any claims that arise as a result of your use of the material.

Central Asia Regional Economic Cooperation (CAREC) Institute
21st Floor, Commercial Building Block 8, Vanke Metropolitan,
No. 66 Longteng Road, Shuimogou District, Urumqi, Xinjiang, the PRC, 830028
f: +86-991-8891151
LinkedIn: carec-institute
km@carecinstitute.org
www.carecinstitute.org

TABLE OF CONTENTS

Introduction	3
Goal and Objectives	4
Target Audience	5
Part I: Opening Session	6
Opening Remarks by Dr. Li Kouqing, Deputy Director One, CAREC Institute.....	6
Welcoming Remarks by Dr. Gu Zhen, Vice President of Zhejiang University.....	8
Introduction of the Institute of Global Development by Dr. Gong Sen, Zhejiang University	10
Introducing the CAREC Institute by Dr. Kuat Akizhanov, Deputy Director Two, CAREC Institute.....	10
CAREC Program's Support to Digitalization in Central, East and West Asia by Dr. Roman Mogilevskii, ADB	11
Part II: Lecture Sessions on Artificial Intelligence and Education.....	13
The AI Ecosystem in Hangzhou and Implications for Pathways to Intelligent Transformation by Dr. Gong Sen, Zhejiang University	13
Global AI Development History and Prospects by Dr. Zhu Linchao, Zhejiang University.....	14
Fostering Interdisciplinary Excellence: AI+Education at Zhejiang University by Dr. Wu Fei, Zhejiang University	15
Reshaping Human Capital in AI Economy by Dr. Wang Zhongming, Zhejiang University	16
Part III: Leadership Skills	17
The Collaborative Strategist: Building Consensus & Influencing Policy in the AI Era by Ms. Fion Yip	17
Part IV: Site Visits	19
Visit to The Second Affiliated Hospital of Zhejiang University School of Medicine	19
Visit to Zhejiang University Innovation Practice Base of Robotics and Intelligent Equipment	19
Visit to Zhiyun Classroom of Zhejiang University	20
Visit to Qiushi Engine of Zhejiang University.....	20
Part V: Methods Used and Exercises	21
Home Reading Material	21
Individual Policy Notes Assignment.....	21
Group Presentation Exercise	30
Group 1: A Strategic Vision for AI in Education	30
Group 2: Governance for University-Industry Collaboration	30
Group 3: A Human-Centric AI Policy Framework	31
Group 4: Curriculum Reform and National AI Literacy.....	31
Part VI: Closing Session	32
Concluding Remarks by Zhejiang University.....	32
Concluding Remarks by CAREC Program	32
Concluding Remarks by CAREC Institute	33
Part VII: Evaluation and Feedback	33
Conclusion.....	39
Recommendations for Future Trainings	40
Appendix: Training Agenda.....	42

INTRODUCTION

The Central Asia Regional Economic Cooperation (CAREC) Program's region is experiencing dynamic growth, supported by regional and global initiatives, necessitating enhanced skills in complex policymaking, particularly regarding AI. To address this, the CAREC Institute established a specialized leadership training program for policymakers, aligning with its focus on AI strategies and modernization, and designated the CAREC Leadership Training as its flagship capacity-building program under its new 2026-2030 Strategy. The inaugural workshop, held in Urumqi on December 4-5, 2025, following the Tianshan Forum, adopted the theme "Leveraging AI for Social and Economic Transformation in the CAREC region." This interactive event gathered senior policymakers and industry representatives to share knowledge and promote responsible AI adoption. Critically, presentations from CAREC member countries highlighted a strong regional consensus on the need for intra-CAREC partnerships to build capacity, share knowledge, and collaborate on AI development and adoption, emphasizing workforce development and education as foundational elements.

Crucially, the inaugural workshop highlighted a strong regional focus on AI collaboration. Representatives from CAREC member countries detailed national priorities, revealing critical needs such as building local technical talent, developing language-specific AI tools, and modernizing education, alongside foundational steps like legal frameworks. A recurring theme was the explicit desire for intra-CAREC partnerships to foster capacity building and cooperation in AI development. This demonstrated a clear regional consensus on collaborative efforts in this domain. Across the CAREC region, nations are prioritizing workforce development and education as foundational elements for their national AI strategies. Examples include Azerbaijan's national AI academy, Georgia's AI Center of Excellence focusing on workforce development, Mongolia's aim to address skills gaps, Pakistan's ambitious plan to upskill one million AI professionals, and Tajikistan's long-term strategy targeting workforce training. Turkmenistan is integrating AI into university curricula and fostering youth talent, while other Central Asian countries like Kazakhstan, Uzbekistan, and the Kyrgyz Republic are developing various educational initiatives. Collectively, these efforts underscore a strong regional commitment to building the human capital essential for AI adoption and innovation, while also highlighting the need for coordinated strategies.

China's education sector offers an illustrative model for CAREC policymakers, undergoing a significant transformation driven by the country's leading role in AI development, marked by rapid technological growth, robust policy support as the "AI Plus" Initiative, and extensive applications. This national strategy aims to integrate AI deeply across various fields, including education, to accelerate the development of new productive forces. Consequently, traditional educational methods are evolving with the integration of smart screens and digital devices, actively working to bridge the urban-rural digital divide. AI technologies enable real-time assessment, personalized instruction tailored to individual student needs, and tools for targeted skill development, while also enhancing extracurricular activities and research capabilities in higher education through AI assistants. In response, authorities are planning increased integration, including the release of a national AI education white paper and the introduction of mandatory AI instruction, reflecting a strategic push to equip students with essential digital literacy and foster innovation.

Recognizing that strengthening regional cooperation on AI is vital, initiatives like the ADB's proposed Regional AI Platform aim to facilitate broader knowledge exchange and coordination. Concurrently, international organizations like UNESCO provide critical frameworks and guidance. UNESCO's extensive work offers a valuable foundation for informed learning, robust discussion, and effective knowledge sharing regarding AI in education. Early guidance, such as the Qingdao Declaration, emphasized ethical data practices and student privacy, while the Beijing Consensus on Artificial Intelligence and Education provided a humanistic lens focused on equity and inclusion. More

recently, UNESCO's Recommendation on the Ethics of Artificial Intelligence offers a global normative framework, and resources like AI and Education: Guidance for Policymakers, along with AI curricula and competency framework mappings students and teachers, provide practical tools for navigating AI's benefits and risks, fostering evidence-based decision-making and collaborative strategy design tailored to regional needs.

Given the clear demand from CAREC member countries and regional stakeholders for collaboration and capacity building, identified during the inaugural workshop, alongside the observable regional trend prioritizing AI skills and education and the availability of valuable international guidance, there is a clear and urgent need for targeted leadership development. Dedicated leadership training is essential now as it directly addresses the expressed desire for partnership and identified gaps. Such training is not merely about technical skills but equips policymakers with the strategic vision, ethical grounding, and partnership skills required to align national efforts, navigate complex policy landscapes, establish necessary legal and data infrastructures, and effectively leverage international resources and partnerships. This leadership capacity is fundamental to translating the region's individual efforts into cohesive, impactful, and equitable regional action on AI in education, contributing to CAREC's broader goals of sustainable economic and social transformation.

This training was conducted under the capacity building objective of the CAREC Institute's Strategy 2026-2030 (i.e., Leadership Training for Regional Economic Cooperation), recognizing that effective leadership is crucial for promoting regional economic integration, and it aligns with Output 1 of the ADB Technical Assistance 'Supporting the Central Asia Regional Economic Cooperation Institute's Reform (TA 59103-001),' which aims to provide high-quality flagship products, including support for digitalization across member countries.

GOAL AND OBJECTIVES

Overall goal of the training was: "To strengthen the leadership capacity of CAREC policymakers to strategically advance regional economic cooperation through effective governance, adoption, and application of AI, particularly within the education sector, fostering sustainable development and integration across the CAREC region."

By the end of the leadership training program, participants are able to:

- Develop a clear understanding of the transformative potential of AI for regional economic cooperation within the CAREC framework and articulate a strategic vision for leveraging AI to achieve national and regional development goals, with specific emphasis on education and workforce development.
- Evaluate and integrate relevant international guidelines, frameworks and illustrative models into national AI policies and strategies to ensure ethical, equitable, and effective implementation.
- Enhance skills in strategic planning, stakeholder engagement, partnership building, and evidence-based decision-making necessary to champion AI initiatives, navigate complex policy challenges, and drive national and regional progress in AI adoption and regional economic cooperation.
- Formulate potential projects for advancing AI in their respective countries and fostering collaborative efforts within the CAREC region, contributing to the broader goal of regional economic integration and sustainable development.

TARGET AUDIENCE

A total of 27 participants from CAREC member countries attended the training, with a maximum of three representatives invited from each nation. These attendees were policymakers from government bodies—including ministries, committees, agencies, and councils—working on education and AI development. The full list of participants is provided in Appendix I.

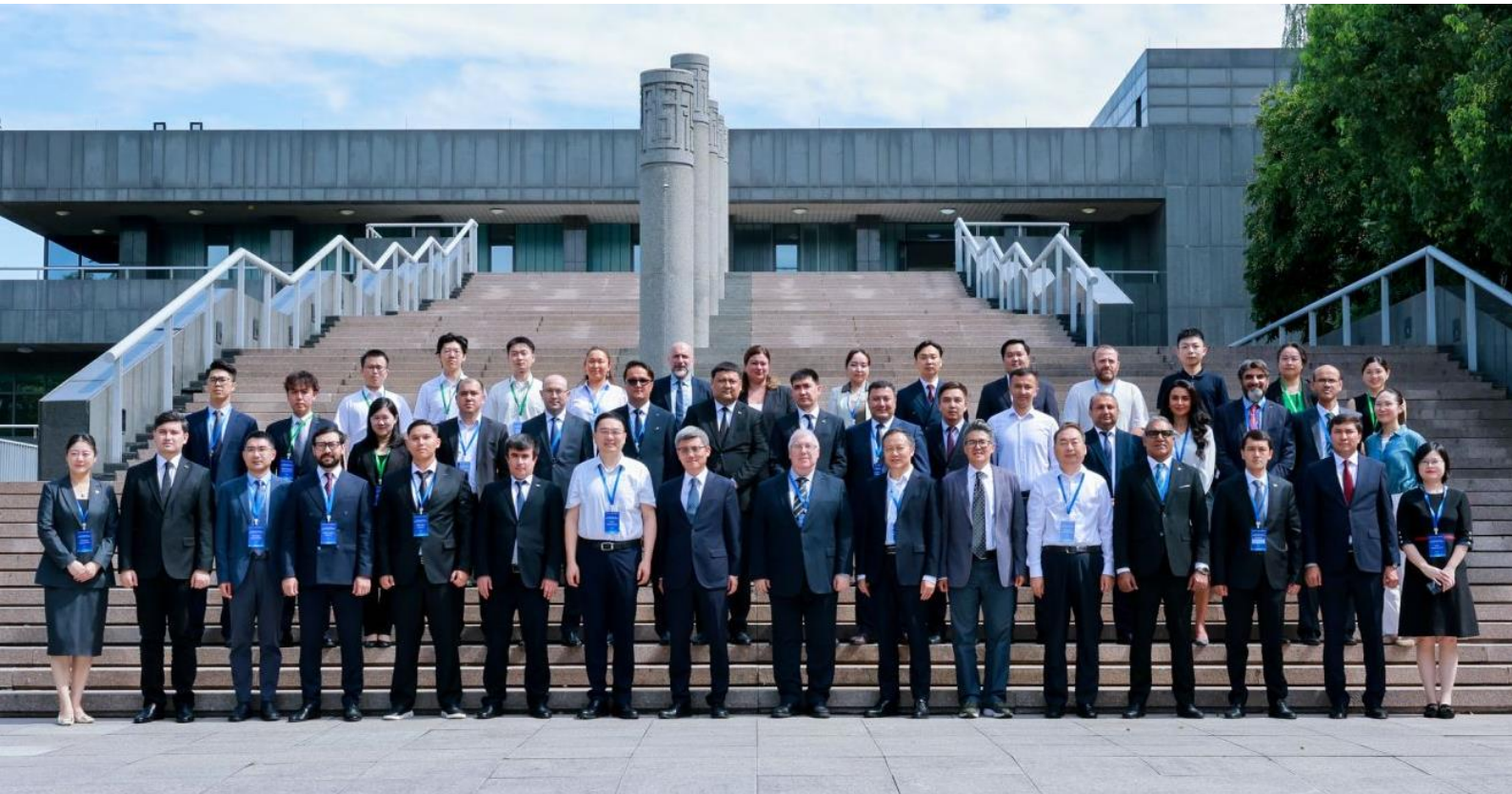


Photo 1: Participants of the Second CAREC Leadership Training, Zhejiang University, PRC.

PART I: OPENING SESSION

OPENING REMARKS BY DR. LI KOUQING, DEPUTY DIRECTOR ONE, CAREC INSTITUTE

Distinguished guests, esteemed policymakers, colleagues, and friends,

On behalf of the CAREC Institute, it is my honor and privilege to welcome each of you to this beautiful and historic city of Hangzhou. We gather here not merely for a meeting, but for a mission—a pivotal chapter in our shared journey to shape a future of artificial intelligence, equity, and prosperity for the entire CAREC region.

We stand, without exaggeration, at one of the most significant crossroads in modern history. We are witnessing the dawn of a new era, powered by a force that is reshaping the very fabric of human society—Artificial Intelligence. This is not just another technological tool. It is a transformative wave—redefining economies, revolutionizing governance, and reimagining the possibilities for human development. And the central question before us, in this room, is this: How will our region—the diverse and dynamic nations of CAREC—navigate this wave? Will we be passive observers, or will we be the architects of our own destiny?

The answer, I believe, lies in the very principles that brought CAREC into being. For over two decades, our partnership has been a powerful engine for regional connectivity. We built the physical arteries of progress—roads, railways, energy corridors—that have brought our economies closer together. But today, our environment is fundamentally different. Rapid technological shifts, new geopolitical realities, and emerging vulnerabilities demand that we think beyond concrete and steel. The competitiveness of our nations in the coming decade will be determined by a new triad: digital capability, data fluency, and institutional readiness. This is why we are here. We are here to examine AI not as a distant aspiration, but as a present-day force, actively reshaping our classrooms, our markets, and our governments.

Let us first acknowledge the powerful momentum that already exists across our region. You are not coming to this discussion from a standing start. You are bringing remarkable leadership to the table.

- In Azerbaijan, a comprehensive national AI strategy is already yielding tangible results, optimizing energy grids and pioneering smart urban mobility.
- Kazakhstan has made a visionary institutional commitment by establishing a dedicated Ministry of Artificial Intelligence—a model of state-level prioritization.
- Pakistan’s ambitious National AI Policy, with its target of empowering one million AI professionals, showcases the scale of ambition required for true transformation.
- And in Tajikistan, the pioneering Regional AI Center stands as a testament to the power of cross-border collaboration, setting standards and fostering joint research.

These are not isolated success stories; they are beacons illuminating a common path forward. They demonstrate AI’s immense potential to enhance productivity, promote environmental sustainability, and, most importantly, improve the welfare of every citizen.

Yet, for all this progress, our path forward is not without profound challenges. We see workforce development gaps where demand for AI specialists far outpaces our educational capacity. We face the critical task of building ethical governance frameworks that are consistent and robust. And we must confront infrastructure disparities that threaten to create not just digital divides between our nations, but deep chasms of inequality within them.

This is precisely what makes our inaugural workshop in Urumqi last December so significant. It was more than a meeting; it was a diagnosis. Policymakers like you presented your national priorities with clarity: the urgent need to build local technical talent, to develop language-specific AI tools, and to modernize education systems from the ground up. You highlighted foundational steps, like establishing legal frameworks and data infrastructure. And above all, a powerful, recurring theme emerged: a strong, explicit desire for intra-CAREC partnership. You called for collaboration in capacity building, knowledge sharing, and joint development. You voiced a regional consensus--we go further, faster, together.

This collective call to action is why we have designed this Second Leadership Training. We heard you. There is a clear and urgent demand for targeted leadership development. But let us be clear: this training is not a technical coding bootcamp. Its purpose is far more strategic. We are here to build the leadership capacity required to translate individual national efforts into cohesive, powerful, and equitable regional action.

So, what does this leadership look like in practice? It means developing the strategic vision to align national policies with regional goals. It means gaining the ethical grounding to ensure our AI systems are transparent, fair, and just. It means cultivating the partnership skills to mobilize cross-border investments in AI startups and digital infrastructure. It is about equipping you, our policymakers, to integrate AI effectively across the most critical sectors: healthcare, agriculture, urban development, and, the focus of our gathering—education.

For it is in education that our future is literally coded. Across the CAREC region, nations are rightly prioritizing workforce development as the bedrock of their digital agendas. From Mongolia addressing cybersecurity shortages to Turkmenistan modernizing university curricula and fostering youth talent in IT parks, the commitment to human capital is unwavering. Yet, these efforts also highlight a need for coordinated strategies and shared solutions.

In this endeavor, we have both a compelling model and essential guidance to inform us. Here in China, we see an education sector undergoing a profound transformation, driven by the national “AI Plus” Initiative. This is not just about putting smart screens in classrooms. It is about using AI for real-time student assessment, for personalized instruction that meets each learner’s unique needs, and for bridging the enduring urban-rural digital divide. It represents a strategic push to equip a generation with digital literacy and innovative thinking.

Zhejiang University has established itself as a global leader in AI through a powerful, integrated model that seamlessly combines top-tier academic research, deep industry collaboration, and pioneering education—precisely the triad that inspired our choice to host this training here. Consistently ranked among the world’s top institutions for AI, Zhejiang University’s strength is exemplified by its Institute of Artificial Intelligence and key national laboratories, which drive breakthroughs in areas such as computer vision and intelligent robotics. Its industry engagement is unparalleled, demonstrated through strategic joint labs with tech giants like Alibaba, where research on city brain systems is rapidly translated into real-world applications—offering us a living case study in academia-industry synergy. Furthermore, in education, Zhejiang University is a pioneer, having established one of China’s first undergraduate majors in Artificial Intelligence alongside innovative industry-aligned programs, providing a direct model for forward-looking curriculum development. We are here at Zhejiang University not merely for its facilities, but to learn from its ecosystem—a virtuous cycle in which cutting-edge research fuels industrial innovation, which in turn shapes an adaptive and future-ready curriculum. This model perfectly embodies the integrated approach to leadership and development we strive to foster across the CAREC region.

And from the global community, organizations like UNESCO provide an indispensable ethical compass. From the Qingdao Declaration's focus on data privacy to the Beijing Consensus's emphasis on equity, and most recently, the global normative framework of the UNESCO Recommendation on the Ethics of AI, we have a foundation for robust, human-centric discussion. These resources offer practical tools to navigate both the promises and the perils of AI in education.

Colleagues, the world is moving at a breathtaking pace. In ways unimaginable just a few years ago, AI is already building rapport and interpreting emotions. Virtual agents help patients understand complex medical instructions, support the elderly living independently, and assist children with developmental challenges. These are not science fiction; they are real-world applications. And they demonstrate a crucial truth for us as policymakers: AI is not merely a tool for automation; it is a potential amplifier for trust, empathy, and human-centric problem-solving. These are the very qualities that matter most for effective public services, for deeper economic cooperation, and for peaceful dispute resolution in our region.

This is the potential we are here to unlock. Therefore, the overall goal of this training is clear: To strengthen your leadership capacity to strategically advance regional economic cooperation through the effective governance and adoption of AI, with a special focus on empowering education for sustainable development. This initiative sits at the heart of the CAREC Institute's Strategy for 2026-2030 and aligns with our commitment to deliver high-quality, flagship programs for our member countries.

Over the next five days, I encourage you to engage with open minds and collaborative spirits. Share your successes candidly, dissect your challenges openly, and explore practical pathways for joint action. This training is a beginning—the launch of a shared regional journey toward AI-enabled growth, improved governance, and a more deeply integrated community. Remember, AI leadership is not about machines replacing people. It is about people—you, in this room—gaining better tools, better insights, and better ways of working together for the benefit of all our citizens.

In the spirit of CAREC's founding vision, let us seize this historic moment. Let us co-create an AI-powered future that is equitable, sustainable, and prosperous. A future that delivers tangible benefits to every village, every city, and every citizen across our vast and vibrant region. Together, through our collective wisdom, we can build intelligent economies that drive growth, resilient societies that harness technology for the common good, and a regional model of ethical progress that inspires the world.

The work starts now. The connections we forge here will shape the decade to come. Thank you for your dedication to this vital mission. I eagerly await the important discussions and outcomes that will emerge from our time together. Thank you!

WELCOMING REMARKS BY DR. GU ZHEN, VICE PRESIDENT OF ZHEJIANG UNIVERSITY

Distinguished guests, dear colleagues, and participants,

It is my great pleasure to welcome all of you to Zhejiang University for the Second CAREC Leadership Training on Empowering Education, Harnessing AI for Learning, and Digital Transformation.

A special welcome to our attendees from across the CAREC region. It's wonderful to have you here in Hangzhou. Please help yourselves to the Longjing tea on your table. Longjing tea is a very famous green tea in China. Please enjoy it while I provide a brief introduction to Zhejiang University (ZJU).

ZJU stands as one of China's oldest and most comprehensive universities, known for both its research institutes and broad educational scope. Next year marks our 130th anniversary. We boast a large community of over 70,000 students and 9,700 faculty members and staff, organized into 41 schools across science, engineering, medicine, humanities, and social sciences. A key pillar of ZJU is its promotion of innovation and entrepreneurship, evidenced by our alumni and faculty leading or managing over 320 publicly listed companies.

A notable example is DeepSeek, an AI company founded by our alumnus Mr. Liang Wenfeng. Last year, our patent licensing income reached over \$13 million, ranking third in China.

Economists often call Hangzhou and Zhejiang University China's "Silicon Valley." Currently, ZJU hosts numerous ongoing research projects associated with AI technology. We are also very proud and excited about establishing an AI-mediated education system.

Distinguished guests, this is not our first collaboration with the CAREC Institute. In 2023, we hosted a training program for Central Asian officials here at ZJU. In 2024, we jointly organized a workshop on the digital economy with CAREC. These events have laid a solid foundation for mutual trust and further strengthened our practical cooperation.

Our engagement with Central Asia, however, goes well beyond these training courses. This May, our president signed an MOU with three universities from CAREC countries. We have also sent delegations to Kazakhstan and Uzbekistan for exchanges and joint research with leading institutes. These partnerships are already bearing fruit, and we are eager to deepen them.

Looking ahead, I would like to propose four simple and practical directions for our future cooperation:

First, expand people-to-people exchanges. We welcome more students and scholars from CAREC countries to join our summer schools, winter campuses, and research internships. Experiencing Hangzhou's dynamic innovation ecosystem and rich cultural heritage will broaden their horizons and build lasting friendships.

Second, collaborate on AI-empowered education. ZJU has developed a comprehensive AI education system, including over 220 AI courses, 27 textbooks, and two national platforms. Our lab is interested in using AI for drug discovery, and I am currently writing a textbook on the AI drug discovery system.

Third, share our AI expertise broadly. Our introductory AI course has reached more than 260,000 students across 2,000 universities. We are ready to share our experience and co-develop solutions tailored to the diverse needs of your countries.

Fourth, strengthen policy dialogue and knowledge sharing. The first CAREC training in Urumqi identified several common challenges, including developing local AI talent, adapting technologies to local languages, education reform, and legal frameworks. We can tackle these challenges together through sustainable dialogue and joint research. Our Institute of Global Development, established this March, provides a platform to bridge research and practice, supporting sustainable development through capacity building and policy research.

Distinguished guests, the faster AI evolves, the more we must keep people at the center. The more complex our world becomes, the more we need open knowledge, responsible leadership, and

trusted partnerships. ZJU is committed to working with all of you to turn these shared values into concrete outcomes.

I wish you a very fruitful and enjoyable week in Hangzhou. May this training inspire new ideas, forge new friendships, and open new doors for cooperation. I wish the Second CAREC Leadership Training great success. Thank you!

INTRODUCTION OF THE INSTITUTE OF GLOBAL DEVELOPMENT BY DR. GONG SEN, ZHEJIANG UNIVERSITY

Good morning, distinguished AI and education leaders, university managers, colleagues from the CAREC Institute and Roman from ADB. It's a great honor to welcome you to Zhejiang University.

It is a jointly nurtured institute between Zhejiang provincial government and Zhejiang University. The center is mandated to facilitate the mutual understanding between Zhejiang and the international community on big issues, such as digital transformation, green transformation, and shared prosperity.

Ladies and gentlemen, now let me provide more detailed information on the Institute of Global Development (IGD). In November 2025, Chinese Premier Li Qiang announced at the G20 Summit that China would establish the Institute of Global Development at Zhejiang University. This is a national mission for strengthening global development capacity and promoting shared prosperity among nations. IGD integrates three core activities, high-level degree education, executive training, and high-quality academic research.

First, degree education. We offer master's and doctoral programs in applied economics and public administration. Each year, we enroll about 50 master's students and 30 doctoral students from middle-level officials and professionals with full scholarships. Second, executive training. We offer programs such as the China Digital Economy Workshop in 2024 and this leadership training workshop. Third, academic research. We organize global development forums and publish the Global Innovation Development Report annually, as well as produce policy brief on global development. IGD is guided by China's Ministry of Commerce and Ministry of Education and supported by Zhejiang University's faculty in economics, public affairs, and management. We are very much looking forward to deepening our partnership with your institutions, countries, and the ADB.

As mentioned earlier, CiSDG, IGD, and the CAREC Institute have co-organized two executive training programs with the support from ADB. Besides, CiSDG has conducted a research project on AI ecosystem in Hangzhou commissioned by ADB. I'm going to share with you later this morning about our funding for this project.

We are looking forward to expanding the cooperation in more executive trainings, joint research, and visiting scholar programs. Our team is committed to building a global hub for development studies with the CAREC region as key partners and the ADB as a valued collaborator.

INTRODUCING THE CAREC INSTITUTE BY DR. KUAT AKIZHANOV, DEPUTY DIRECTOR TWO, CAREC INSTITUTE

Dr. Kuat Akizhanov, Deputy Director Two of the CAREC Institute, delivered a presentation introducing the CAREC Institute and its role in promoting regional economic cooperation. He began

by emphasizing the Institute's position as the knowledge arm of the CAREC Program, an international organization owned and governed by eleven member countries across Central and West Asia and its neighbors. Dr. Akizhanov highlighted the unique value of the CAREC Institute as a bridge between policy practice and academic research, providing busy policymakers with updated knowledge and tools to address emerging challenges in regional development.

Dr. Akizhanov then reflected on the inaugural CAREC Leadership Training Workshop held in December 2025 in Urumqi, the PRC, which was organized in conjunction with the Tianshan Forum for Central Asia Economic Cooperation. That first workshop brought together senior policymakers and industry representatives from all CAREC member countries under the theme of Leveraging AI for Social and Economic Transformation. Over the course of two to three intensive days, participants engaged in knowledge exchange, sharing their national priorities, institutional frameworks, and specific needs for regional collaboration. The workshop highlighted critical gaps including the need to build local technical talent, develop language-specific AI tools, and modernize education systems from the ground up.

Building on the recommendations and feedback from the inaugural workshop, the Second CAREC Leadership Training was designed with significant enhancements. Dr. Akizhanov noted that the program was extended to five days, incorporating leadership skills training. The curriculum was carefully balanced to include expert lectures from distinguished professors, site visits showcasing real-world AI applications in healthcare and education, and practical exercises including individual policy essays and group presentations. The focus shifted to empowering education through AI, reflecting the strong demand from member countries for capacity building in this critical area.

Dr. Akizhanov also outlined the CAREC Institute's broader strategic framework, highlighting three flagship products under its Strategy 2026-2030: the Tianshan Forum for high-level policy dialogue, the CAREC Leadership Training for capacity building, and the Central Asia Regional Economic Development Report for in-depth research. He encouraged participants to stay engaged with the Institute's upcoming activities, including the next Tianshan Forum scheduled for November and the annual CAREC research conference. He emphasized that the ultimate goal of these initiatives is to strengthen regional cooperation, upgrade policymakers' knowledge and skills, and contribute to the sustainable economic and social transformation of CAREC member countries in the era of AI-driven change.

CAREC PROGRAM'S SUPPORT TO DIGITALIZATION IN CENTRAL, EAST AND WEST ASIA BY DR. ROMAN MOGILEVSKII, ADB

Dr. Roman Mogilevskii, Senior Regional Cooperation Economist at the ADB, delivered a comprehensive presentation on the CAREC Program's support to digitalization across the region. He began by providing an overview of the CAREC Program as an open and inclusive platform promoting shared and sustainable development through regional cooperation, encompassing eleven member countries and supported by development partners including ADB, AIIB, EBRD, IMF, IsDB, UNDP, and the World Bank. Dr. Mogilevskii emphasized that digital transformation has evolved from a cross-cutting theme into a distinct sector within the CAREC 2030 Strategy, now standing alongside transport, energy, and trade as a key pillar of regional cooperation.

A central focus of Dr. Mogilevskii's presentation was the concept of digital corridors, particularly the Asia-Pacific Digital Highway endorsed at the ADB's Annual Meeting in Samarkand in May 2026. This flagship initiative aims to link countries through high-speed broadband, establish data infrastructure, create interoperable digital public infrastructure, and support digital services and data flows across the region. ADB committed to mobilizing twenty billion dollars by 2035 to support public and private

initiatives under this digital highway. As part of this broader effort, the CAREC Digital Corridor initiative seeks to strengthen digital connectivity through diversified fiber routes with improved redundancy, addressing the critical vulnerability of many countries dependent on a single source of digital data. Six out of ten active CAREC countries have already signed on to the digital corridor project, with others expressing interest in joining.

Dr. Mogilevskii also highlighted the CAREC Program's growing focus on AI cooperation and capacity building. He noted that the CAREC Digital Strategy 2030, endorsed in 2021, encompasses priorities including leadership development, governance in digital areas, AI policy, cybersecurity, broadband infrastructure, digital platforms, and digital innovation. The Program supports startup ecosystem development through various initiatives including startup databases, innovation exchange programs, university open innovation challenges, and venture capital facilities. Dr. Mogilevskii emphasized the importance of the CAREC Advanced Transit System for facilitating trade along the Middle Corridor connecting China and Europe, and the development of a model law on electronic transferable records to leverage digital technologies in trade operations. He stressed that sustained knowledge exchange, capacity building, and regional cooperation are essential for ensuring that all CAREC member countries can benefit from the digital and AI transformation.



Photo 2: Opening Session of the Second CAREC Leadership Training, Zhejiang University, PRC

PART II: LECTURE SESSIONS ON ARTIFICIAL INTELLIGENCE AND EDUCATION

THE AI ECOSYSTEM IN HANGZHOU AND IMPLICATIONS FOR PATHWAYS TO INTELLIGENT TRANSFORMATION BY DR. GONG SEN, ZHEJIANG UNIVERSITY

Dr. Gong Sen, Deputy Dean of the Institute of Global Development and Director of the Centre for International Studies on Development and Governance of Zhejiang University, delivered an in-depth presentation on Hangzhou's AI ecosystem. Drawing on research commissioned by the ADB, Dr. Gong examined Hangzhou's emergence as China's leading AI innovation hub, ranked thirteenth among global innovation clusters and twenty-third among global startup ecosystems. He identified a rich landscape of AI enterprises in Hangzhou, ranging from industrial leaders like Alibaba (including Ali Cloud and Qwen) to the celebrated 'Six Little Dragons'—DeepSeek, Unitree Robotics, Game Science, BrainCo, Manycore Tech, and DEEP Robotics—as well as numerous smaller AI startups and AI-integrated traditional industries spanning healthcare, agriculture, and higher education.

Using the Technological Innovation System framework, Dr. Gong analyzed three main elements driving Hangzhou's AI success: actors and their competences, actors' interactions, and the institutional framework. He highlighted the diversity of actors including private firms (99% of entities, with 38 companies in China's top 500 private enterprises), universities (with Zhejiang University ranking third in China and thirty-fifth globally, and 28 universities in Hangzhou), research institutes like Zhijiang Lab and DAMO Academy, and proactive local government. The interactions among these actors were facilitated by unique mechanisms such as the Alibaba alumni network (over 100 thousand members), strong university-alumni connections (380 alumni controlling 350 listed companies), and a hands-off yet responsive government approach characterized by 'Maximum One Visit' service standards and agile governance through regulatory sandboxes.

Dr. Gong further applied the Regional Innovation System theory to explain why Hangzhou, rather than other cities, became the AI capital. He identified three critical factors: the region's competence and jurisdiction (with R&D spending at 4% of GDP, autonomous innovation policy dating back to 2003 with the 'Digital Zhejiang' initiative—20 years ahead of the national digital strategy—and AI identified as a leading industry in 2017), the productive culture rooted in Zhejiang merchant guild traditions of mutual support and the Eastern Zhejiang culture of seeking truth and pragmatism, and institutionalized learning through knowledge-sharing platforms like Zhijiang Lab, high-level conferences such as the China-Hangzhou AI Conference, and learning-by-doing initiatives like the City Brain project.

In concluding, Dr. Gong offered several key takeaways for CAREC policymakers. He emphasized the importance of responsive governance—where governments prioritize market building for emerging industries through procurement, guidance funds, and SME-friendly subsidies, rather than premature regulation. He highlighted the value of risk-sharing mechanisms through informal social networks such as university alumni and enterprise alumni associations, and stressed the need to balance infrastructure and human capital development. For latecomers, he recommended an adaptation strategy rather than attempting to build AI systems from scratch, suggesting that leapfrogging through satellite connectivity and small AI solutions could help countries with limited resources accelerate their digital transformation without waiting to complete the full 20-year trajectory from informatization through digitalization to AI transformation.

Dr. Zhu Linchao, Assistant Professor at the College of Artificial Intelligence at Zhejiang University, delivered an engaging presentation on the global history of AI development and its future prospects. He began by tracing the origins of the term 'artificial intelligence' to 1955, when a group of mathematicians and computer scientists submitted a proposal for the Dartmouth Summer Research Project on Artificial Intelligence, marking the official birth of AI as a field of study. Dr. Zhu guided participants through the cyclical history of AI, characterized by periods of optimism and funding surges followed by 'AI winters' when expectations failed to materialize. The first wave in the 1950s-60s saw early attempts at game-playing programs and chatbots, but was cut short by funding reductions when results fell short. A second wave in the 1970s-80s brought neural networks and expert systems, but again ended in disillusionment. The internet era from the late 1990s accelerated progress, with milestones including Deep Blue's chess victory in 1997, the rise of face recognition, AlexNet and deep learning, and AlphaGo's historic win in 2016.

A central focus of Dr. Zhu's presentation was the transformation brought about by Large Language Models (LLMs). He explained the critical shift from discriminative AI—which classifies things into predefined categories such as recognizing faces or predicting house prices—to generative AI, which creates new content including text, images, video, and code. This transition, enabled by the Transformer architecture and demonstrated by ChatGPT, represents a fundamental paradigm shift. Dr. Zhu explained how LLMs work through next-token prediction, training on vast corpora of human language to generate coherent and contextually appropriate responses. He discussed the scaling laws that govern LLM performance, where increasing model parameters, training data, and compute power leads to predictable improvements in capability, though the emergence of unexpected abilities at certain scales remains an area of active research.

Dr. Zhu also addressed the safety implications and potential economic impact of AI. He discussed the concept of AI as a potential 'general purpose technology'—comparable to steam engines, electricity, and the internet—that could boost the entire economy. Drawing parallels to previous industrial revolutions, he noted that while AI may displace certain jobs, historically each technological revolution has created more jobs than it destroyed. However, he acknowledged that this time may be different, as AI's ability to perform cognitive tasks could affect a broader range of professions. He also raised concerns about AI safety, including the risks of hallucination, misuse for misinformation, and the longer-term challenge of aligning AI systems with human values as they become increasingly capable.

Looking to the future, Dr. Zhu highlighted emerging applications including multimodal AI systems that can process text, images, and video simultaneously, and AI agents capable of autonomous task completion. He emphasized that the pace of AI development is accelerating, driven increasingly by industry investment rather than government funding, and that the coming years will bring significant changes to finance, industry, and daily life. For CAREC policymakers, Dr. Zhu's presentation underscored the urgency of developing AI literacy, building technical infrastructure, and establishing governance frameworks that can keep pace with rapidly evolving technology while ensuring that AI development serves the public good.

FOSTERING INTERDISCIPLINARY EXCELLENCE: AI+EDUCATION AT ZHEJIANG UNIVERSITY
BY DR. WU FEI, ZHEJIANG UNIVERSITY

Dr. Wu Fei, Professor at the College of Artificial Intelligence at Zhejiang University, delivered a comprehensive presentation on the university's pioneering approach to integrating AI into education. He began with a historical exploration, tracing the concept of artificial intelligence back to ancient civilizations. The Greek word 'automaton,' meaning machines moving on their own, first appeared in Homer's Iliad, while Chinese history records the story of Yan Shi, who created a lifelike mechanical man for King Mu of Zhou. The formal term 'artificial intelligence' was coined in August 1955 when four scholars—John McCarthy, Marvin Minsky, Claude Shannon, and Nathaniel Rochester—submitted a proposal for the Dartmouth Summer Research Project, marking the official entry of AI onto the stage of human history. Dr. Wu explained the three fundamental approaches to AI: symbolism (logical reasoning), connectionism (neural networks), and behavioral AI (reinforcement learning), each offering different pathways to simulate human intelligence.

Dr. Wu then detailed Zhejiang University's long and distinguished history in AI education, noting that the university-trained China's first generation of master's students in AI in 1978, established one of China's earliest AI institutes in 1987, and became one of the first Chinese universities to launch an AI undergraduate program in 2018. He introduced the university's comprehensive AI STEP initiative—Start, Train, Explore, and Progress—designed to help students evolve from learning to creating. At the Start stage, the university has developed four sets of AI courses (general, interdisciplinary, specialized, and a university-wide compulsory 'AI Basics' course) along with a new series of AI textbooks. The Train stage features the 'Zhihai' platform, a next-generation AI learning environment providing interactive and immersive learning experiences with multi-modal resources. The Explore stage fosters innovation through the integration of research, education, and industry, while the Progress stage advances AI+X interdisciplinary education through micro-majors, minors, and dual-degree programs.

A significant portion of Dr. Wu's presentation focused on Zhejiang University's AI+X interdisciplinary research initiatives. The university has established collaborative research programs spanning AI and medicine, AI and agriculture, AI and social sciences, and numerous other fields. With over 220 AI courses, 27 textbooks, and two national platforms, ZJU has created a comprehensive ecosystem for AI education. The university's AI introduction course has reached more than 260,000 students across 2,000 universities in China, demonstrating the scalability of its educational model. Dr. Wu emphasized that the goal is not merely to train AI specialists but to ensure that every student, regardless of their field, develops the AI literacy needed to thrive in an AI-driven economy.

In his concluding remarks, Dr. Wu reflected on the broader implications of AI for education. He posed fundamental questions about the nature of intelligence and the limits of human understanding, citing Richard Feynman's principle that 'what I cannot create, I cannot understand.' He argued that AI education must go beyond technical skills to encompass ethical reasoning, critical thinking, and the ability to collaborate with AI systems. For CAREC policymakers, Dr. Wu's presentation offered a concrete and proven model for integrating AI into education at scale, demonstrating how a comprehensive strategy—from foundational literacy to advanced interdisciplinary research—can prepare an entire university ecosystem for the AI era. The Zhejiang University experience underscored the importance of long-term investment, institutional commitment, and a holistic approach that treats AI not as a standalone subject but as a transformative force reshaping every discipline.

Dr. Wang Zhongming, Professor at the School of Management and Director of the Global Entrepreneurship Research Center at Zhejiang University, delivered a thought-provoking session on reshaping human capital in the AI economy. He began by defining human capital as the sum of knowledge, skills, values, experience, competence, and social capabilities embodied in individuals, emphasizing that it is the fundamental driver of economic productivity, innovation, and organizational adaptability. Central to his framework is the concept of 'Psychological Capital'—comprising Hope, Efficacy, Resilience, Optimism, and Responsibility (HEROR)—which he identified as the core of human capital. Dr. Wang argued that in the AI-driven economy, these psychological attributes become even more critical, as they determine individuals' and organizations' capacity to adapt, innovate, and thrive amid rapid technological change.

Dr. Wang introduced his 'Five Competence Modeling' framework for AI human capital development, developed in collaboration with scholars from Harvard Business School and MIT. The five competences include: Sustaining Competence (adaptability, resilience, collaborative thinking), Cultivating Competence (responsible thinking, evidence-based thinking, PE fit thinking), Acting Competence (responsibility, skill, ethical skill, team skill), Innovating Competence (digital skill, innovation skill, entrepreneur skill, lean skill), and Teaming Competence (transformation skill, AI adaptability). He emphasized that these competences must be tailored to specific contexts—new jobs, projects, programs, and industrial sectors—and that AI transformation requires a fundamental rethinking of how competence models are designed and deployed across organizations.

The presentation also addressed the challenges of building a resilient workforce in the AI economy. Dr. Wang identified three key issues: re-skilling and up-skilling to meet new skill requirements, transforming and upgrading education programs, and developing new teaming competences for human-AI collaboration. He presented a multi-level empowerment strategy encompassing competency-centric education system reshaping (integrating AI as a core subject, the BEST AI+X model for interdisciplinary expertise, and training workforce to collaborate with AI systems), lifelong learning ecosystems (empowerment platforms, micro-skill courses, career adaptability solutions), and cultivating responsible AI innovation hubs. As a case study, he highlighted Hangzhou's 'Six Little Dragons' startups—DeepSeek, Unitree Robotics, Game Science, BrainCo, Manycore Tech, and DEEP Robotics—as exemplars of responsible AI entrepreneurship and upskilling engineers to become AI governance leaders.

Dr. Wang concluded with discussion questions designed to prompt reflection among participants: how to tailor-make competence models for AI-related jobs, projects, programs, and educational policies in their respective countries, and how to develop responsible AI innovation and empowerment strategies for their administrations and education systems. He emphasized that the AI economy is not merely about technology adoption but about fundamentally reshaping human capital—requiring new approaches to education, workforce development, and organizational management. For CAREC member countries, his framework offered a practical roadmap for building the human capital infrastructure needed to participate in and benefit from the AI economy, while ensuring that development remains responsible, inclusive, and sustainable.

PART III: LEADERSHIP SKILLS

THE COLLABORATIVE STRATEGIST: BUILDING CONSENSUS & INFLUENCING POLICY IN THE AI ERA BY MS. FION YIP

As part of the Second CAREC Leadership Training, a full-day session on leadership skills was conducted by Ms. Fion Yip, a seasoned leadership trainer and executive coach. The session was designed to equip policymakers with the strategic skills needed to build consensus and influence policy in complex, multi-stakeholder environments. The session was introduced in response to feedback from the inaugural leadership training, where participants expressed a strong desire for practical leadership and policy advocacy skills alongside technical knowledge.

The session was structured around the concept of the 'Collaborative Strategist'—a leadership paradigm particularly relevant when navigating policy decisions involving multiple countries, institutions, and competing priorities. Participants explored how effective policy influence depends not only on data and logic but on understanding the human factors that drive decision-making.

The central theme of the session was the art of building consensus in complex policy environments. The session began with a realistic scenario—the "Digital Learning Commons Stalemate"—where a technically sound regional project failed due to human dynamics: fear of losing authority, institutional protectionism, broken trust, and communication breakdowns. Participants learned frameworks for stakeholder mapping and engagement using the Stakeholder Empathy Map, which goes beyond titles and positions to uncover what stakeholders truly think, fear, hope, and need. The session explored techniques for navigating conflicting interests including interest-based negotiation, calibrated questions, labeling, and mirroring. Participants practiced writing calibrated questions and labeling statements to uncover hidden interests in realistic scenarios such as budget negotiations and vendor disputes.

The session also focused on influencing policy by introducing four key influencing factors: Personal Reputation, Timing, Pain Points, and Relevancy. Participants discussed which factors are most often overlooked and explored practical strategies for when timing is beyond one's control—including diagnosing the situation, adapting the message, simplifying the ask, and naming the timing challenge openly. The session also covered six persuasion principles—Reciprocity, Scarcity, Authority, Consistency, Liking, and Social Proof—with a deep dive into the Principle of Liking, emphasizing that it is the most controllable and durable foundation for influence.

Particular attention was paid to the skills needed for regional cooperation and partnership building across CAREC member countries. Participants explored how personal credibility and shared purpose enable progress within the boundaries of national interest. The session introduced the concept that national interest is interpreted, communicated, and negotiated by individuals—not abstract countries—and that trust-building behaviors (confidentiality, reliability, competence) are the currency of personal reputation. The session covered authenticity as congruence and integrity, the strategic value of being open about one's constraints, and the power of crafting a shared 'why'—framing initiatives around a common purpose that transcends individual national interests.

The leadership skills session also addressed the human dimension of policy influence through the Dual-Process Model (Kahneman), distinguishing between System 1 (fast, automatic, intuitive) and System 2 (slow, deliberate, analytical). Participants reflected on how System 1 often overrules System 2 in daily work. A poll revealed that the most influential unspoken factors in policy discussions are often personal reputation, institutional politics, and relationship quality.

Throughout the day, participants engaged in interactive exercises that reinforced the session's concepts. These included group discussions analyzing the root causes of the Digital Learning Commons stalemate, collaborative empathy mapping of key stakeholders, group exercises writing calibrated questions and labeling statements, and individual reflections on trust-building and personal credibility. The exercises drew on real-world challenges faced by CAREC member countries, making the learning immediately applicable to participants' professional contexts.

A key outcome of the session was the recognition that effective policy influence requires understanding the human engine behind every decision—not just mastering data and arguments. Participants reflected on their own leadership styles and identified areas for growth, committing to specific actions upon returning to their home countries. The session also strengthened the peer network among participants, creating bonds of trust and mutual understanding that would support future collaboration across the CAREC region. As one participant noted in the subsequent group presentation session, the leadership training provided valuable skills for promoting policies and knowledge gained through the training in their home countries and for collaborating at the regional level.

The session concluded with a discussion of how the leadership skills learned could be applied to the upcoming group presentation exercise, where participants would need to work collaboratively across national boundaries to develop and present policy recommendations. The facilitator emphasized that the group presentations were not merely an academic exercise but a practical test of participants' ability to apply collaborative leadership principles in real time. Participants were encouraged to use the consensus-building and stakeholder engagement techniques learned during the session to navigate the challenges of working in diverse, multinational teams with differing perspectives and priorities.

Overall, the leadership skills session represented a significant innovation in the CAREC Institute's capacity building approach, bridging the gap between technical knowledge and practical leadership capability. By equipping policymakers with the skills to build consensus, influence policy, and foster regional cooperation, the session addressed one of the key recommendations from the inaugural leadership training and laid the groundwork for more effective and coordinated governance across the CAREC region. The positive feedback from participants confirmed the value of this component, and it is expected to become a permanent feature of future CAREC leadership training programs.



Photo 3: Participants collaborating in group work during the Second CAREC Leadership Training session at Zhejiang University, PRC.

PART IV: SITE VISITS

VISIT TO THE SECOND AFFILIATED HOSPITAL OF ZHEJIANG UNIVERSITY SCHOOL OF MEDICINE

On the morning of July 29, participants visited the Second Affiliated Hospital of Zhejiang University School of Medicine, a leading academic tertiary medical center established in 1869. The hospital, which has grown into one of China's most prestigious medical institutions with approximately 4,480 licensed beds across five campuses, served 9.72 million outpatients and discharged 344,000 patients in the previous year with an average hospital stay of just 4.6 days. Professor Jian Wang, the Hospital President and Academician of the Chinese Academy of Sciences, delivered welcoming remarks highlighting the hospital's strategic prioritization of AI in healthcare. Participants learned how AI technologies are being deployed across the hospital to assist physicians, nurses, and administrative staff in making faster and more accurate diagnoses, unlocking new insights from complex data, and improving patient care quality and operational efficiency.

The visit included presentations on several featured AI projects, including the hospital's eHealth Center and AI-powered diagnostic systems. Participants observed firsthand how AI is integrated into clinical workflows, from intelligent imaging analysis to automated patient triage and smart hospital management systems. The hospital team shared their experience hosting a United Nations workshop on AI capabilities and governance just two months prior, reinforcing their commitment to international collaboration. The visit concluded with a hospital campus tour where participants saw AI applications in cardiology, neurology, and other departments, and discussed potential collaboration opportunities with CAREC countries in telemedicine, AI applications in healthcare, medical education, and quality improvement.

VISIT TO ZHEJIANG UNIVERSITY INNOVATION PRACTICE BASE OF ROBOTICS AND INTELLIGENT EQUIPMENT

On the afternoon of July 29, participants visited the Zhejiang University Innovation Practice Base of Robotics and Intelligent Equipment, where students design, build, and program robots from scratch as part of their engineering education. The base features multiple specialized teams, including a shopping robot team whose robots can read shopping lists, navigate simulated supermarket aisles, recognize and grasp products, and manage restocking operations entirely autonomously. What makes the program particularly noteworthy is that almost all team members are freshmen with no prior robotics knowledge, yet through structured learning and hands-on training, they can design functional robots within their first year. The base also hosts teams working on drone navigation through dense forest environments using 3D radar perception and autonomous pathfinding algorithms, as well as underwater robotics teams developing vehicles with six degrees of freedom motion, electromagnetic recovery systems, and LLM-assisted parameter tuning.

Participants observed live demonstrations of autonomous robots performing tasks including object recognition, grasping, and navigation without human intervention. The visit showcased five award-winning robots that had won top prizes in national and international competitions, including RoboMaster and the AI Challenge. A spraying robot demonstrated precision targeting of marked trees, operating continuously while in motion—a capability developed for agricultural applications. The Innovation Practice Base exemplified Zhejiang University's commitment to project-based learning, where students develop interdisciplinary engineering skills through competition preparation, robot development, and hands-on experimentation. The visit illustrated how practical

AI and robotics education can cultivate innovation capabilities in undergraduate students, providing a model that CAREC member countries could adapt for their own technical education programs.

VISIT TO ZHIYUN CLASSROOM OF ZHEJIANG UNIVERSITY

Participants also visited the Zhiyun Classroom of Zhejiang University, an innovative smart classroom platform that demonstrates the university's commitment to AI-empowered education. The Zhiyun Classroom integrates advanced AI technologies including real-time assessment tools, personalized instruction systems, and multi-modal learning resources to create an interactive and immersive educational environment. The platform exemplifies how AI can be applied to enhance teaching effectiveness, enable personalized learning pathways tailored to individual student needs, and bridge educational gaps through digital tools. Participants observed how smart screens, digital devices, and AI-powered analytics are seamlessly integrated into the classroom experience, providing teachers with real-time feedback on student engagement and comprehension.

The Zhiyun Classroom visit highlighted Zhejiang University's broader AI-mediated education system, which includes over 220 AI courses, 27 textbooks, and two national platforms. The university's AI introduction course has reached more than 260,000 students across 2,000 universities in China, demonstrating the scalability of smart classroom technologies. Participants discussed how similar platforms could be adapted for use in CAREC member countries, particularly in addressing the challenge of providing quality education in remote and rural areas where teacher shortages and limited resources constrain educational outcomes. The visit underscored the transformative potential of AI-powered classrooms for expanding access to quality education and improving learning outcomes across diverse educational contexts.

VISIT TO QIUSHI ENGINE OF ZHEJIANG UNIVERSITY

The final site visit took participants to the Qiushi Engine at Zhejiang University's College of Information Science and Electronic Engineering, where they learned about a groundbreaking AI-driven autonomous scientific research system. The Qiushi Engine is designed as 'Level 3' AI for science—open scientific systems where the AI must generate hypotheses, revise its direction, and continuously evaluate evidence, representing a shift from AI-assisted research to AI-driven research with human oversight. The system functions as an AI research team, with core agents responsible for research planning, method development, experiment execution, and critical evaluation, supported by sub-agents handling memory management, information retrieval, and research trajectory training. Crucially, the Qiushi Engine is connected not only to digital tools but also to real experimental systems, enabling a closed-loop process of hypothesis generation, experiment evaluation, and improvement.

There were two compelling demonstrations of the Qiushi Engine's capabilities. In the first, the system autonomously reproduced a complex optical experiment—measuring a 256x256 optical transmission matrix and using it to focus a laser through scattering media—completing over 400 experiments in just six hours, a task that would take approximately 3.3 months manually. In the second, the system independently proposed and validated a novel mechanism for optical computing, performing more than 3,000 LLM interface steps over 13 hours and processing approximately 150 million tokens. The Qiushi Engine achieved an overall score of 26.9 on an international benchmark for multidisciplinary autonomous research, ranking first globally and significantly outperforming competing systems. The visit demonstrated the frontier of AI-driven scientific discovery and its implications for accelerating research across physics, biomedicine, and optics, offering participants a glimpse into the future of scientific inquiry.

PART V: METHODS USED AND EXERCISES

This intensive five-day training, partnered with Zhejiang University (a pioneering hub for AI education and industry collaboration), equipped CAREC policymakers to understand global AI trends and their impact on industry and education. The training program combined lecture sessions, site visits demonstrating AI applications, leaderships skills session and learning exercises. Participants examined critical topics such as the urgent need to adapt education systems, the technical and ethical aspects of AI in learning, and leadership skills for strategic partnerships. Structured learning was enhanced by integrated assignments—home reading material, individual essays on policy implications, and collaborative group presentations. These activities encouraged active engagement, critical reflection within national contexts, synthesis of knowledge from lectures and visits, and the creation of tangible outputs designed to drive effective and collaborative AI adoption in CAREC countries.

HOME READING MATERIAL

UNESCO's 2021 'AI and Education: Guidance for Policy-Makers' played a central role as the foundational text for the training. Participants were required to read this comprehensive document beforehand, establishing a shared knowledge base and common vocabulary essential for discussing AI's impact on education.

The publication provides a framework for understanding both the opportunities and risks of AI integration, offering practical guidance on improving educational outcomes while tackling critical challenges like ethics, equity, data privacy, and inclusion. Its basis in UNESCO's broader work (Qingdao Declaration, Beijing Consensus, Recommendation on the Ethics of AI) lends it significant authority. By completing this home reading, participants arrived ready for more productive and informed discussions, applying the concepts and practical tools, such as AI curricula and competency frameworks, explored during the training sessions.

The document is available here: <https://doi.org/10.54675/PCSP7350>

INDIVIDUAL POLICY NOTES ASSIGNMENT

To ensure practical application, the training program incorporated an individual assignment designed to foster active engagement and critical reflection. This assignment aimed to prompt participants to apply their national contexts, synthesize knowledge from lectures and site visits, and develop tangible outcomes.

The assignment tasked participants with identifying a specific, real-world policy challenge concerning AI and education development within their home country. They were then instructed to prepare a concise policy note (maximum two pages) addressing this challenge, utilizing the concepts and tools acquired during the training.

The policy notes needed to meet three criteria:

- Clearly define the chosen policy challenge in the context of AI and education nationally;
- Offer concise, actionable recommendations; and
- Explicitly reference the specific training concepts, frameworks, and case studies used to support their analysis and recommendations.

The skills and knowledge gained through this exercise are summarized in the table below, illustrating participants' enhanced ability to tackle policy challenges in their countries. Exposure to Chinese policy experiences and grassroots initiatives, combined with cross-border experience sharing, was identified as crucial for empowering policymakers to handle these challenges effectively.



Photo 4: Support Team of the Second CAREC Leadership Training, Zhejiang University, PRC.

Table 1: Country Policy Notes Learning Exercise - AI and Education

Note: The following information is based on a learning exercise. It illustrates the potential application of training concepts, frameworks and case studies, and may not represent actual conditions or policies in any specific country.

Country	Policy Challenges in AI & Education	Actionable Recommendations	Training Concepts, Frameworks & Case Studies Referenced
Azerbaijan	1) Lack of clear institutional guidance for K-12 educators on constructively blending AI-assisted learning with traditional methods while upholding academic integrity; 2) high administrative workload strains teachers, with no integrated AI workflows in existing digital platforms; 3) persistent urban-rural disparities in digital infrastructure and teacher digital skills (63% school broadband, 6:1 student-computer ratio); 4) higher education remains organized around one-time degree programs rather than supporting continuous lifelong reskilling for an AI-driven economy.	1) Issue advisory K-12 AI guidelines with practical rubrics for assessing AI-assisted work constructively; 2) enhance the national 'Digital School' platform by integrating optional AI tools (Microsoft Copilot, Google Gemini, NotebookLM) with pre-vetted, localized prompts; 3) target a 1:1 computing ratio and fiber-optic expansion to all schools; 4) establish regional mentoring hubs and voluntary teacher development workshops; 5) reform higher education governance to embed lifelong learning as a core mission; 6) launch an AI Learning Account (personal learning wallet) for every working-age citizen; 7) establish a National AI Skills Observatory and a national micro-credential framework.	UNESCO Guidance for Generative AI in Education and Research; Human-Centric 'Dual-Teacher' approach; East Asian K-12 case studies; Zhejiang University AI+X model and AI STEP Framework; Lifelong Learning Ecosystem concept; Hangzhou innovation ecosystem; micro-credential and modular program design (ZJU).
Georgia	1) Fragmented, unequal, and largely unregulated bottom-up AI rollout in general education — students and educators use tools like ChatGPT in a policy vacuum creating plagiarism, data privacy, and unverified-output risks; 2) AI-related content (data literacy, bias, accountability) is not systematically embedded in curriculum, with exposure dependent on individual school/teacher; 3) the Georgian language is underrepresented in commercial LLMs, limiting localized learning tools; 4) urban schools adopt paid AI tools rapidly while rural, mountainous, and minority-serving schools lag behind, widening digital and educational inequalities.	1) Adopt an age-banded AI literacy and ethics framework integrated into ICT, mathematics, and civic education; 2) produce a national professional-development package for teachers with Georgian-language lesson plans, assessment rubrics, and tool-selection guidance; 3) deploy localized Intelligent Tutoring Systems (ITS) in an educational regulatory sandbox with privacy/safety auditing standards by GITA; 4) run a one-year controlled pilot in 50 diverse public schools (urban, rural, mountainous, minority-serving) before national scaling; 5) establish a lightweight inter-sectoral working group (MES, GITA, universities, civil society) for coordination.	UNESCO AI Competency Frameworks for Teachers and Students (2024 — Understand, Apply, Create); Educational Regulatory Sandbox Model (adapted from National Bank of Georgia); Intelligent Tutoring Systems (ITS) framework; Singapore's AI Singapore inter-agency model; South Korea's 2025 AI Digital Textbooks; Zhejiang University pedagogical shift (lecturer-based → self-learning/discussion-based classrooms); global benchmark case studies.

Kazakhstan	1) Rapid AI adoption (ChatGPT, Copilot, Gemini) in higher education without national consistent standards for academic integrity — many lecturers uncertain how to distinguish appropriate AI-assisted learning from misconduct; 2) digital inequality: universities in Astana/Almaty have far better AI infrastructure than regional institutions; 3) insufficient AI competencies among educators and students — many teachers lack practical AI skills despite 2026 being declared 'Year of Digitalization and AI'; 4) education system not yet fully prepared for large-scale AI adoption despite strong political commitment (Digital Qazaqstan Strategy, AI-SANA, alem.ai); 5) trade-sector educational programs need updating for AI applications in e-commerce, digital marketing, data analytics, and supply chain management.	1) Develop national guidelines establishing common standards for acceptable AI use, academic integrity, transparency, and data protection across all universities; 2) strengthen AI competencies through continuous professional development for educators and AI literacy integration into school/university curricula; 3) implement evidence-based pilot projects in selected universities before nationwide adoption; 4) establish a national monitoring mechanism for continuous assessment of AI implementation; 5) build an integrated AI education ecosystem connecting universities, schools, AI-SANA, Astana Hub, and alem.ai; 6) update trade-related programs (Marketing, Logistics, Customs, Business Management) with practical AI training and industry cooperation.	UNESCO AI and Education: Guidance for Policy-Makers (human-centred, ethical, inclusive principles; SDG 4); Tuya Smart case study (open collaborative ecosystem); Prof. Wang Zhongming's Five-Competence Model (IQ, EQ, AQ, DQ, EcoQ); Hangzhou 'Six Little Dragons' and AI Innovation Hub; Prof. Zhu Linchao's Global AI Development History; Prof. Wang Zhongming's seminar on Reshaping Human Capital in the AI Economy; CAREC training field visits.
Kyrgyz Republic	1) Persistent urban-rural digital divide: schools in regions such as Naryn, Batken, and rural Chuy lack reliable high-speed internet and modern computer equipment, while Bishkek institutions increasingly use AI tools; 2) low AI literacy among educators and insufficient AI competencies among university staff — most teachers and faculty have never received training in educational technology, let alone AI; 3) structural shortage of ~947 qualified teachers (particularly mathematics, Russian, history) compounded by AI tools entering classrooms in a fragmented, donor-driven, unregulated manner without a national governance framework; 4) fragmented AI adoption in higher education: largely dependent on individual institutions and faculty initiatives with no national framework to guide responsible and effective use; absence of common standards for AI governance, academic integrity, data	1) Launch a phased, state-supported National Teacher AI Literacy Program using regional universities as training hubs; 2) make targeted infrastructure investments in underserved rural districts guided by UNESCO cost-value evaluation; 3) promote localized open-source AI solutions adapted to Kyrgyz and Russian languages; 4) develop a national strategy for AI in higher education articulating a clear vision, strategic objectives, implementation roadmap, financing mechanisms, and performance indicators, aligned with the broader digital transformation agenda while giving universities flexibility to innovate; 5) establish a complementary governance framework for responsible AI use in higher education covering academic integrity, data privacy, cybersecurity, intellectual property, transparency, human oversight, and ethical AI use; 6) strengthen institutional capacity by supporting AI leadership training for university administrators, professional development for faculty, establishment of institutional AI support units, and modernization of digital	UNESCO AI and Education: Guidance for Policy-Makers (2021) — four strategic targets, humanistic approach, AI divide, inclusive-use imperative; Beijing Consensus on AI and Education (2019); cost-value evaluation schema; independent/integrated/thematic typology of policy responses; open-source localization; Human-Centered AI approach (AI should augment faculty capabilities rather than replace human expertise and decision-making); Responsible AI Framework (fairness, accountability, transparency, privacy, security, human oversight); Digital Transformation Framework (coordinated investments in leadership, institutional capacity, governance, infrastructure, and organizational change rather than technology deployment alone); Policy Cycle Framework (phased approach: policy formulation → pilot implementation → monitoring and evaluation → evidence-based scaling); Singapore case study (coordinated

	protection, quality assurance, and institutional capacity; risk of widening disparities between institutions and weakening workforce readiness for an AI-driven economy; 5) limited digital infrastructure hindering the full potential of AI in both K-12 and higher education; 6) limited Kyrgyz-language educational AI content and datasets.	infrastructure and data management systems; 7) establish a competitive funding mechanism for pilot projects using AI to improve teaching, research, student services, and university administration, with measurable performance indicators before scaling; 8) foster partnerships with technology companies, research institutions, development partners, and the private sector to increase access to AI technologies, promote collaborative research, expand internship opportunities, and support curriculum modernization; 9) adopt an integrated policy approach with regional pilots and an open, iterative policy cycle; 10) adopt a national framework for AI in education with a clear 'teacher-in-the-loop' principle defining permitted, conditional, and prohibited uses; 11) classify education AI tools involving minors as elevated-risk with mandatory safeguards; 12) commission open, curriculum-aligned Kyrgyz-language datasets; 13) establish inter-ministerial governance with a single monitoring framework and annual public reporting.	government leadership and continuous investment in digital capabilities)
Mongolia	1) Lack of consistent guidance, practical methodologies, and institutional policies on responsible AI use — students over-rely on AI to complete assignments, weakening independent learning, critical thinking, and problem-solving; 2) teacher competency deficit: rapid digital infrastructure rollout ('Computers for Every Child, Smart Boards for Every Classroom') has outpaced educator readiness; 3) shortage of specialized hardware and domain experts for developing Mongolian-language AI tools; 4) data privacy and ethical concerns: transition of school-parent communications to digital channels raises urgent child data security issues; 5) weak multi-sectoral synergy — higher education, private tech companies, and government lack a cohesive ecosystem for co-developing AI solutions.	1) Develop clear national guidelines for AI use in education covering data protection, information security, and ethical AI practices; 2) provide continuous professional development for teachers using Prof. Wang Zhongming's Five-Competence Model and micro-credentials; 3) equip students with AI literacy from an early age (critical thinking, responsible AI use, digital ethics); 4) transform the 'Computers for Every Child' project from device distribution into an integrated, evidence-based AI-enhanced pedagogy ecosystem; 5) build university–industry–private sector AI innovation hubs drawing on Hangzhou's startup ecosystem model; 6) establish a CAREC-wide AI education alliance for shared resource optimization and mutual learning; 7) enact comprehensive child data privacy laws with privacy-by-design mandates and pedagogical safeguards preventing over-reliance on AI.	UNESCO AI and Education Guidance; Beijing Consensus on AI and Education; Prof. Wang Zhongming's Five-Competence Model (Digital Innovation, Collaborative Teaming, Ethical Thinking); Prof. Wang Zhongming's Genetic Framework for Reshaping Human Capital; Hangzhou AI startup ecosystem and 'Six Little Dragons'; Zhejiang University affiliated medical center and robotics base field visits; CAREC Regional Integration framework; UNESCO AI Competency Framework for Teachers

Pakistan	1) Severe infrastructure deficit: ~80% of Pakistan's 250 million population lives in rural areas with unreliable electricity and limited broadband; only ~50% of households had internet access during COVID-19, with pronounced gendered disparities in device ownership constraining AI accessibility for female students; 2) low literacy (~60%) and limited English proficiency restrict AI tool adoption; most educational AI tools are English-based while Urdu and major regional languages lack adequate AI content; 3) significant implementation gap between ambitious National AI Policy 2025 targets — 1 million trained professionals, AI Centers of Excellence, regional AI-hub status by 2035, integration of AI and data science into basic education by 2026, 100% public-servant AI literacy by 2027 — and ground reality: Pakistan ranks 8th of 17 South/Central Asian countries on the Oxford Insights AI Readiness Index; the gap is one of execution, not ambition — energy reliability, data infrastructure, talent retention, and institutional capacity remain unresolved; 4) brain drain: demand for AI-literate professionals outpaces domestic training capacity; skilled graduates emigrate, depleting the talent pipeline and leaving public-sector AI roles unfilled; 5) fragmented, non-digitized government records (excise, taxation, health, land) limit training data for public-service AI; newly formed Pakistan Digital Authority yet to issue binding rules on data governance, risk classification, or high-risk AI governance; no statutory AI legislation exists beyond policy documents; 6) federal-provincial coordination deficit: national AI goals not yet secured by provincial buy-in and private-sector financing; 7) faculty capacity gap across all	1) Conduct a tiered National Readiness Audit classifying all districts (Basic, Intermediate, Advanced) by electricity reliability, internet penetration, and teacher digital literacy; phase AI deployment based on infrastructure-readiness sequencing, beginning with Intermediate-tier districts where infrastructure exists but requires strengthening; 2) mandate low-bandwidth, offline-first, and multilingual AI tools supporting Urdu and regional languages; provide free Wi-Fi to all public schools, colleges, and universities; 3) establish a National AI Teacher Corps through public-private ecosystem partnerships (government-industry-academia coordination) to train 50,000 teachers annually with quotas for female teachers in rural postings; provide devices, stipends, and ongoing mentorship to offset techno-stress per the JD-R model; 4) upskill university educators using the Red Book on AI Literacy of University Educators with training tailored to different academic backgrounds (science, engineering, agriculture, medicine, humanities); 5) develop a differentiated, tiered AI curriculum with introductory courses for beginners and specialized courses for AI-related disciplines, supported by discipline-specific AI textbooks integrating theory and practice, and hands-on practical training platforms enabling students to translate theoretical knowledge into practical skills; 6) establish and disburse a transparent National AI Fund and Centers of Excellence with measurable KPIs; accelerate the one-million-trained-professionals target with annual milestones; 7) operationalize the Pakistan Digital Authority with binding rules on data governance, risk classification, and mitigation; issue binding guidelines requiring algorithmic impact assessments, local data storage compliant with data-protection frameworks, and transparent auditing; move from policy documents to a statutory AI law with enforceable obligations; 8) allocate dedicated power capacity for AI infrastructure; incentivize	Dr. Zhu Linchao's Global AI Development History and Perspectives (infrastructure-readiness sequencing: sustainable AI adoption requires infrastructure to precede application; historical pattern of uneven technological diffusion from the first AI winter to the generative AI boom where early benefits accrue to infrastructure-rich environments while lagging regions face compounded disadvantage); Dr. Wu Fei's Leveraging AI within Education (augmented-teacher approach — AI should augment teacher capacity, not replace it; Job Demands-Resources / JD-R model demonstrating that without adequate resources, AI integration significantly predicts teacher techno-stress, particularly in low-resource schools); Dr. Gong Sen's Hangzhou AI Ecosystem (tripartite coordination model: government, industry, and academia deliberately co-located through policy incentives, venture funding, and university research clusters — replicable framework for Pakistan's CoE-AI nodes); Dr. Wang Chongming's Reshaping Human Capital for the AI-Driven Economy (AI literacy as foundational competency across all disciplines, not a narrow technical skill; human capital reform requires bridging the skills gap while empowering educators with continuous professional development); China's 2017 AI Development Plan as execution-discipline model (sequential targets, dedicated financing, sustained political ownership — adaptable framework for Pakistan without replicating China's capital base); Red Book on Artificial Intelligence Literacy of University Educators (core competencies expected of faculty in the AI era; AI-related training tailored to faculty from different academic backgrounds); UN Sustainable Development Goals (SDG 4 — quality education); Oxford Insights Government AI Readiness Index (Pakistan ranked 8th
----------	---	--	--

	education tiers: teachers and university educators in all disciplines (science, engineering, agriculture, medicine) lack AI literacy and practical training; no differentiated, discipline-specific AI curriculum or textbooks exist; no hands-on training platforms for practical AI skill development; computing capacity, digital infrastructure, and AI-specific funding vary widely across institutions; 8) equity concentration risk: without equity-first, infrastructure-sequenced design, AI tools deployed in elite urban schools and well-resourced universities will benefit affluent, connected learners while leaving rural, low-income, and female students further behind, reproducing historical patterns of technological exclusion observed from the first AI winter to the generative AI era.	private data-center investment; establish regulatory sandboxes so startups can test AI products under supervision; 9) launch solar-powered Mobile AI Learning Centers to underserved districts integrating AI literacy into existing STEM subjects with applications in agriculture and local livelihoods (modeled on Quishi Engine adaptive learning architecture for offline personalization); 10) digitize excise, taxation, health, and land records to create training data for public-service AI and enable AI-driven governance and auditing; 11) offer foreign-qualified-professional grants and fellowships to retain and repatriate AI talent; pursue targeted cooperation with China, the Middle East, and multilateral organizations for compute access and joint research; promote university-industry collaboration and student entrepreneurship competitions with faculty engagement and project-based incentives; 12) secure provincial buy-in through inter-provincial coordination mechanisms; incentivize private-sector financing through the Special Investment Facilitation Center (SIFC); publish an annual AI adoption performance chart to ensure accountability and track progress.	of 17 South/Central Asian countries); Site visits: Zhejiang University Second Affiliated Hospital (AI in health education — administrative efficiency, clinical decision support, research acceleration, robust data governance protocols); Zhejiang University Innovation Practice Base of Robotics and Intelligent Equipment (hands-on maker-space learning environments driving student engagement in STEM and robotics); Zhiyun Classroom and Quishi Engine (adaptive learning platforms and intelligent research systems personalizing learning at scale provided digital infrastructure exists); Hangzhou 5G/IoT/Cloud digital transformation ecosystem (traffic governance, digital urban governance, medical emergency, low-altitude economy, innovation-robotics); Pakistan’s National Command and Control (NCC) digitalization model for COVID-19 response; Special Investment Facilitation Center (SIFC) as FDI-attraction vehicle for IT, telecom, energy, and infrastructure sectors.
People's Republic of China	Disparities persist across regions, socioeconomic groups, and developmental stages in access to educational resources. In the age of AI, the critical question is whether these gaps will narrow or widen. The answer hinges on a fundamental principle: keeping the human being at the center of education and casting AI as an enabler rather than a substitute.	1) Adopt a human-centered approach, clearly defining the boundaries of AI use: confine AI to standardized tasks such as grading assignments and retrieving references, while preserving human judgment for personalized instruction. Model governance on Shanghai Jiao Tong University’s four-tier AI use classification — prohibited, limited, open, and encouraged — based on risk; establish governance committees within universities to dynamically review and reclassify emerging AI applications as technology evolves. 2) Nurture students’ creativity as human beings: teach the underlying logic of AI and the ability to identify and solve problems with it, rather than transient technical details that curricula cannot keep pace with. Promote project-based learning that bridges the virtual world to reality as a scaffold for fostering creativity and humanistic empathy.	UNESCO human-centred approach to AI in education (AI as an enabler, not a substitute; human agency at the centre of AI deployment in classrooms); Shanghai Jiao Tong University’s Guidance on the Use of AI in Education and Teaching (four-tier risk-based classification: prohibited, limited, open, encouraged; dynamic governance committee model for reclassifying AI applications as technology evolves); Prof. Zhu Linchao’s pedagogical philosophy (teach the underlying logic of AI and problem-identification/problem-solving capability rather than transient technical details; “Give a man a fish, and you feed him for a day; teach him to fish, and you feed him for a lifetime”); Project-based learning as a bridge from the virtual world to reality, fostering

			creativity and humanistic empathy.
Tajikistan	1) Severe digital divide: only 56% of teachers in Dushanbe have internet at workplace, dropping to 9–25% in regional areas — cloud-based AI tools impossible in rural schools; 2) Tajik language is extremely underrepresented in existing LLMs, creating a language barrier for AI adoption; 3) insufficient digital literacy among educators — only brief awareness-level training provided, with no systematic AI-in-education competency standards; 4) COVID-19 revealed significant vulnerabilities in digital infrastructure, high connectivity costs, and limited distance-learning capacity; 5) substantial gap between demand for AI competencies and supply of qualified personnel — two-thirds of innovative companies in Central Asia report skills shortages as the main constraint; 6) traditional educational systems characterized by inefficient resource allocation and insufficient adaptation to individual learning needs.	1) Develop and deploy 'Offline-First' and 'Mobile-First' educational AI tools based on edge computing operating locally without continuous internet; 2) establish a consortium (MES, local universities, UNESCO) to develop open datasets in the Tajik language for fine-tuning existing LLMs; 3) launch an 'AI Champions' cascading mentorship program — train a core group of leading teachers (including rural) in prompt engineering, critical evaluation, and data ethics; 4) implement a national hybrid continuous professional development platform combining online modules with in-person sessions and workplace mentoring; 5) integrate an 'AI in Education' module into mandatory teacher training using the TPACK framework; 6) provide targeted state subsidies for rural teachers to purchase laptops and unlimited mobile internet; 7) develop a modular AI literacy program aligned with priority economic sectors (healthcare, agriculture, energy, finance); 8) establish AI laboratories in leading HE institutions and vocational colleges with prototyping resources.	UNESCO AI and Education: Guidance for Policy-Makers; National AI Readiness Assessment Model; Human-in-the-Loop Approach; Prof. Wang Zhongming's Five-Competence Model, Prof. Sen Gong's Hangzhou Innovation System and ZJU Red Book on AI Literacy for Educators, Prof. Wu Fei's presentation on ZJU's AI+Education initiative
Turkmenistan	1) Growing gap between rapid AI technology evolution and preparedness of schools, teachers, and regulatory frameworks — most schools lack clear data protection rules, privacy safeguards, and age-appropriate AI guidelines; 2) risk of widening digital divide: urban students with high-speed internet gain learning advantages while rural schools fall behind; 3) unprepared educators: brief orientation sessions are insufficient to equip teachers with skills to evaluate AI-assisted work, prevent cognitive dependence, or teach critical thinking alongside automated tools; 4) fiscal risk	1) Update curriculum with an 'AI+X' interdisciplinary approach embedding AI literacy into existing subjects (sciences, mathematics, humanities) rather than creating a standalone elective; 2) establish simple 'Whitelist and Blacklist' operational rules — encourage brainstorming, translation, debugging, and tutoring; prohibit copy-pasting, ghostwriting, and uploading sensitive data; 3) provide systematic 40+ hour modular teacher training on practical AI tool usage, prompt engineering, and ethical assessment; 4) develop a centralized National Smart Education Platform with free digital learning resources and localized AI tools; 5) mandate a 1:1 budget ratio — for every manat spent on	Prof. Wang Zhongming's Five-Competence Model (Digital Innovation, Collaborative Thinking, Action Empowerment, Sustaining Resilience, Responsibility Thinking) and HEROR Psychological Capital (Hope, Efficacy, Resilience, Optimism, Responsibility); Prof. Sen Gong's Hangzhou Innovation System (balancing physical infrastructure with continuous human capital development); UNESCO frameworks and ZJU Red Book on AI Literacy for Educators; CAREC shared infrastructure frameworks; Zhejiang University AI+X interdisciplinary model.

	of 'stranded infrastructure' — investing heavily in hardware, servers, and software without corresponding human skills investment leads to underutilized assets and low economic returns; 5) fragmented public procurement across individual ministries creates budget duplication and prevents economies of scale.	IT infrastructure, allocate an equal manat to human capacity building and teacher reskilling; 6) centralize AI computing services into a shared national platform to reduce public expenditure through economies of scale; 7) implement procurement whitelists and fiscal audit controls preventing expenditure on unverified commercial subscriptions.	
Uzbekistan	1) AI adoption in higher education advancing faster than development of a consistent sector-wide governance framework — each institution independently develops rules for privacy, security, transparency, academic integrity, and human oversight; 2) absence of a clear education-sector procedure for assessing AI systems before deployment in sensitive areas (admission, grading, student profiling, dropout prediction, biometric proctoring); 3) quantitative ambition outstripping human-capital depth: the '5 Million AI Leaders' project targets 4.75M schoolchildren, 150K teachers, 100K civil servants, but most teachers receive only 2–2.5-hour awareness modules without pedagogical competence to teach with and about AI; 4) severe regional divide: AI-tool adoption in regions estimated at 2–3 times lower than in Tashkent, compounded by weak rural connectivity and shortage of Uzbek-language AI content; 5) competence-definition gap: no national competence model specifies what an AI-ready teacher or student must be able to do technically, ethically, and collaboratively.	1) Establish a Responsible AI Governance Framework for Higher Education under Ministry coordination, translating national AI policy into practical rules for universities (acceptable/restricted uses, human oversight, data handling, cybersecurity, transparency, academic integrity); 2) introduce a joint, risk-based AI assurance protocol with tiered control levels — low-risk tools require basic transparency, while high-risk systems (admissions, grading, biometrics) require impact assessment, privacy review, bias testing, and human appeal mechanisms; 3) adopt a national AI-Education Competence Framework using Prof. Wang's Five-Competence Model for three roles (teachers, students, administrators), and certify against competence, not course attendance; 4) replace one-size-fits-all training with a tiered 'AI+X' pathway prioritizing regions — differentiated foundation courses, stackable micro-courses in Uzbek/Russian/Karakalpak; 5) apply the Multi-Level Empowerment Strategy (system, organizational, team, individual levels) with personal learning accounts and micro-credentials; 6) localize Hangzhou ecosystem logic: link university AI labs, IT Park, and supercomputer cluster into a 'university–industry–government' triangle; 7) implement pilot-before-scale with independent evaluation for all high-risk AI systems; 8) maintain a public register of AI systems in education with post-deployment transparency and re-review triggers.	UNESCO AI and Education: Guidance for Policy-Makers (system-wide vision, interdisciplinary governance, ethical and inclusive use, pilot-to-evidence-based scaling); Human-Centred Framework (people first, privacy, fairness, accountability, transparency); China's 2018 Innovative Action Plan for AI in Higher Education Institutions; Prof. Wang Zhongming's Genetic Framework for Reshaping Human Capital (Challenges → Competence Modeling → Multi-Level Empowerment → Outcomes) and Five-Competence Model (Teaming, Innovating, Acting, Cultivating, Sustaining) with HEROR psychological capital; Prof. Fei Wu's AI+X/BEST model at Zhejiang University (tiered compulsory AI courses, 220 interdisciplinary courses, stackable micro-programs); Hangzhou 'Six Little Dragons' innovation ecosystem (DeepSeek, Unitree, Game Science, BrainCo, ManyCore, DEEP Robotics); ITalk2Learn case study; China school biometrics case; EU GDPR thematic approach.

Source: Exercise policy notes prepared by participants of the Second CAREC Leadership Training, "Empowering Education: Harnessing AI for Learning and Digital Transformation," Zhejiang University, Hangzhou, July 2026.

GROUP PRESENTATION EXERCISE

The group presentation exercise was a culminating component of the training, designed to encourage collaborative learning and the application of training concepts to real-world policy challenges. Participants were randomly assigned to one of four groups, each tasked with preparing a 15-minute presentation consisting of exactly three content slides on a distinct topic related to AI and education, followed by 15 minutes of Q&A from other groups. The exercise required participants to synthesize knowledge from lectures, site visits, and discussions, and to work collaboratively across national boundaries to develop shared policy recommendations.

GROUP 1: A STRATEGIC VISION FOR AI IN EDUCATION

Group 1, comprising participants from Kyrgyz Republic, Pakistan, Tajikistan, Azerbaijan, Uzbekistan, and Mongolia, presented a strategic vision for building an AI-ready education system. The group began by assessing national readiness, identifying three core strengths: political commitment and policy support, a young population with growing digital infrastructure, and strong academic and public interest in AI. However, they also identified strategic gaps including the need for systematic AI integration into education, limited AI readiness among educators, and fragmented coordination between universities, industry, and government. The group proposed a strategic vision of an education system that continuously prepares people for an AI-driven economy, with priorities including national frameworks and ethical guidelines, modernizing higher education as lifelong learning hubs, building workforce capability from foundational to specialized skills, and leveraging labor market intelligence.

The group's implementation roadmap outlined four priority areas: faculty and curriculum (AI training for faculty, differentiated curricula, standardized textbooks), platforms and research (practical AI training platforms, university-industry collaboration), entrepreneurship (AI competitions, startup hubs in regional innovation centers), and policy and infrastructure (tax reductions on AI equipment, sustainable funding, cross-sector governance). The presentation sparked lively discussion, with questions about international collaboration, financing AI education, and whether nations should focus on developing AI specialists, AI managers, or AI-literate citizens. The group concluded that AI literacy is essential for the entire population and that universities should serve as lifelong learning hubs, emphasizing that achieving an AI-ready education system requires more than technology—it demands strong governance, investment in people, and a long-term strategic vision.

GROUP 2: GOVERNANCE FOR UNIVERSITY-INDUSTRY COLLABORATION

Group 2, comprising participants from Azerbaijan, Kazakhstan, Kyrgyz Republic, Mongolia, Turkmenistan, Georgia, and Pakistan, explored inter-sectoral governance models for university-industry collaboration in AI. The group argued that without clear governance, even the best partnerships fail, as unresolved questions about intellectual property ownership, research direction, funding, and profit-sharing lead to breakdowns in trust. They defined governance as a system of rules, roles, and relationships that steers collaboration from idea to impact—not management, but the framework that sets boundaries and ensures accountability. The group presented several governance models including hierarchical, market-based, network-based, and collaborative approaches, with particular emphasis on the Triple Helix model (universities, industry, government) and the Quadruple Helix model, which adds civil society as a fourth spiral because parents, students, and teachers are not passive recipients but autonomous, interdependent actors.

The group recommended the Quadruple Helix model as the best fit for AI education collaboration, emphasizing the need for a joint steering committee with all stakeholders represented, clear IP agreements, transparent funding structures, and conflict resolution protocols. They highlighted that resources extend beyond finance to include data, human capital, compute power, and reputation, and recommended algorithmic auditing of AI education tools, joint ethics boards, open public dashboards, and conflict of interest registries. To prevent capture by any single actor, the group recommended rotating leadership, shared value metrics, joint problem definitions, and sunset clauses with periodic reviews. The presentation generated extensive discussion about whether the model applies across different governance systems, the role of media as a fifth actor, and the practical balance between government auditing of AI models and protecting companies' proprietary information.

GROUP 3: A HUMAN-CENTRIC AI POLICY FRAMEWORK

Group 3, comprising participants from Kazakhstan, Georgia, Pakistan, Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic, presented a human-centric AI policy framework built on the principle that AI should always serve people, not replace them. The group developed a framework based on five core values: human rights and inclusion, data protection, trust, accountability, and transparency. The framework focuses on four key stakeholders—learners (equal access to inclusive and personalized learning), educators (using AI as a tool while keeping human judgment central), institutions (strong governance, fairness, public trust), and society (benefiting through transparency and fairness). The group identified four key policy messages: AI should support rather than replace human decision-making, personal data and human rights must be protected, AI systems must be fair and explainable, and AI operations should be transparent and regularly reviewed.

The group elaborated on specific framework attributes including human rights and ethics (ensuring AI respects dignity, privacy, and non-discrimination), AI governance and regulation (national strategies aligned with regional characteristics, regulatory bodies, ethical guidelines), data protection and cybersecurity, inclusive AI adoption (expanding infrastructure to underserved communities, accessibility for SMEs, women, rural populations, and people with disabilities), skills and workforce development (AI literacy in education, reskilling programs), and innovation and economic growth (encouraging AI research, startups, public-private partnerships). The group also emphasized regional cooperation through common AI standards, knowledge sharing, and joint research. Expected outcomes included responsible AI adoption, improved public service delivery, greater regional digital integration, and sustainable inclusive economic development. The presentation prompted discussion about whether AI tools should undergo the same testing and approval processes as new medicines before deployment in educational settings.

GROUP 4: CURRICULUM REFORM AND NATIONAL AI LITERACY

Group 4, comprising participants from Uzbekistan, Mongolia, Turkmenistan, China, and Georgia, addressed curriculum reform and national AI literacy, drawing extensively on China's practical experience. The group identified three core problems facing education systems: technology moving faster than policy, inequality widening as AI adoption accelerates the digital divide, and teacher unpreparedness for AI integration. They presented findings from a 2025 survey by the China National Academy of Educational Science covering all 31 provinces and over 322,000 students and nearly 300,000 teachers, revealing that 99% of students had encountered AI and 85.6% had used AI tools for homework, yet only 13.8% of parents and 18% of teachers were aware of this usage—a significant disconnect highlighting the urgent need for structured AI literacy frameworks.

The group presented China's approach to AI literacy, including the Ministry of Education's 2025 guidelines for generative AI use by primary and secondary students, which introduce a tiered white list and black list system. Permitted uses include research, inspiration, and language practice, while ghostwriting and activities that replace students' own reasoning are prohibited. The framework also addresses data security, forbidding the entry of sensitive information and requiring schools to establish AI tool whitelists.

For higher education, the group discussed a four-dimensional framework: understanding AI, using AI, innovating with AI, and governing AI. The group emphasized that AI literacy is not a new subject but a rethinking of learning in the age of AI, requiring a systematic approach combining curriculum, assessment, teacher preparation, and data governance—likening these four elements to the four wheels of a car, where the absence of any one prevents forward movement. The presentation highlighted the importance of inclusive design, ensuring no one is left behind in AI education.

PART VI: CLOSING SESSION

CONCLUDING REMARKS BY ZHEJIANG UNIVERSITY

Dr. Gong Sen, Vice Dean of the Institute of Global Development and Director of the Center for International Studies on Development and Governance of Zhejiang University, delivered concluding remarks that synthesized the week's discussions and offered three key takeaways for CAREC policymakers. First, he cautioned against simply adopting China's AI model, emphasizing that different cultural contexts, infrastructure levels, and governance traditions require tailored approaches. However, he encouraged participants to consider a more active governance framework, noting that AI is too powerful and evolving too rapidly for governments to wait until technology matures before acting. He distinguished between governance as risk containment and governance as market cultivation, highlighting that China's approach involves active government intervention to build emerging markets through procurement, incentives, and organized learning, alongside prudent and agile regulation of existing markets.

Second, Dr. Gong emphasized that adaptation should be the core strategy for latecomers to AI development. Rather than attempting to build AI systems from scratch or simply adopting foreign technologies wholesale, countries should focus on adapting existing AI applications to their own contexts, data, and languages. He noted that AI sovereignty may not be as important as data sovereignty, and that interoperability among different AI applications is more critical than choosing any single platform. Third, he addressed the profound economic and social implications of AI, including potential workforce displacement and wealth redistribution challenges. He noted that while previous industrial revolutions created more jobs than they destroyed, this time may be different and stressed the importance of social safety nets. He concluded by encouraging participants to stay connected, share experiences, and continue the collaborative learning initiated during the training.

CONCLUDING REMARKS BY CAREC PROGRAM

Dr. Roman Mogilevskii, Senior Regional Cooperation Economist at ADB, delivered concluding remarks that emphasized the strategic importance of the training within the CAREC framework. He explained that the CAREC Program has supported the CAREC Institute for many years as the knowledge and capacity-building arm of the Program, and that the recently adopted CAREC Institute Strategy 2026-2030 focuses on delivering flagship products, with the leadership training being one of these flagship initiatives. He praised the training's relevance and the quality of its content, noting

that the human-centric perspective adopted throughout the program was particularly valuable. Dr. Mogilevskii highlighted the importance of seeing AI applications demonstrated not just in theory but in practice, through the site visits to the university and its affiliates in research, education, and healthcare.

Dr. Mogilevskii commended the excellent teamwork and friendly, supportive atmosphere maintained throughout the five days, thanking the hosts at Zhejiang University and the CAREC Institute. He emphasized that policy discussions should be deepened and continued, enriched by country experiences, and that countries need to act quickly on an informed basis, taking into account their own and their neighbors' experiences as well as global lessons. He encouraged participants to stay connected to each other, to Zhejiang University, and to the CAREC Institute, and through the Institute to the CAREC Program. He confirmed that ADB would continue supporting such capacity-building activities and would keep participants informed about future opportunities, emphasizing the long-term task of mutual learning across the region.

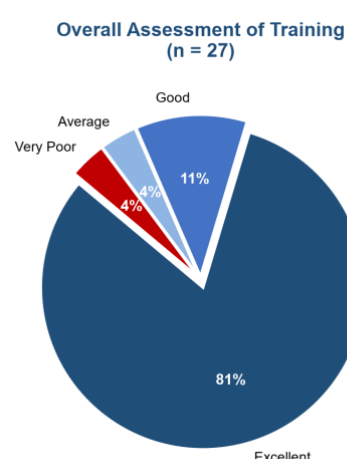
CONCLUDING REMARKS BY CAREC INSTITUTE

Dr. Kuat Akizhanov, Deputy Director Two of the CAREC Institute, delivered the final closing remarks, expressing sincere gratitude to the Institute of Global Development and the Center for International Studies on Development and Governance of Zhejiang University for its exceptional hospitality, professionalism, and partnership. He specifically thanked university professors for their dedication and warm support throughout the training. He also extended appreciation to the ADB and particularly Dr. Roman Mogilevskii for their continued support and vision in strengthening the CAREC Institute's capacity-building activities. Dr. Akizhanov thanked all the distinguished lecturers for generously sharing their expertise, practical experience, and valuable insights into AI, digital transformation, and regional cooperation.

Dr. Akizhanov gave special recognition to the team of volunteers for their tireless work behind the scenes, and expressed deep appreciation to all participants for their active engagement, thoughtful questions, rich discussions, and willingness to share experiences. He emphasized that the CAREC Institute takes participant feedback seriously in adapting future trainings. He expressed hope that participants would return home not only with new knowledge and practical applications but also with new friendships and a stronger network of colleagues across the region. He noted that the challenges faced by CAREC countries are increasingly shared, and so too should be the solutions. He concluded by affirming the CAREC Institute's commitment to welcoming participants in future programs and continuing the journey of learning, innovation, and regional cooperation.

PART VII: EVALUATION AND FEEDBACK

This section of the training report synthesizes participant feedback across satisfaction ratings, session evaluations, learning outcomes, and qualitative suggestions. Participants were asked to provide an overall assessment of the training. The results are overwhelmingly positive: 22 participants (81.5%) rated the program as "Excellent", 3 rated it "Good" (11.1%), while 1 rated it "Average" and 1 "Very Poor". The combined Excellent/Good rate of 92.6% places this program among the top tier of CAREC Institute training offerings.

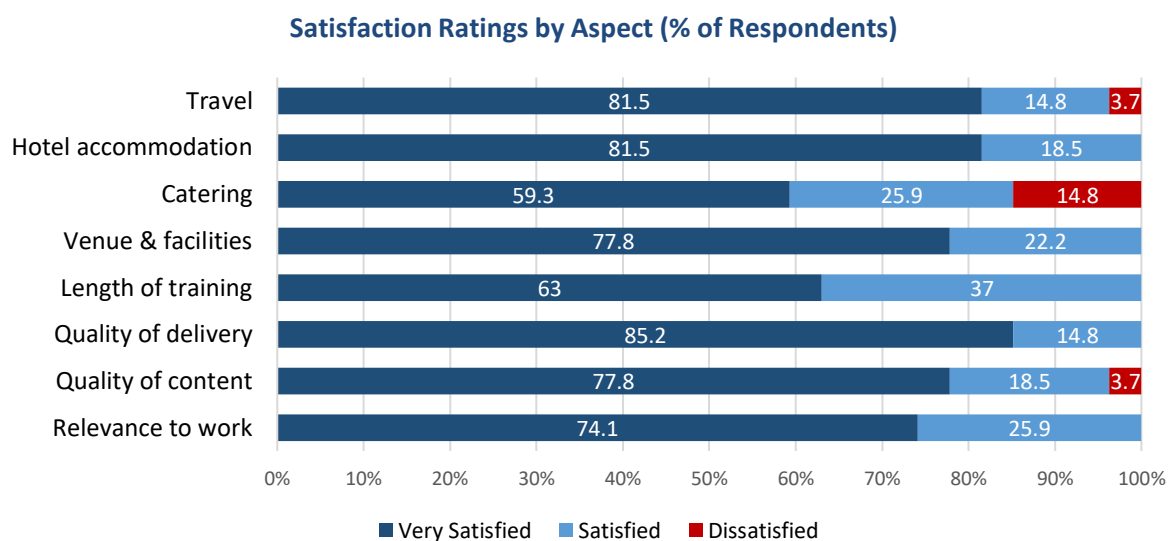


Participants evaluated the training across eight key areas using a scale from “Very Satisfied” to “Very Dissatisfied,” and the feedback revealed a high level of overall satisfaction. The training’s relevance to participants’ work received unanimous positive feedback, with 20 participants rating it “Very Satisfied” and 7 “Satisfied.”

The quality of the content was also highly rated, with 96.3% of participants expressing positive sentiments; 21 were “Very Satisfied” and 5 were “Satisfied,” while only 1 participant was “Dissatisfied.” The quality of delivery of the training stood out as the strongest aspect, achieving 100% positive ratings, as 23 participants were “Very Satisfied” and 4 were “Satisfied.”

Regarding the length of the training, all participants found it acceptable, with 17 “Very Satisfied” and 10 “Satisfied.” However, qualitative feedback indicated a desire among some for an even longer duration. The venue and facilities also received perfect 100% positive ratings, with 21 “Very Satisfied” and 6 “Satisfied” participants.

Catering was positively reviewed by 85.2% of participants, with 16 “Very Satisfied,” 7 “Satisfied,” and 4 “Dissatisfied,” marking it as the weakest aspect of the training. Hotel accommodation, on the other hand, received 100% positive ratings, with 22 “Very Satisfied” and 5 “Satisfied” participants. Finally, travel arrangements were rated positively by 96.3%, with 22 “Very Satisfied,” 4 “Satisfied,” and 1 “Dissatisfied” participant.

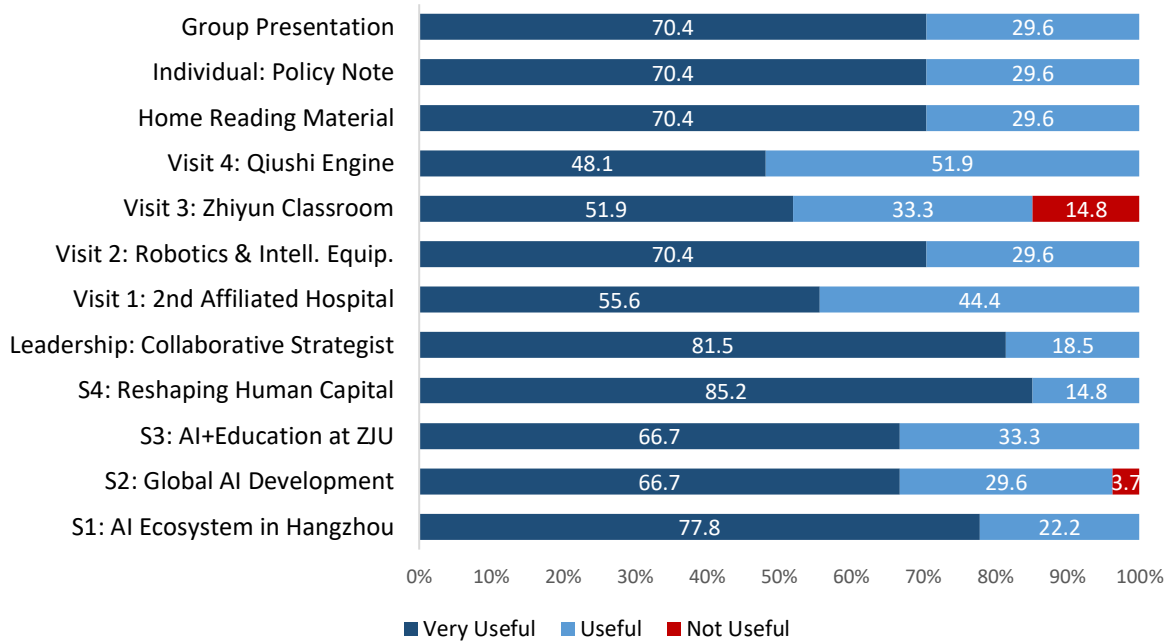


Twelve sessions and activities were evaluated by participants on a scale of “Very Useful,” “Useful,” or “Not Useful.” Overall, all sessions achieved a 100% combined rating of “Very Useful” or “Useful,” indicating general positive reception across the board.

Looking at the top-performing sessions based on the percentage of “Very Useful” ratings, Session 4: Reshaping Human Capital ranked first, with 23 out of 27 participants (85.2%) finding it “Very Useful.” It was followed by the Leadership: Collaborative Strategist session (22/27, 81.5%), and Session 1: AI Ecosystem in Hangzhou (21/27, 77.8%). Site Visit 2: Robotics & Intelligent Equipment also performed well, with 19 out of 27 participants (70.4%) rating it “Very Useful.”

The three exercises—Home Reading, Individual Policy Note, and Group Presentation—all performed consistently, with 70.4% of participants rating each as “Very Useful” and 29.6% of participants rating each as “Useful.”

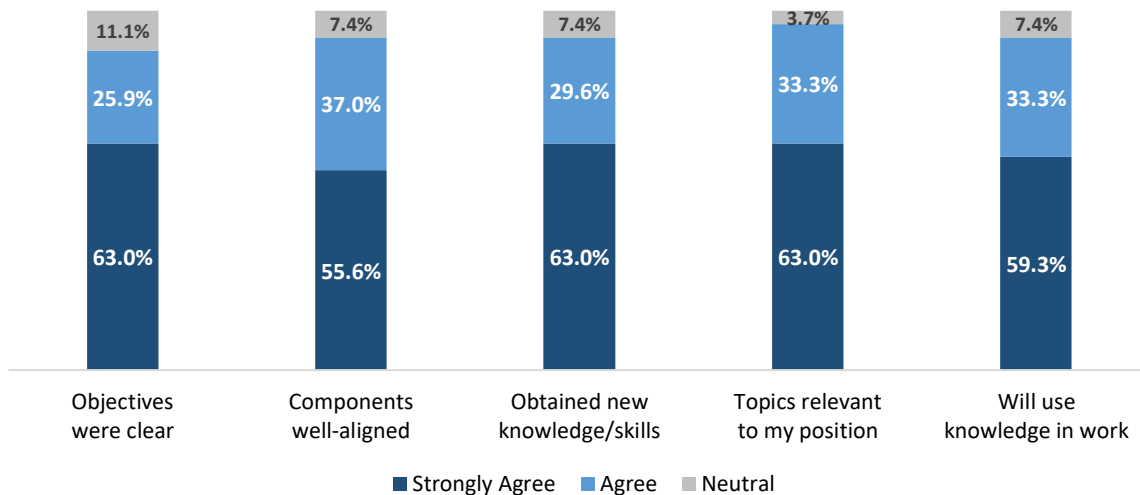
Content Evaluation (% of Respondents)



Participants assessed five learning outcome statements using a scale from “Strongly Agree” to “Strongly Disagree.” The results demonstrated strong agreement across all items. The clarity of the training objectives received 88.9% agreement, with 17 participants “Strongly Agreeing,” 7 “Agreeing,” and 3 selecting “Neutral.” Participants also strongly agreed that the components of the training were well-aligned, with 92.6% agreement: 15 “Strongly Agreed,” 10 “Agreed,” and 2 were “Neutral.”

Furthermore, 92.6% felt they obtained new knowledge and skills, comprising 17 “Strongly Agree” and 8 “Agree” responses, with 2 “Neutral.” An even higher percentage, 96.3%, found the topics relevant to their positions, with 17 “Strongly Agreeing,” 9 “Agreeing,” and only 1 “Neutral.” Similarly, 92.6% indicated they would use the gained knowledge in their work, split between 16 “Strongly Agree” and 9 “Agree” responses, with 2 “Neutral.”

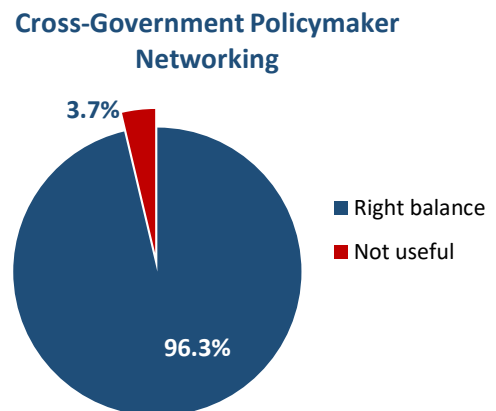
Learning Outcomes (% of Respondents)



Notably, no participant selected “Disagree” or “Strongly Disagree” for any of the learning outcome statements. This remarkably strong result indicates high instructional effectiveness and the relevance of the content delivered.

Participants further elaborated on their plans to apply what they learned, describing specific actions such as developing national AI education strategies, sharing knowledge through internal workshops, integrating AI into curriculum design, and contributing to AI policy and regulatory frameworks within their home countries.

When asked whether bringing together policymakers from different government bodies was useful, 26 of 27 respondents (96.3%) said it was “useful—it was the right balance.” Only 1 respondent felt it was “not so useful.” This near-unanimous result validates the program’s multi-country, cross-government design as a core strength that should be preserved and expanded in future offerings.



Participants overwhelmingly praised the training for being exceptionally well-organized, highly relevant, and informative. The speakers and moderators were consistently commended for their high level of professionalism, clear explanations, and engaging presence. Several individuals were specifically recognized for their contributions, including Dr. Ilhom Abdulloev and Mr. Gary Huang for their competent moderation and logistical support, as well as Dr. Wu Fei, Dr. Wang Chongming, and Ms. Fion Yip for delivering highly practical and insightful sessions. Furthermore, participants highly valued the networking opportunities, noting that the training successfully facilitated international cooperation, experience exchange, and the building of an active community of practice. The site visits to institutions like the Second Affiliated Hospital of Zhejiang University, the Robotics Innovation Base, and Qiushi Engine were also highlighted as major program successes.

When asked how future trainings could be improved, participants identified several key areas for enhancement. The top requests, based on the number of mentions, were for changes to the duration of the course and the topics covered, each cited by 10 participants (37% of respondents). Participants stated, “Duration of the courses should be at least two weeks” and noted, “The course was too short. A longer duration would allow more time for in-depth discussions.” They also requested the inclusion of cultural interactions, such as city tours and sharing cultural aspects of CAREC member states, to enhance the overall experience. The third most common suggestion, mentioned by 7 participants (25.9%), related to the format or balance between sessions. Feedback included requests for “More practical sessions and real-world case studies” and to “Include more member interactions, case discussions, and practical drills.” Improving the quality of translation was also noted, mentioned by 5 participants (18.5%). One suggested, “AI voice translator for each which translates from the language of speaker to listener should be available.”

Participants provided several constructive suggestions to enhance future trainings, with a primary focus on increasing practical, hands-on learning. Respondents requested more interactive group work, and policy simulation exercises to better apply the knowledge gained. On the technical side, there were specific requests to include more in-depth explanations of how LLMs and data training work, as well as a stronger emphasis on useful AI tools for government efficiency. Some participants suggested making the curriculum more AI-intensive and technical, potentially reducing the time spent on history or soft skills, and noted that core learning objectives could potentially be

condensed into a shorter, more efficient schedule. Beyond public administration, there is a clear demand for applied AI and machine learning tailored to industry, including robotics, manufacturing automation, and data analytics for decision-making. Furthermore, respondents expressed interest in more advanced technical topics such as "AI + coding," AI modeling for regional economic analysis, and building AI-powered educational agents or chatbots.

In the realm of governance and policy, participants emphasized the urgent need for frameworks to manage AI responsibly. Suggested topics include AI governance, digital policy, cross-border data governance, and practical approaches to drafting AI regulations. There is also a specific interest in cross-border e-governance interoperability to support regional digital economy integration. Notably, one participant highlighted a critical gap in current global standards, requesting the development of guidelines for the use of AI based on student age categories.

Participants also identified several key sectors where AI could be practically applied to drive regional development. In education, they requested training on curriculum redesign, teacher professional development, assessment strategies in the age of AI, and the responsible use of generative AI. Other critical sectors mentioned include health, agriculture (precision farming), energy (smart grids), and transportation (logistics optimization). Additionally, there is a strong call for social inclusivity, with specific requests for workshops on leveraging AI for people with disabilities and for underserved or marginalized communities.

On the infrastructural side, respondents pointed to the foundational elements required to support regional digital transformation. Key themes include digital infrastructure development, broadband connectivity, and the development of hyperscale data centers. Participants are particularly interested in understanding the strategic benefits of the "digital corridor" for all CAREC countries and exploring actionable strategies to achieve its success, alongside initiatives aimed at reducing the regional digital divide.

Feedback regarding the site visits and logistical arrangements was also provided to improve the overall participant experience. While the university and tech company visits were appreciated, several respondents suggested expanding the scope to include local schools or Vocational Education and Training institutions. From a logistical standpoint, participants recommended relocating catering closer to the classroom to minimize transit time.

Finally, there is significant interest in fostering international cooperation, development finance, and tech ecosystem engagement. Participants requested sessions on ODA coordination, working with International Financial Institutions (IFIs), and advancing South-South initiatives. They also value opportunities to connect directly with leading Chinese technology companies and promising startups to understand innovation ecosystems and explore regional partnerships. Overall, across all these themes, participants consistently requested interactive sessions, regional best practices, and practical case studies to ensure the training can be directly applied to real-world challenges in their home countries.

Participants during the training evaluation provided a diverse range of perspectives on how to best strengthen regional AI cooperation within the CAREC region. The inputs converge on the need for a multi-faceted approach involving enhanced communication, shared resources, collaborative projects, standardized frameworks, and targeted capacity building. Key suggestions include:

- *Knowledge Sharing & Best Practices:* Many participants emphasized the importance of continuous knowledge exchange. This included sharing experiences, organizing regular

seminars, meetings, and video conferences, and establishing joint platforms for learning to keep pace with the rapid development of the AI industry.

- *Joint Projects & Initiatives:* Numerous suggestions focused on moving beyond theoretical discussions to practical implementation. Participants advocated for joint regional pilot projects and a “test before scale” method on common priorities (e.g., education, healthcare, customs) with shared evaluation frameworks.
- *Sustainable Funding Models:* To support joint initiatives, participants suggested a coordinated funding approach. CAREC could initially fund regional pilot initiatives (such as AI camps or incubators) to cover local organizational costs, while participating countries gradually allocate national budgets to scale successful programs, thereby reducing duplication of effort.
- *Capacity Building & Talent Development:* Strengthening human capital was a major theme. Suggestions included joint training programs, harmonizing educational curricula and standards, establishing shared research networks, and building a regional talent pool. A key perspective highlighted that AI should be viewed as a tool to enhance human knowledge and capacity, rather than a replacement for people.
- *Institutional & Policy Frameworks:* Participants proposed creating formal structures to sustain cooperation. Suggestions included establishing a regular "CAREC AI Forum" for ministers, policymakers, and practitioners, forming special working groups, and implementing previously signed agreements (such as the Digital Corridor MoU). There was also a strong call to harmonize AI governance principles and adapt international standards (e.g., ISO, OECD) to regional conditions.
- *Infrastructure & Partnerships:* Building shared digital infrastructure and computing resources was recommended to bridge technological gaps. Participants also stressed the importance of fostering public-private-academic partnerships, motivating cooperation between different institutions, and leveraging external ecosystems (such as China's AI ecosystem) as a capacity multiplier.
- *Specific Actions & Deliverables:* Some participants pointed to specific deliverables from previous work, calling for practical discussions, the creation of dedicated collaboration groups, and the establishment of common data resources to ensure long-term cooperation.

Furthermore, the participants were asked during the training evaluation for recommendations on how to leverage the CAREC Institute's platform to promote AI collaboration across the region. Participants offered various actionable recommendations, which can be categorized as follows:

- *Establish a Centralized Knowledge Hub/Platform:* Several suggestions focused on creating an online platform or knowledge hub. This would involve sharing best practices, case studies, training materials, datasets, and research findings among member countries. Some specifically mentioned establishing a CAREC AI Knowledge Hub or transforming the Institute into a regional knowledge center that drives evidence-based policymaking.
- *Facilitate Events, Training, and Immersive Experiences:* Hosting or organizing various events was a common theme, including regional workshops, online courses, policy labs, expert discussions, and hackathons/startup demos. Notably, one detailed recommendation proposed establishing a rotating regional AI study tour across all CAREC member countries (including China and Mongolia). This three-phase program would allow participants to spend time in different countries meeting government institutions, universities, tech companies, and innovation hubs to build long-term professional networks.
- *Support Joint Activities and Practical Implementation:* Recommendations included supporting or coordinating joint research projects, joint research grants, and collaborative pilot projects. Participants also emphasized the need to form practical working groups to advance AI initiatives and to actively implement previously signed agreements, specifically the MoUs on the digital corridor and CIVIC innovation signed in November 2025.

- *Build Networks and Multi-Stakeholder Directories:* Creating connections was highlighted, such as establishing a permanent CAREC AI expert network, maintaining directories of AI experts and institutions, and facilitating dialogue among governments, academia, and the private sector.
- *Develop Guidance, Assessments, and Policy Harmonization:* Specific suggestions included developing AI readiness assessment guidance, publishing an annual CAREC AI progress or readiness report, and coordinating cross-country policy labs. Furthermore, participants recommended harmonizing AI policies across CAREC countries (as many share similar challenges) and launching unified data-sharing mechanisms.
- *Focus on Specific Sectors and Human Capital:* Some recommended targeting specific economic sectors through specialized AI courses. Additionally, there were calls to develop collective human capital by offering sponsorships and exchange programs for experts and students.
- *Establish Formal Coordinating Bodies:* To provide structural support for these initiatives, one suggestion was to create a dedicated coordinating body, such as a CAREC Artificial Intelligence Council, under the Institute.
- *Expand Existing Networks:* Participants also recommended expanding the existing CAREC Think Tank Development Forum and Research Networks to further strengthen regional collaboration.

Women's Participation in the Training and Gender Considerations in the IT Sector: Of the 27 policymakers who attended the Second CAREC Leadership Training, 5 participants (about 19%) were women, representing Azerbaijan, China, Georgia, Kazakhstan, and Mongolia—a composition that, while reflecting the presence of women across multiple CAREC sub-regions, also underscores a significant gender imbalance relative to men in senior policy roles related to AI and digital development. The female participants held positions in ministries of science and education, finance, economy and sustainable development, and digital development, indicating that women who did attend were positioned at decision-making levels. However, their small share mirrors a broader regional pattern in which women remain underrepresented in the IT sector across Central Asia, where socioeconomic factors, including limited STEM pathways for girls and uneven access to digital infrastructure, contribute to this under-representation. This imbalance carries real policy consequences: as the training's lectures and site visits demonstrated, AI systems, smart classroom platforms, telemedicine tools, and technologies increasingly shape how public services are delivered, and without women's voices in their design and governance, there is a heightened risk that these systems will overlook gender-specific needs—such as rural women's time burdens in water and agriculture, women's healthcare access, and girls' educational participation.

CONCLUSION

The Second CAREC Leadership Training for Regional Economic Cooperation, held from 27 to 31 July 2026 in Hangzhou, the People's Republic of China, brought together policymakers from eleven CAREC member countries for an intensive five-day program focused on empowering education through AI. Building on the foundation laid by the inaugural training in Urumqi in December 2025, this second iteration significantly expanded its scope, incorporating expert lectures, site visits, leadership skills development, and practical exercises to provide participants with a comprehensive understanding of AI's transformative potential for education and regional economic cooperation.

The training revealed both the immense opportunities and the significant challenges that AI presents for the CAREC region. Participants gained insights into China's advanced AI ecosystem through lectures on Hangzhou's innovation system, the global history of AI development, interdisciplinary AI education at Zhejiang University, and the reshaping of human capital in the AI economy. Site visits to the Second Affiliated Hospital, the Robotics Innovation Practice Base, the Zhiyun Classroom, and the Qishi Engine demonstrated real-world AI applications in healthcare, engineering education, smart classrooms, and autonomous scientific research. The leadership skills session equipped participants

with practical tools for building consensus, influencing policy, and fostering regional cooperation—skills that are essential for translating technical knowledge into actionable policy.

The training program incorporated an individual essay assignment requiring participants to apply national contexts, synthesize knowledge, and develop tangible outcomes, thereby enhancing their ability to tackle policy challenges through critical reflection and cross-border experience sharing. The group presentations highlighted the shared challenges facing CAREC member countries, including gaps between policy and implementation, limited AI readiness among educators, fragmented coordination across sectors, and the need for inclusive approaches that bridge urban-rural divides. At the same time, the presentations demonstrated the region's collective commitment to addressing these challenges through strategic visioning, governance frameworks, human-centric policy approaches, and curriculum reform. The diversity of perspectives enriched the discussions and underscored the value of regional cooperation in navigating the AI revolution.

The training concluded with a clear consensus on the need for continued collaboration, knowledge sharing, and capacity building across the CAREC region. Participants recognized that no single country can address the challenges of AI alone, and that regional cooperation through platforms like the CAREC Institute, the ADB-supported digital corridor initiatives, and partnerships with institutions like Zhejiang University is essential. The training reinforced the CAREC Institute's role as a vital knowledge hub for the region and demonstrated the value of its flagship leadership training program. As participants returned to their home countries, they carried with them not only new knowledge and skills but also a strengthened network of colleagues and a shared commitment to advancing AI-enabled growth, improved governance, and deeper regional integration for the benefit of all CAREC member countries.

RECOMMENDATIONS FOR FUTURE TRAININGS

Recommendation for 2027 CAREC Leadership Training: Maintaining a dedicated leadership focus is essential to bridge existing gaps and foster regional partnership. Policymakers need more than just technical skills; they require the strategic vision, ethical grounding, and leadership capabilities to navigate complex policy landscapes, build necessary legal and data infrastructures, and leverage international resources. This holistic capacity is what will translate individual national efforts into cohesive and equitable regional AI action.

Participant feedback clearly indicates that the current format is too compressed. With over 10 respondents citing duration as the primary area for improvement, it is recommended to extend the training to seven working days. This expanded timeline will provide a better balance between theoretical and practical learning, allow for built-in breaks to prevent fatigue, and create space for a weekend cultural component.

Language barriers, identified as negatively impacting discussion quality due to varying English proficiency levels, suggest the need to deploy AI-powered real-time voice-to-voice translation tools to facilitate smoother communication. Additionally, catering was noted as the sole logistical weak point, indicating that arrangements should be improved to enhance the participant experience, specifically by considering the location of catering services to be adjacent to the classroom.

Discussions during the inaugural workshop and the second training highlighted the strong necessity and potential benefit of expanding the focus for the 2027 CAREC Leadership Training to include AI in the health sector. This expansion should utilize current policies, pilot projects, and achievements in the health sector, particularly drawing on examples like the successful integration of AI in practice within Zhejiang University-affiliated hospitals in China.

Recommendation for CAREC Regional Forum AI+: Building on the emphasis on partnerships raised during the training, the 2027 CAREC Leadership Training on AI+Health should be organized with a dedicated government-enterprise dialogue ‘AI+’, starting with the health sector discussion. This joint event, hosted in a CAREC member country, would bring together policymakers and industry representatives, facilitating crucial cross-border knowledge sharing and fostering concrete cooperation opportunities.

Establish a CAREC AI Knowledge Platform: The CAREC Institute can establish a centralized digital hub—potentially utilizing its existing E-Learning platform—that hosts a wealth of resources, including training materials, best practices, AI readiness reports, and an expert directory. This platform will be vital for fostering continuous knowledge sharing and collaboration across the region.

To keep the momentum going between in-person workshops, this platform should be supported by a regular webinar series. These sessions would offer thematic deep dives into the most pressing issues facing the region, covering essential topics such as AI governance and regulation, the application of AI in public service delivery, specialized AI training for education policymakers, and practical AI tools designed to boost government efficiency.

Finally, to address the strong demand for hands-on learning, the future initiatives for the region should pivot toward interactive, applied experiences. This includes live LLM demonstrations, policy drafting workshops, and mini-hackathons. To make these practical sessions more relevant, case studies should be drawn from a variety of CAREC member countries, ensuring the curriculum reflects the diverse realities of the entire region.

APPENDIX: TRAINING AGENDA

Second CAREC Leadership Training for Regional Economic Cooperation Empowering Education: Harnessing AI for Learning and Digital 27-31 July 2026, Hangzhou, Zhejiang, PRC

Date	Time	Activity	Speaker/Lecturer	Key focus/Assignment
July 27	9:00 - 9:30	Welcoming Session	Dr. Li Kouqing Dr. Gu Zhen	Official opening
	9:30 - 9:50	Group Photo & Tea Break		
	9:50 - 10:05	Introduction of the Institute of Global Development	Dr. Gong Sen	
	10:10 -10:15	Book Sharing: Global Development Report (2025)		
	10:15 - 10:30	Introduction of the CAREC Institute	Dr. Kuat Akizhanov	
	10:30 - 10:45	CAREC Program's Support to Digitalization in Central, East, and West Asia	Dr. Roman Mogilevskii	
	10:45 - 11:00	Icebreaking	All	Participants' introductions & grouping Assignments
	11:00 - 12:00	The AI Ecosystem in Hangzhou and Implications for Pathways to Intelligent Transformation	Dr. Gong Sen	
	12:00 - 13:30	Lunch		
	13:30 - 16:30	Session 1: Global AI Development History and Prospects	Dr. Zhu Linchao	
July 28	9:00 - 12:00	Session 2: Fostering Interdisciplinary Excellence: AI+Education at Zhejiang University	Dr. Wu Fei	
	12:00 - 13:30	Lunch		
	13:30 - 16:30	Session 3: Reshaping Human Capital for the AI-Economy	Dr. Wang Zhongming	

July 29	9:00 - 12:00	Site Visit: AI Application	The Second Affiliated Hospital of Zhejiang University School of Medicine	
	12:00 - 13:30	<i>Lunch</i>		
	13:30 - 17:00	Site Visit: AI Application	1. Zhejiang University Innovation Practice Base of Robotics and Intelligent Equipment 2. Zhiyun Classroom of Zhejiang University 3. Qiushi Engine of Zhejiang University	
July 30	9:00 - 12:00	Leadership Skills Session: The Collaborative Strategist: Building Consensus & Influencing Policy in the AI Era	Ms. Fion Yip	
	12:00 - 13:30	<i>Lunch</i>		
	13:30 - 17:00	Leadership Skills Session: The Collaborative Strategist: Building Consensus & Influencing Policy in the AI Era	Ms. Fion Yip	Deadline for submission of individual essay
July 31	9:00 - 11:30	Group Presentations		
	11:30 - 12:30	Participant Reflections & Closing Remarks		
	12:30 - 13:30	<i>Lunch</i>		