

Session Outcome Document**Advancing Quantum Safe Transitions: Ethical, Legal, Social and Policy Dimensions**

UNESCO Information for All Programme (IFAP), International Telecommunication Union (ITU), and Data Economy Policy Hub (DepHUB)

9 July 2026 | 13:00–13:45 CEST

Session Link: <https://www.itu.int/net4/wsis/forum/2026/en/Agenda/Session/207>

Key Issues discussed:

- **Beyond Technical Migration:** Participants agreed that quantum-safe transitions should not be viewed solely as technical cryptographic upgrades, but as broader socio-technical transformations that redistribute trust, responsibility, and risk across digital infrastructures, institutions, markets, and society.
- **Anticipatory and Human-Centred Governance:** The discussion highlighted the importance of anticipatory governance, drawing lessons from AI governance by embedding ethical, legal, social, and policy considerations into quantum governance before technologies become widely deployed. Participants stressed the need to mainstream quantum literacy and capacity-building among policymakers, regulators, industry, academia, civil society, and citizens to enable informed participation in governance, procurement, and public decision-making.
- **Addressing the Quantum Divide:** Speakers examined the multidimensional quantum divide, including disparities in human capacity, cybersecurity readiness, gender representation, and participation in standards development. Participants emphasised that without targeted interventions, these gaps risk excluding many countries and communities from the benefits of the quantum era.
- **Standards, Infrastructure and Coordinated Action:** Participants highlighted that international standards, interoperable digital infrastructure, and multistakeholder governance are fundamental to trusted and secure quantum-safe transitions. Building on ITU's leadership in standards and connectivity, the discussion emphasised that successful implementation also requires broad participation in standards development, sustained political commitment, secure-by-design procurement, investment, institutional coordination, and timely migration, as delays by a single actor can undermine the security and resilience of interconnected digital ecosystems.
- **International Cooperation and Europe's Quantum Strategy:** The panel reflected on Europe's evolving quantum initiatives, including the Quantum Europe Strategy, the forthcoming Quantum Act, EuroHPC, the Chips Act, and IRIS² and discussed how these will need to be aligned with existing international digital cooperation initiatives such as the Global Gateway and Digital Decade in order to promote interoperability, trusted digital infrastructure, inclusion, and equitable global participation, beyond the EU.
- **Strengthening Local Innovation Ecosystems in the Global Majority:** Participants agreed that quantum-safe transitions should be viewed as opportunities to strengthen resilient local innovation ecosystems rather than simply deploy new technologies. Alongside international standards, interoperable digital infrastructure, and multistakeholder governance, successful transitions require investment in local research, skills, entrepreneurship, institutional capacity, and participation in international standards development. This ecosystem approach can support context-specific

implementation, strengthen digital sovereignty, reduce technological dependency, and enable countries to become active contributors to the emerging quantum economy.

- **From Innovation to Implementation:** Participants recognised that successful quantum-safe transitions depend not only on technological innovation but also on effective governance, political leadership, secure-by-design procurement, investment, economic incentives, and coordinated action across the public and private sectors. There was broad agreement that countries with greater technical, financial, and institutional resources have a shared responsibility to design equity into quantum ecosystems from the outset through meaningful international cooperation, capacity building, and knowledge sharing. Such an approach can help prevent technological lock-in, reduce new forms of dependency, and avoid reproducing historical digital inequalities while enabling all countries to participate in and benefit from the quantum future.
- **Equitable Quantum-Safe Transitions through Digital Development Cooperation** Participants recognised that countries with greater resources have a responsibility to promote equitable quantum-safe transitions by embedding inclusion and capacity-building into governance from the outset. This includes supporting meaningful digital development cooperation that strengthens local quantum ecosystems, promotes knowledge transfer, and enables countries to build sustainable capabilities, thereby avoiding technological lock-in, reducing dependency on external governments and private corporations, and preventing the reproduction of historical digital inequalities.

Key Outcomes of the session

Key insights and findings

- There was broad consensus that quantum-safe migration is an ecosystem governance challenge, requiring collaboration across governments, standards bodies, industry, academia, civil society, and international organisations.
- Participants recognised that AI governance provides valuable lessons for quantum governance, particularly regarding trust, inclusion, transparency, accountability, and international cooperation. But there are also many unknowns regarding the tangible impact of quantum technologies which requires anticipatory governance.
- UNESCO highlighted the importance of human rights, information ethics, universal access to information, critical information infrastructure, and inclusive Knowledge Societies as foundational principles for global quantum governance.
- ITU emphasised the critical role of international standards and interoperable digital infrastructure in supporting secure quantum-safe transitions while encouraging broader participation in standards development.
- The discussion highlighted that delayed migration by one actor can undermine the security and resilience of interconnected digital ecosystems, reinforcing the need for coordinated action across sectors and borders.

Announcements, launches, and new initiatives

- The session presented the research findings from the forthcoming ITU Kaleidoscope 2026 paper:
Ahmed, S., Sipinen, M., & Bell, P. (2026). An Innovation Ecosystem Ethics Approach for Quantum Safe Transitions.
- The session also contributed to the development of a forthcoming DepHUB-UNESCO IFAP-ITU Policy Issue Brief on the ethical, legal, social, and policy dimensions of quantum-safe transitions.

- UNESCO highlighted the publication of The Quantum Moment, documenting key findings from the International Year of Quantum Science and Technology (2025), including evidence of an emerging global quantum divide.

Agreements and collaborations

Participants broadly agreed that:

- Quantum-safe transitions should be approached through inclusive, multistakeholder governance.
- Human rights, information ethics, trust, and sustainable digital development should be embedded into quantum governance from the outset.
- International digital cooperation remains essential to preventing fragmentation, ensuring interoperability, and equitable of digital dividends in our interdependent global digital economy and information society.
- An intersectional approach to addressing inequities is required to improve greater participation from developing countries, women, and underrepresented communities is necessary to build a more inclusive global quantum ecosystem.

Key Recommendations and Forward-Looking Actions

- **Advance anticipatory and human-rights-centred quantum governance** by embedding ethical, legal, social, economic, and policy considerations into quantum technology development, standards, and deployment from the outset, drawing on lessons from AI governance and aligning with human rights, information ethics, and sustainable development principles.
- **Invest in inclusive quantum innovation ecosystems** by strengthening local research capacity, skills development, entrepreneurship, institutional capabilities, and participation in international standards development. International cooperation should support countries in becoming active contributors to the quantum economy rather than creating long-term technological dependency or lock-in.
- **Strengthen global capacity-building and quantum literacy** for policymakers, regulators, standards experts, industry, academia, civil society, and the technical community to reduce the emerging quantum divide and enable informed participation in governance, standards, procurement, and public decision-making.
- **Promote coordinated, secure, and interoperable quantum-safe transitions** through international standards, multistakeholder governance, secure-by-design procurement, investment, and institutional coordination, recognising that delayed migration by individual actors can undermine the security and resilience of interconnected digital ecosystems.
- **Deepen multilateral cooperation and prevent duplication of efforts** among UN entities, governments, academia, industry, standards bodies, civil society, and development partners to foster interoperable, trustworthy, and inclusive quantum ecosystems. Participants further emphasised that countries with greater technical, financial, and institutional resources have a shared responsibility to design equity into the quantum ecosystem from the outset, supporting meaningful digital development cooperation that enables all countries to participate in and benefit from the quantum future in line with the WSIS vision beyond 2035.