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UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

SUSTAINABLE
DEVELOPMENT
GOALS

RETHINKING QUALITY INFRASTRUCTURE
QUALITY POLICIES FOR A SUSTAINABLE FUTURE

EGM Summary Report

13-15 November 2024

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THE EVOLVING ROLE OF QUALITY INFRASTRUCTURE

Quality Infrastructure (QI) is becoming increasingly important for countries to pursue and demonstrate their progress towards achieving the United Nations' Sustainable Development Goals (SDGs). QI encompasses a system of organizations, policies, and practices that support and enhance the quality, safety, and environmental soundness of goods, services, and processes. In so doing, the field contributes to the three key dimensions of the SDGs: People, Prosperity, and Planet. Comprising standardization, metrology, accreditation, conformity assessment, and market surveillance, QI not only underpins industrial development and trade competitiveness, but promotes innovation, and the efficient use of resources, while ensuring food safety, health, and environmental protection.

The past decade saw QI continuing to have a crucial role in promoting sustainable growth and development by strengthening resilience against natural disasters and climate change, as well as encouraging inclusivity for all societal segments, including women and disadvantaged groups. Quality, in a broader sense, considers economic efficiency, environmental impact, and governance in infrastructure projects to achieve sustainable, resilient, and inclusive growth. Moreover, the field is adapting to the Fourth Industrial Revolution, including advancements in digital technologies, artificial intelligence (AI), smart manufacturing, and the circular economy. The associated paradigm shift ensures QI effectively supports the SDGs and broader sustainable development.

Overall, robust and fit-for-purpose QI systems are essential for developing economies to overcome challenges, compete in global markets, and achieve resilient, sustainable development.

ADVANCING THE GLOBAL DISCOURSE

The Expert Group Meeting (EGM) on Quality Policy (QP) and Quality Infrastructure for Sustainable Development (QI4SD), convened by the United Nations Industrial Development Organization (UNIDO) in close coordination with the International Network on Quality Infrastructure (INetQI), is another step in advancing global discourse on aligning quality policy frameworks with emerging global trends and challenges. Building on over two decades of experience in quality policy development across diverse regions, UNIDO assembled a group of experts, including policymakers, international organizations, development partners, and private sector representatives, to deliberate on advancing the quality development tools co-developed by UNIDO and INetQI, in response to current challenges. The main goals were (i) providing inputs and recommendations to update the Quality Policy Trilogy, a collection of QP development guiding documents, and (ii) presenting the refined methodologies for the QI4SD Index, a framework evaluating a country's QI readiness to support sustainable development.

The EGM's outcomes are intended to inform revisions to the *Quality Policy Trilogy*, ensuring that the foundational set of documents remains robust and relevant for policymakers and stakeholders worldwide. By emphasizing stakeholder engagement, the integration of sustainability metrics, and the adoption of smart, data-driven solutions, the groundwork has been laid for a transformative shift in QI systems. In the long run, this collaborative effort will empower nations and regions to harness QI as a driver of sustainable and inclusive development in an increasingly complex global landscape.

FOCUS AREAS

The EGM facilitated discussions on the symbiotic relationship between QI and QP. The opening emphasized integrating emerging trends, such as digital technologies like AI and the Internet of Things (IoT) into QI systems, while underscoring the need to adapt policies to meet sustainability imperatives. Subsequent sessions explored national and regional experiences in policy development, as well as thematic approaches to QP. Africa's pioneering Continental Quality Policy and the transformative impact of regional quality frameworks, such as those of the Economic Community of West African States (ECOWAS), African Continental Free Trade Area (AfCFTA), Common Market for Eastern and Southern Africa (COMESA), or CARICOM Regional Organisation for Standards and Quality (CROSQ), on trade and development were in the spotlight.

Besides reviewing and suggesting updates of the *Quality Policy Trilogy*, another key focus was the review of the QI4SD Index, with the introduction of its second edition serving as a platform for expert feedback and discussions on methodological enhancements. These refinements aim to capture better the dynamic interplay of QI elements across standardization, metrology, accreditation, conformity assessment, and policy dimensions while fostering a closer alignment with the Sustainable Development Goals (SDGs).

The EGM underscores the evolving role of Quality Infrastructure Systems (QIS) in addressing critical global trends such as sustainability, digitalization, climate action, and resilience to crises. These themes have gained prominence in the wake of transformative events such as the COVID-19 pandemic and geopolitical disruptions, exemplified by the armed conflicts. Against this backdrop, the meeting sought to assess lessons learned, share best practices, and chart a forward-looking path for ensuring QI's ongoing relevance and contribution in future quality policies.

The EGM at a glance

13-15 Novemer 2024
Vienna, Austria

HARD FACTS		GOALS
📅	3 days	» Discuss new trends in QI and the role of QP
👥	50+ international experts	» Take stock of Country Cases and Lessons Learned
💡	30+ sessions	» Identify future needs and update QP Methodology
		» Launch the 2nd edition of the QI4SD Index

1.

OUTCOMES-BASED APPROACH

Focusing on tailor-made outcome-based approaches and sustainable service delivery will build better, faster, and more resilient infrastructure. One size does not fit all. The efforts like robust measurement, impact assessments, and case studies will ensure effective monitoring and provide documentation for future QI capacity building initiatives.

2.

SUSTAINABILITY AND ALIGNMENT WITH SDGS

Strengthening QI institutions and services is critical for meeting ever-evolving requirements, enabling informed consumer choices, and supporting businesses in adopting appropriate technologies and organizational methods. Future QI systems should support sustainable development, particularly in the triple bottom line of People, Prosperity, and Planet. Integrating sustainability considerations into quality policies and practices should render the future QI systems more resilient and capable of responding promptly to crises and global challenges.

3.

DEMAND-DRIVEN APPROACH

QI institutions must become more demand-oriented. Stimulating the demand for QI services, especially in developing countries, includes shifting from safety to sustainability claims, as implied by global markets. It involves continuous assessment of stakeholder needs, close collaboration with the private sector, and adaptive development of QI services and institutions.
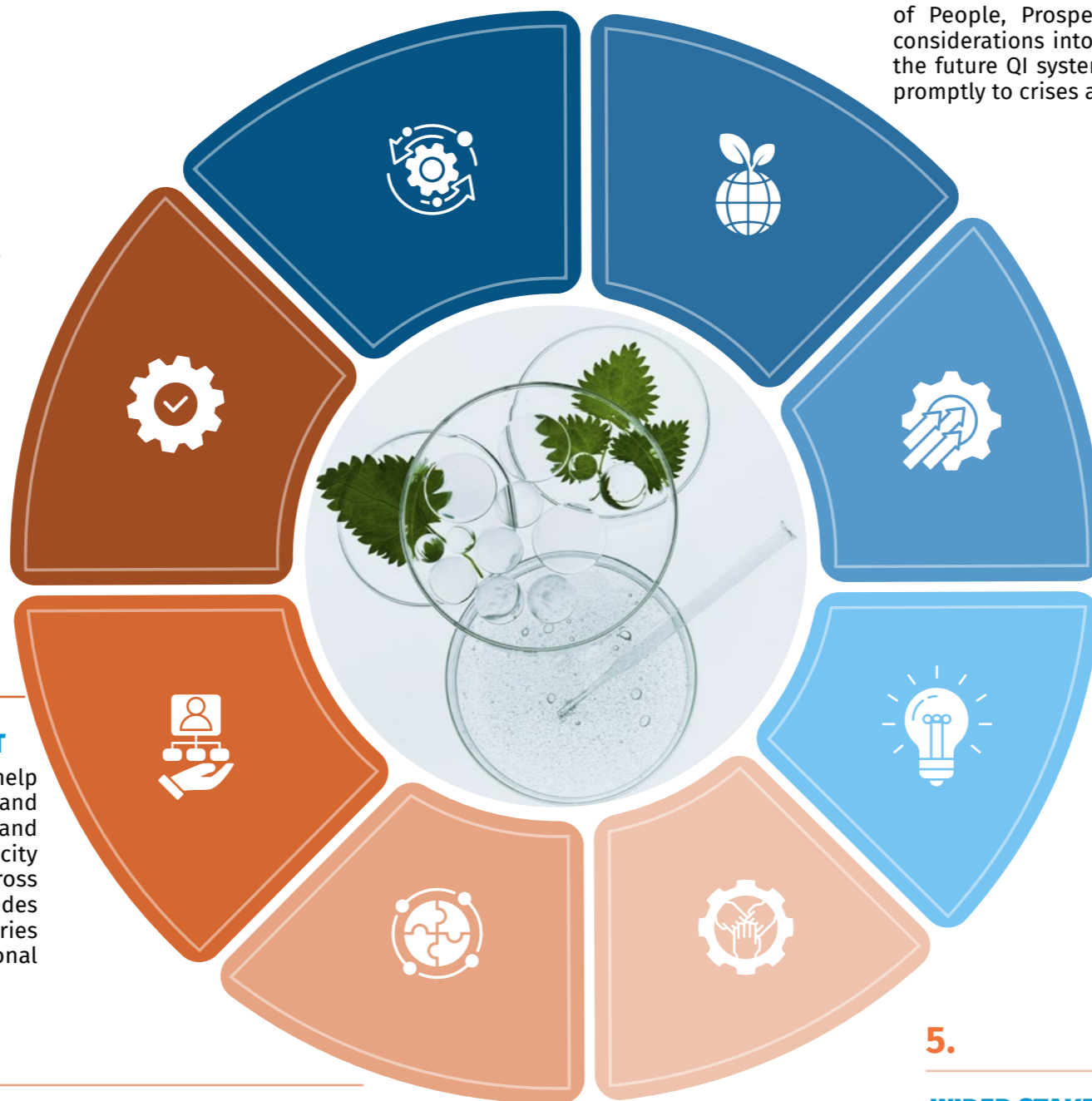
4.

TECHNOLOGICAL ADVANCEMENT AND INNOVATION

QI systems must meet new requirements arising from technical progress, such as Industry 4.0 and artificial intelligence. Adapting includes developing new standards and conformity assessment procedures for these rapidly changing emerging technologies. In a symbiotic relationship, QI can support the implementation of new technologies that can increasingly be used in QI. Enhanced data collection and analysis will be crucial in making evidence-based infrastructure decisions and increasing overall transparency.

5.

WIDER STAKEHOLDER ENGAGEMENT

Engaging with stakeholders beyond the current QP and QI community that focuses on voluntary initiatives within the INetQI sphere is needed. Linkage building with policymakers is to make them aware of QI's potential and limitations. Two mutually complementing activities must be amplified: (i) interaction with and awareness-building among regulators in both developing and developed economies for internationally recognized QI institutions; and (ii) engagement with private and voluntary sustainable standards outside the current purview of most QI Systems.

6.

INTEGRATION AND COORDINATION WITHIN THE QI

Improved integration across and coordination between QI components like standardization, metrology, accreditation, conformity assessment, and market surveillance will help avoid overlapping of activities and resultant conflicts. Market surveillance feedback is vital for judging the effectiveness of the other QI components and the overall outcomes of the QI System.

7.

CAPACITY BUILDING AND SKILLS DEVELOPMENT

Targeted training and capacity building initiatives will help countries overcome challenges in quality requirements and trade rules compliance toward greater global markets and value chain participation. Quality infrastructure capacity building is essential for achieving sustainability across economic, environmental, and social dimensions. It provides the necessary tools, knowledge, and systems for countries to implement sustainable practices, meet international standards, and work towards the SDGs.

8.

PROMOTING A CULTURE OF QUALITY

Governments need to continue to lead by adopting quality policies that promote a culture of quality and establish effective QI systems. Tools like the QI4SD, backed by clear communication, transparency, and advocacy, can help prove the value of QI.

OPENING REMARKS

Mr. Fabio Russo , *Officer-in-Charge, TCS/SME, UNIDO*

» UNIDO plays a crucial role in enhancing quality infrastructure globally, particularly in supporting small and medium enterprises (SMEs) and fostering competitiveness through key programmes, like the African Trade Competitiveness and Market Access Programme (ATCMAP).

» Traditionally integral to national development strategies and trade objectives, Quality Policy is expanding to help achieve the UN Sustainable Development Goals (SDGs). To ensure QI's alignment with broader sustainability and innovation objectives, together with the International Network on Quality Infrastructure (INetQI), UNIDO has developed the *Quality Policy Trilogy* of publications, comprising:

    » **Quality Policy Guiding Principles:** Key principles for national quality policies supporting trade, innovation, and sustainability.
    » **Quality Policy Technical Guide:** Methodology and best practices for policy creation and implementation.
    » **Quality Policy Practical Tool:** Step-by-step guidance for developing, implementing, and reviewing policies.

» Emerging trends like climate change, digitalization, and technological advancements emphasize the need for these quality policies to adapt and foster sustainable growth, innovation, and development.

> " *The expert group meeting is a platform to review country case studies, share lessons learned, and discuss the second edition of the QI for Sustainable Development Index, with new methodologies and indicators to guide future quality infrastructure efforts.* "

QUALITY POLICY AND SUSTAINABLE DEVELOPMENT
Review of Guiding Principles

Mr. Nigel Croft, Expert on Quality Infrastructure, UNIDO

» *The Guiding Principles* are at the core of *UNIDO's Quality Policy Trilogy* foundational framework. Together with a technical guide and a practical implementation tool, these assist stakeholders in building robust quality infrastructure systems (QIS) to promote trade, sustainability, and societal well-being.

» When updating the Guiding Principles, we need to remember the dictionary definition of a *principle*: "a fundamental truth or proposition that serves as the foundation for a system of belief or behaviour or a chain of reasoning."[1] For that reason, minor modifications or updates are likely rather than the introduction of major changes

» Recent global challenges related to QI include the COVID-19 pandemic, the armed conflict in Ukraine and plans for its subsequent "green reconstruction," and governance gaps in benchmark systems highlighted by cases like the Public Inquiry into London's 2017 Grenfell Tower fire when 72 people died.[2] Such events have emphasized (i) the need for strategic digitalization initiatives, including remote conformity assessment methods, (ii) greater consideration and integration of technical regulations into the QI, and (iii) the appropriate use and enforcement of standards and technical regulations within quality infrastructure systems. Principles like sustainability, inclusiveness, coherence, governance, and optimization remain central but require refinement to address current global realities.

» While the SDGs address broader societal accountability, Environmental, Social, and Governance (ESG) criteria focus on investor-centric non-financial performance metrics. Both require venturing beyond the quality concepts traditionally associated with simple product conformity to include, for example, validation and verification of energy efficiency claims, Product Carbon Footprints (PCF), Greenhouse Gas (GHG) emissions or ESG reports.

» A robust Quality Infrastructure for the 21st century should provide confidence that apart from meeting requirements, products and services are produced and delivered in a responsible and sustainable manner. This demand calls for expanding the concept of "consumers" in the traditional UNIDO model for QI to include the needs and expectations of all citizens, including future generations. That understanding echoes the very concept of "sustainable development" as originally in the 1987 Brundtland Report[3] – "(Development that) meets the needs of the present without compromising the ability of future generations to meet their own needs."

> " *We need to ensure that QP and QI Systems are delivering on their promise of providing confidence that society's collective needs and expectations are considered and are being met. As we look to the future, digitalization has shifted from being a new and exciting opportunity to becoming a strategic imperative for QI System worldwide.* "

[1] https://web.archive.org/web/20220428070349/http://www.lexico.com/definition/principle
[2] See Grenfell Inquiry Phase 2 report, Part 3. https://www.grenfelltowerinquiry.org.uk/sites/default/files/CCS0923434692-004_GTI%20Phase%202%20Volume%202_BOOKMARKED_0.pdf
[3] Report of the UN-Sponsored World Commission on Environment and Development: Our Common Future; 1987; https://en.wikipedia.org/wiki/Brundtland_Commission

PANEL DISCUSSION
What's new in Quality Infrastructure? Global megatrends and their implications

MODERATOR: Ms. Ebe Muschialli, Industrial Development Officer, UNIDO

The panel explored the evolving Quality Infrastructure (QI) landscape in the context of digital transformation, sustainability, and global megatrends. Speakers emphasized the convergence of technology and policy as a driver of resilient and inclusive development. Discussions underscored shifting towards robust, independent, and responsive "Smart Quality Infrastructure" that integrates advanced tools like AI, IoT, or automation to support sustainable industrial practices, energy efficiency, and circular economy goals while meeting both general and case-specific needs.

Apart from fostering cross-sectoral collaboration for a more adaptive, data-driven, and sustainable approach to quality, key conclusions included (i) embedding QI into long-term policies as a foundational tool, (ii) broadening its role beyond trade facilitation to societal well-being, and (iii) ensuring communication strategies make the value understood across societal helices.

Governance and integration gaps in Quality Infrastructure (QI)
- Ms. Marianna Karttunen, QI Initiatives Expert, Organisation for Economic Co-operation and Development (OECD)

Cross-governmental reforms should strengthen the integration of QI into regulatory frameworks to bridge siloed efficiency, visibility, and harmonization-hindering structures between regulators and QI bodies.

"Sustainable development cannot be achieved without the interoperability and international collaboration that inclusive, demand-driven, expert-led, and responsive QI systems offer."

Supporting the circular economy through QI
- Mr. Jérôme Stucki, Chief of Circular Industrialization Resource Efficiency unit, UNIDO

QI is pivotal for transitioning from a linear to a circular economy. National capacity building and standards like those in the ISO 59000 family support this shift towards eco-friendly innovation.

"Our linear—extract, use, discard—development model is unsustainable. Standards for circularity are essential for extending product life cycles and resource recovery."

Energy efficiency and industrial policy in developing countries
- Ms. Karin Reiss, Industrial Development Officer, Energy Climate Action Division, UNIDO

Minimum Energy Performance Standards (MEPS) and regional harmonization can help developing countries reduce emissions, promote local sustainable industries, and generate employment.

"A poor person cannot afford cheap. Despite the common misperception, high-quality, energy-efficient products are affordable with the right mechanisms in place."

QI for volatility & digital transformation
- Mr. Nelson Al Assal Filho, QI Digitalization Expert, UNIDO

In an era of volatility, digitalization for better traceability, modular "smart standards," and data-driven practices can enhance customer awareness, QI efficacy, and supply chain integration. Tailored, user-specific solutions, with targeted training and capacity building help boost resilience.

"Smartifying standards will make them modular. Such granular data structures enhance traceability and integration across QI."

Modernizing QI policies and sharing tools, with end-user in mind
- Mr. Michael Andrew Peet, International QI Expert

Quality policies should treat QI as a long-term investment that builds local expertise. Strengthening national capacity, sharing digital tools, and collaboration are key to overcoming inefficiencies.

"Always ask, Who is QI for?" Policies must prioritize end-user needs while ensuring fitness-for-use and sustainable, locally driven implementation."

Challenges and opportunities in digitalizing QI
- Mr. Stefan Wallerath, Project Coordinator, National Metrology Institute of Germany (PTB)

Though digital transformation has the highest political mandate and support, financing, security, and resource availability decelerate the progress across many regions.

"Since countries are at very different levels of digitalization, establishing a common ground with tailored approaches is key to progress."

COUNTRY CASES
Global Quality Starts at Home: National QP perspectives

The session examined QI policies across different countries, focusing on how quality infrastructure adapts to national contexts and contributes to socio-economic development. By exploring challenges, lessons learned, and good practices, case studies showcased how QI systems support growth by addressing local problems through tailored regulatory frameworks, stakeholder engagement, and international cooperation.

Discussions emphasized problem-solving through voluntary standards, impact assessments, and stakeholder inclusion. While emerging QI systems inspire innovation in the established ones via digital tools, transparent, incremental implementation fosters trust and competitiveness. Alignment with international standards and regional policy with gradual, tangible execution fosters long-term transformation and quality culture.

The need for global enforcement
 – *Ms. Adriana Vargas Saldarriaga, Industry Director, National Business Association of Columbia (ANDI)*

Achieving mutual recognition of conformity assessments requires more vigorous international enforcement and reciprocal acceptance to reduce trade barriers effectively.

"Despite international recognition of Colombia's QI System, accredited attestations of conformity are often not accepted by regulatory bodies in key markets."

Integration with international standards
– Mr. Abdulmalik A. Altuwaijri, General Director of Product Safety Department, Saudi Standards, Metrology and Quality Organization (SASO)

Saudi Arabia's alignment with global standards through legislation, technical regulations, and digital tools, backed by the multi-stakeholder steering committee, improved product safety and trade efficiency.

"Clear, fit-for-all regulations reduced costs, propelling Saudi Arabia up in global trade rankings."

Innovation and compliance
– Ms. Sara Ahli, Head of Technical Studies and Legislation, Ministry of Industry and Advanced Technology (MoIAT), UAE

Recall management platforms like MANAA[4] improve transparency and consumer trust. High industry participation in technical committees drives innovation and compliance while avoiding trade barriers.

"Industry input in almost 45% of technical committees aligns national goals with stakeholder needs."

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[4] A UAE-developed federal product recall management system that ensures the safety and quality of products across the UAE markets.

Centralized QI coordination
– Mr. Donny Purnomo, Principal Secretary, National Standardization Agency of Indonesia (BSN)

Centralizing QI responsibilities under one agency in Indonesia streamlined coordination, increased efficiency, and improved accountability across the regulatory system, ensuring continuity in regulatory efforts.

"With over 1,000 islands and 500 districts, coordinating all pillars of QI across independent organizations is challenging."

Sectoral focus and strategic implementation
- Mr. Tran Quy Giau, Director of Metrology Department, General Department of Standards, Metrology, and Quality of Vietnam (STAMEQ), Ministry of Science and Technology

Prioritizing high-impact sectors like renewable energy or electric vehicles maximizes resource efficiency and supports sustainable development. International collaboration should help fill local infrastructure gaps.

"Export-focused economies should develop specialized accreditation systems for niche markets."

Overcoming fragmentation and dependency
– Ms. Ruth Baoki, Director of Department of Industry Development (DID), Ministry of Trade and Industry, Botswana

Streamlining fragmented regulatory systems through digitalization and local calibration and accreditation service development reduces inefficiency and reliance on foreign providers.

"Fragmented regulatory landscape means many regulations have costly duplications."

Capacity building and partnerships
 - Mr. Arlindo Mucone, Deputy Director General, National Institute for Normalization and Standards in Mozambique (INNOQ)

International cooperation and funding (e.g., UNIDO, EU) have accelerated QI development. Skilling initiatives and alignment with regional policy may bridge the gaps and reduce dependencies on foreign accreditations.

"With 65% of Mozambique's population below 25 years of age, opportunity lies in training the young workforce."

BRIDGING BORDERS
Regional QP perspectives

The session explored regional approaches to quality policies (QP), focusing on lessons learned from implementation in Africa, the Caribbean, and the Pacific. Presentations highlighted the value of harmonizing national and regional policies, cross-country cooperation, and tailoring solutions to development levels. Partakers identified political commitment, capacity-building, and sustainable frameworks as key success drivers.

Harmonized QP frameworks, such as the African Continental Technical Regulatory Framework (ACTReF), streamline trade agreements and strengthen regional integration. The permanent structure of the African Continental Free Trade Area (AfCFTA), strong political will, and investments in local QI infrastructure through public-private partnerships are crucial to sustaining progress. Initiatives like the African Quality Assurance Centre (AQAC) demonstrate the importance of reducing trade barriers while addressing capacity gaps and supporting socio-economic goals.

Regional cooperation for sustainable QI

- Mr. Marcel Gbaguidi, Chair of the ECOWAS Accreditation System (ECORAS), Director General of the West African Accreditation System (SOAC-WAAS)
In West Africa, the regional approach, as well as the political commitment and strong partnership between UNIDO, the EU, UEMOA and ECOWAS, have proven to be successful in addressing, in a global way, the specific problems related to quality infrastructure.

"Creating a common accreditation system was advantageous for the entire region, benefiting the eight UEMOA Member States."

Trade integration via regional frameworks

- Mr. Aka Jean Joseph Kouassi, Chief Technical Advisor, UNIDO

Harmonizing national, regional, and continental quality policies streamlines trade agreements. Such frameworks support regional trade by aligning quality standards and governance structures.

"The development of the African Continental Technical Regulation framework has successfully supported regional integration."

Capacity building and stakeholder education

- Mr. Celestine Okanya, Director General, Nigeria National Accreditation Service (NiNAS), Former Chair of Pan African Quality Infrastructure (PAQI)
Educating stakeholders and building institutional capacity promoted regional cooperation and strengthened quality policy implementation.

"Educating and building capacity across national institutions ensured key players understood the benefits and necessity of regional cooperation in QI."

Intra-African trade through QA

- Ms. Stéphanie Diagne, Assistant Manager, African Export-Import Bank (Afreximbank)
Regional centres can reduce trade barriers. The African Quality Assurance Centre (AQAC) pilot in Ogun State, Nigeria, improved compliance with international standards, enabling better access to global markets.

"The AQAC initiative addresses key trade barriers by establishing internationally accredited quality assurance centres across the continent."

COMPLEMENTARY CASES
Tried-and-Tested: Thematic approaches

The presented thematic approaches represent adaptable methodologies within Quality Infrastructure Systems (QIS), particularly relevant for developing economies.

Discussions highlighted the dynamic nature of QI development, which calls for continuous adaptation to evolving national and global needs. Participants stressed integrating QI into broader public policies to maximize its impact and ensure alignment with developmental priorities. Addressing the divide between regulatory bodies and standards organizations emerged as a critical challenge. Limited familiarity with QI that may hinder its effective integration into regulatory frameworks underscored the need for greater awareness and capacity building among regulators.

The session recognized digitalization and international collaboration as pivotal enablers of modern QI systems. Cross-border synergies through leveraging regional frameworks strengthen regulatory coherence and trade facilitation. Challenges include balancing sustainability in standards and regulatory bodies and navigating economic pressures that decelerate policy reforms. Capacity building for regulators and global cooperation remains critical for progress. Enhanced international cooperation and knowledge sharing, coupled with clear and accountable governance structures, can yield more effective regulations. This collaborative approach not only improves regulatory quality but also reduces compliance expenses and strengthens global competitiveness across nations. Ultimately, participants agreed that building resilient and adaptable QI systems requires a combination of innovative tools, stakeholder engagement, and sustained global cooperation.

Customization and participatory approaches *- Mr. Stefan Wallerath, Project Coordinator, National Metrology Institute of Germany (PTB)*

Tailored QI policies reflecting national maturity levels and sectoral needs executed via participatory approaches across government, industry, and civil society ensure better policy ownership and effective implementation.

"Quality policy can provide essential orientation in the early stages of developing a national QI, and help addressing future threats in more mature phases."

Global Cooperation and Impact
- Mr. Ulrich Harmes-Liedtke, Consultant, Mesopartner

Greater collaboration and mutual learning between countries, alongside transparent governance frameworks, can lead to better regulatory outcomes, reduce costs, and enhance global competitiveness.

"The idea behind regional and international cooperation in quality infrastructure transcends creating harmonized systems; it is about collaboration that allows countries to compete better on a global scale."

Regulatory alignment and integration *- Ms. Marianna Karttunen, QI Initiatives Expert, Organisation for Economic Co-operation and Development (OECD)*

Coordination between QI bodies and regulatory authorities reduces gaps and improves compliance.

"Embedding QI considerations throughout the regulatory lifecycle is key to achieving better regulatory outcomes and international interoperability."

Stakeholder engagement and capacity building
- Mr. Nelson Al Assal Filho, QI Digitalization Expert, UNIDO

A people-centred QI system, including regulators, industry, and civil society, emphasizes stakeholder engagement to align digital tools and data governance with national development goals.

"QI should focus on engaging all stakeholders, including the informal sector, to ensure that policies are relevant and inclusive, increasing their impact on society."

PANEL DISCUSSION

The future of Quality Policy – perspective from INetQI members

*MODERATOR: **Ms. Dorina Nati,** Industrial Development Officer, UNIDO*

The future of Quality Policy (QP) seen through the lens of INetQI members emphasized the need for adaptive and integrated quality infrastructure to cope with rapid technological and societal changes. The focus was on incorporating advanced digital technologies like AI, IoT, and big data into traditional quality management systems to create a "Smart Quality Infrastructure." Such future QI must transcend product safety and performance, and consider environmental sustainability, social responsibility, and economic prosperity. Experts addressed how quality policies must mature to incorporate sustainability metrics, conformity assessments agility, and increased capacity for data-driven decision-making.

The discussions underscored the importance of evolving quality policies to support emerging technologies while ensuring trust and inclusivity. As QI adapts to digital transformation, both global and local collaboration need strengthening. Future policies must address the integration of AI, sustainability, and the rapid innovation pace in fields like healthcare, automotive, and consumer electronics. A consensus emerged on the need for more granular and actionable implementation tools, stressing capacity building and robust accreditation frameworks to instil trust in new systems. Future-proofing QI must ensure the field remains resilient, adaptive, and challenge-relevant. Recommendations included updating QI documents to reflect current technological and sustainability trends, enhancing stakeholder engagement, fostering peer-to-peer learning among countries, and prioritizing inclusivity for SMEs in under-resourced regions.

People-centred standards driving global goals
*- **Ms. Roswitha Franz,** Head of Planning and Operations, International Organization for Standardization (ISO)*

Evolving standards address global challenges like the circular economy and the SDGs to focus on improving lives and well-being. The progress requires stronger stakeholder engagement at the national level.

"New topics come with new stakeholders. Engaging them takes time. The dialogue must develop organically, deepening down on the horizontal and vertical axis simultaneously."

Smart standards for tackling fast technological change
*- **Mr. David Hanlon,** Executive Manager, International Electrotechnical Commission (IEC)*

Technological advancements are outpacing the development of traditional consensus-driven standards. Keeping up requires organizations to work with consortia and help industries with "smart" standards.

"The speed of innovation propelled ISO to invest in smart and machine-readable standards to help the industry keep pace."

Sustainability demand regulation
*- **Mr. Martin Michelot,** Executive Director Europe Region, TIC Council*

The tech sector's shift towards certifying environmental claims, makes conformity assessment transcend product safety, generating requirements burden for the SMEs in developing countries.

"If the standards are behind the wave, conformity assessment has not even left the beach and entered the water yet."

Accreditation as trust enabler
*- **Mr. Brahim Houla,** Chair of Multilateral Recognition Arrangement (MLA), International Accreditation Forum (IAF)*

Accreditation frameworks, which serve as trust-based "passports" for goods and services entering the global markets, must adapt to address trends like "greenwashing," and ensure transparency and ethical governance.

"The future will demand more trust in emerging technologies. By cooperating, we must create robust schemes to ensure they are credible and transparent, preserving the trust that accreditation brings to global markets."

Metrology and global trust in energy transition
*- **Mr. Ian Dunmill,** Assistant Director, International Organization of Legal Metrology (OIML)*

Legal metrology's foundational role ensuring trust in trade is now expanding to meet the challenges of the energy transition. Electric vehicle (EV) charging and solar metering call for harmonizing regulations.

"With digital international system of units (SI) references and calibration certificates, we are paving the way for full traceability. This is the future of trust in measurements."
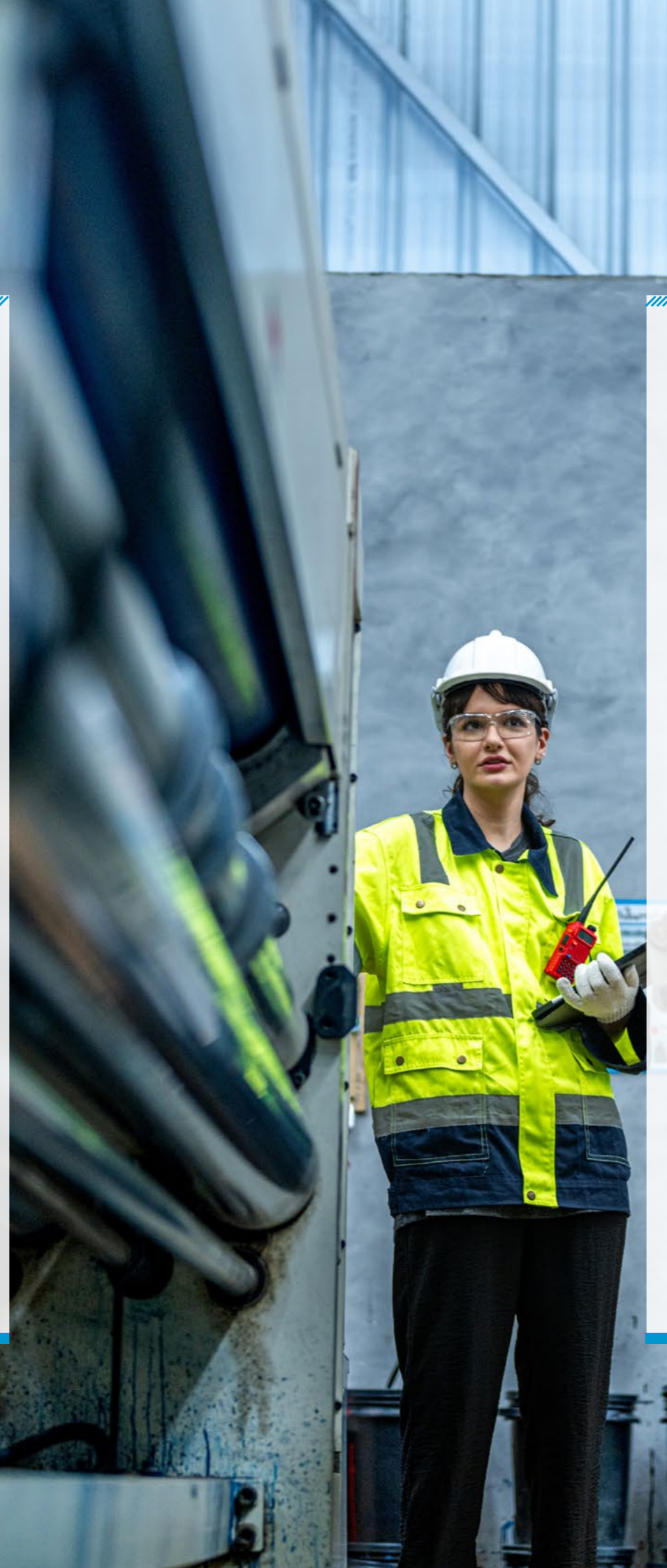
QUALITY POLICY AND THE QI4SD INDEX
strengthened linkages

This session explored the evolution and impact of UNIDO's QI tools, such as the Quality Policy (QP), QI4SD Index, and Standards Compliance Analytics (SCA) in advancing quality infrastructure globally and aligning it with the SDGs. Special emphasis was placed on leveraging data governance, digital transformation, and regional collaboration to enhance policy effectiveness and promote sustainable development.

INTRODUCING THE SECOND EDITION OF THE QI4SD INDEX

- Mr. Alejandro Rivera Rojas, *Industrial Development Officer, UNIDO*

The 2nd Edition of the QI4SD Index represents a significant step forward in advancing quality infrastructure's contribution to sustainable development. Building on the inaugural 2022 version, the updated index introduces a regional focus, exemplified by an in-depth report on Africa highlighting successes, challenges, and opportunities across the continent, offering a model for future analyses.

Looking ahead, efforts are underway to merge the QI4SD Index with the Global Quality Infrastructure Index (GQII) by 2026, creating a unified framework for assessing quality infrastructure worldwide. Stakeholders are encouraged to engage with the results, provide feedback, and support the ongoing refinement of this tool to enhance its global impact.

PRESENTING OF THE METHODOLOGICAL ADVANCEMENTS

- Ms. Hedvig Norlen, *Expert in Composite Indicators and Scoreboards, UNIDO*

The QI4SD Index reveals notable achievements across nations, from leaders like Germany and China to smaller countries like Togo and Seychelles. A new interactive data hub that enhances transparency and usability addresses resource disparities and data gaps.

"Countries excelling in one QI dimension often perform well across others, though exceptions underline the need for targeted improvements."

THE AFRICA REGIONAL QI4SD INDEX REPORT

- Dorra Berrebeh, *Expert in Trade Development and Data Insights, UNIDO*

Assessing QI across 31 African countries, the QI4SD Index Report revealed strong performances in Tunisia and Egypt. Recommendations to address widespread challenges in metrology and conformity assessments emphasize regional and sector-specific improvements.

"The momentum generated by the African Continental Free Trade Area offers a unique opportunity to strengthen quality infrastructure and bridge critical data gaps."

CHANGES IN INDICATOR COMPOSITION, MERGING WITH GQII TOOL

- Ms. Nora Dei-Anang, *Associate Technical Expert, UNIDO*

A unified global tool will align QI with SDGs and tackle challenges like data comparability and governance. Future reports will feature SDG-specific insights, sectoral analyses, and regional workshops, leveraging digital tools and collaboration to improve data granularity and policy impact.

"Reliable data collection and collaboration will be essential to build a robust, globally recognized index that advances sustainable development.

THE WAY FORWARD

Conclusions and recommendations

- Mr. Francois Denner, *Chief Technical Advisor, UNIDO*

Though riveted by challenges in data limitations, resource constraints, and sovereignty concerns, creating a QI index remains valuable, particularly in regions like the Southern African Development Community (SADC) where data-driven insights matter. Instead of aiming for the highest scores, the countries should focus on assessing strengths and weaknesses in the context of their economic situation. Emphasis must be placed on collaboration, improved data collection, and making tools more interactive for deeper insights and better decision-making.

"Countries should not aim to have the highest scores, but to understand their relative strength in the context of economic and trade situations… towards being fit for purpose."

WHAT'S NEXT?
Stay tuned

In conclusion, the future of Quality Infrastructure (QI) systems demands a multifaceted approach that prioritizes outcomes, sustainability, and innovation. By adopting tailored, demand-driven strategies aligned with the SDGs, QI institutions can better serve evolving market needs and global challenges. Embracing technological advancements, fostering wider stakeholder engagement, and improving integration within QI components are crucial steps forward. Capacity building, skills development, and promoting a culture of quality remain fundamental to these efforts. As we move forward, it is essential to focus on sustainable service delivery, robust measurement, and impact assessments to ensure the effectiveness of QI initiatives. By implementing these strategies, we can build more resilient, efficient, and responsive QI systems that support sustainable development and global economic growth.

A fit-for-purpose Quality Policy needs to reflect all this, and the global QI community remains committed to help countries create robust, adaptive, and sustainable quality infrastructure systems that support economic growth, innovation, sustainability, and global market integration. UNIDO, in collaboration with the International Network on Quality Infrastructure (INetQI), will update the available set of resources to support quality infrastructure practitioners and policymakers to develop future-oriented Quality Policies that address the needs of people, planet and prosperity.

We extend our sincere gratitude to all participants of the expert group meeting for their valuable technical contributions. Their insights, expertise, and active engagement significantly enhanced the quality of our discussions and outcomes. The collective knowledge and experience shared by all experts have been instrumental in advancing our understanding of Quality Infrastructure, Quality Policy and their contribution to shaping a sustainable future.

ABBREVIATIONS

International organizations

IAF	International Accreditation Forum
IEC	International Electrotechnical Commission
ILAC	International Laboratory Accreditation Cooperation
INetQI	International Network on Quality Infrastructure
ISO	International Organization for Standardization
OECD	Organisation for Economic Co-operation and Development
OIML	International Organization of Legal Metrology
TIC	International TIC Council (Testing, Inspection, Certification)
UNIDO	United Nations Industrial Development Organization

Regional and national organizations

Afreximbank	African Export-Import Bank
ANDI	Asociación Nacional de Empresarios de Colombia (National Business Association of Colombia)
BSN	Badan Standardisasi Nasional (National Standardization Agency of Indonesia)
CROSQ	CARICOM Regional Organisation for Standards and Quality
COMESA	Common Market for Eastern and Southern Africa
DID	Department of Industry Development, Ministry of Trade and Industry (Botswana)
EAC	East African Community
ECOWAS	Economic Community of West African States
GSA	Ghana Standards Authority
INNOQ	Instituto Nacional de Normalização e Qualidade (National Institute for Normalization and Standards, Mozambique)
MoIAT	Ministry of Industry and Advanced Technology (United Arab Emirates)
NiNAS	Nigeria National Accreditation Service
PAQI	Pan African Quality Infrastructure
PTB	Physikalisch-Technische Bundesanstalt (National Metrology Institute of Germany)
SADC	Southern African Development Community
SASO	Saudi Standards, Metrology and Quality Organization (Saudi Arabia)
STAMEQ	General Department of Standards, Metrology, and Quality (Vietnam)
WAAS/SOAC	West African Accreditation System / Système Ouest Africain d'Accréditation

Indices and Frameworks

ACTReF	African Continental Technical Regulatory Framework
GQII	Global Quality Infrastructure Index
QI4SD	Quality Infrastructure for Sustainable Development

Initiatives, tools, and other abbreviations

AfCFTA	African Continental Free Trade Area
AI	Artificial Intelligence
ATCMA	Africa Trade Competitiveness and Market Access
AQAC	African Quality Assurance Centre
ESG	Environmental, Social, and Governance
EV	Electric Vehicle
GHG	Greenhouse Gas
IoT	Internet of Things
MEPS	Minimum Energy Performance Standards
MLA	Multilateral Recognition Arrangement
NQI	National Quality Infrastructure
PCF	Product Carbon Footprint
QI	Quality Infrastructure
QIS	Quality Infrastructure System
QP	Quality Policy
RIA	Risk Impact Assessment
SI	International System of Units
SCA	Standards Compliance Analytics
SDGs	Sustainable Development Goals
SMEs	Small and Medium Enterprises
VSS	Voluntary Sustainability Standards

Websites and resources

Quality Policy Trilogy (revision in progress)
Quality Policy: Guiding Principles
Quality Policy: A Practical Tool
Quality Policy: Technical Guide

Quality Infrastructure Indices (consolidation in progress)
Quality Infrastructure for Sustainable Development (QI4SD) Index
Global Quality Infrastructure Index (GQII) Program

Other useful resources:
Standards Compliance Analytics (SCA)
UNIDO Knowledge Hub

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