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A close-up photograph of a hand holding a glass petri dish containing a light blue liquid. A pipette is being used to transfer liquid from a small vial into the dish. The background is a light blue geometric pattern.

# **BOOSTING COMPETITIVENESS WITH QUALITY & STANDARDS**

**UNIDO Tools & Methodologies**



# QUALITY INFRASTRUCTURE FOR SUSTAINABLE DEVELOPMENT (QI4SD) INDEX

Measuring fit-for-purpose Quality Infrastructure system in support of the Sustainable Development Goals



## WHAT is it about?

The **Quality Infrastructure for Sustainable Development (QI4SD) Index** aims to provide a framework of indicators that summarizes the overall state of development of a country's and/or region's Quality Infrastructure (QI) readiness to support the Sustainable Development Goals (SDGs), which provides sufficient comparable information to measure progress over time and develop targeted interventions.



## WHY is it needed?

Over the last 50 years, developing countries have received technical assistance from various development agencies to improve their national and regional QI systems—standards, metrology, accreditation, conformity assessment and market surveillance—which are important tools for improving the lives of people through economic development. Although support to QI systems has continuously evolved over the years, modernization is bringing about new challenges related to climate change, migration, global trade and the rapid technological transformation that is disrupting all aspects of life.

In order for QI to be effective and sustainable in the face of such challenges, QI must evolve swiftly and be rethought under the framework of the sustainable development paradigm, specifically with regards to how fit national and regional QI systems are to achieve sustainable development and the SDGs.

In light of the technological advancements taking place, QI institutions and services require strengthening and expanding to meet new requirements, help consumers make informed choices, encourage innovation and good practice, and lead business and industries to adopt sustainable technologies and processes. The QI4SD Index will demonstrate the value of QI for sustainable development, and as a result, the importance of investing in it.



## HOW does it work?

The key way to do this is by linking QI to the sustainable development paradigm, in particular, to the three pillars of the SDGs: “prosperity” (the economic dimension), “people” (the social dimension) and “planet” (the environmental dimension). This is because QI systems are required at every development stage of a country to build prosperity, meet the basic needs of people, and protect the environment, thereby contributing to overall sustainable development.

The QI4SD Index analyzes QI from six dimensions—standardization, metrology, accreditation, conformity assessment, market surveillance and policy—and maps out indicators for each. It then links these indicators to the three pillars of the SDGs. These indicators will allow each QI component to be measured in terms of its contribution to each SDG pillar, which will allow for:

- » Rapid assessment of the QI system in a country and/or region in meeting sustainable development needs
- » Making comparisons between countries, taking into consideration socio-economic and other factors
- » Analysis of the strong and weak points in any given country and a direction on what to address in order to achieve next milestones in terms of developing a national QI system that is fit-for-purpose to meet sustainable development needs
- » A dynamic perspective over time on the national and/or regional QI system in order to measure and improve the impact of interventions and identify good practices of quality governance
- » Benchmarking of individual QI dimension, which allows for continual improvement and mutual learning

In the development of the index, UNIDO has collaborated with members of the International Network on Quality Infrastructure (INetQI) in discussing and validating indicators, as well as identifying ways to collect data for them. Indexes and scoreboards on QI are few and far between. Only one composite index was found that was purpose-built for this reason—the Global Quality Infrastructure Index. The QI4SD Index builds on this and other

existing tools such as the PTB-World Bank Group Comprehensive Diagnostic Tool, and UNIDO’s existing Trade Standards Compliance Reports (TSCR), which systematically measures the level of QI development of selected countries and their national QI components.



## IMPACT

Information on the fitness of QI to meet sustainable development needs will serve as useful input to support policy processes and national implementation plans for achieving the SDGs, as well as the coordination of technical cooperation programmes worldwide. The QI4SD Index will be a public good for “common use”. In other words, it is expected that richer information on the contributions of QI to the SDGs, and the ability to measure how fit-for-purpose a country’s QI is to do so will contribute to better allocation of scarce resources and measurement of progress, and in the long term will result in upgrading and innovation. This type of open source information will allow for secondary analysis that can also encourage and support knowledge creation for countries to move up the development ladder in a more effective and efficient manner.



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# LABORATORY POLICY DEVELOPMENT GUIDE

Guiding decision-makers to  
understand the need for sustainable  
Laboratory Infrastructure



## WHAT is it about?

The **Laboratory Policy (LP) Development Guide** is a guidance document with laboratory-specific information for policy and decision-makers providing experience-based guiding principles and good practices to support in the design and development of a sustainable and fit-for-purpose Laboratory Policy capability.

The guide is a spin off and further complements the existing suite of Quality Policy publications developed by UNIDO, consisting of the Quality Policy Guiding Principles, Technical Guide and Practical Tool.

It covers three areas that need addressing to develop and implement a Laboratory Policy successfully, namely at the:

- » **Macro-level (policy level):** the guide identifies the guiding principles for the formulation of a Laboratory Policy;
- » **Meso-level (institutional level):** it looks at the elements needed to enhance trust in the test and measurement data laboratories provide, including the need for appropriate accreditation of its activities;
- » **Micro-level (operational level):** the guide identifies and considers common issues that have surfaced during support for the development and strengthening of laboratories in the past.



## WHY is it needed?

The guide helps countries develop and implement their own Laboratory Policy so they can establish a fit-for-purpose, efficient and effective laboratory capability based on UNIDO's track record of laboratory capacity building.

When an economy develops or strengthens its Laboratory Infrastructure, it usually occurs in an environment where there are many other pressing demands on available public resources. This can result in the unintended wastage of scarce resources including

the replication of laboratory services (e.g. water and food testing laboratories in several government ministries when demand for these services is limited). Public laboratories competing with each other and with private sector laboratories is also problematic.

Investments in Laboratory Infrastructure should not only seek to address immediate needs. It is important they are also channeled to areas where they could act as an enabler and multiplier for longer-term added value, signaling the need to approach Laboratory Infrastructure holistically. Each economy needs to consider its business environment, production capabilities and internal market needs. Demography, export and import activities, and the global value chains are also important considerations. Government needs to take responsibility for the efficient and effective use of the available resources and provide overarching guidance for achieving their goals through cooperation with all stakeholders. This is where the need for a suitable Laboratory Policy arises.

Currently, there are no specific guidelines, standards or methodologies available on how to develop such a Laboratory Policy that includes established international best practices. UNIDO's more than 40 years of experience in Quality Infrastructure, Quality Policy development, and laboratory capacity building places it in a unique position to develop such a Laboratory Policy Development Guide.

The determination of calibration and testing needs prior to strengthening or developing new laboratory capability and/or capacity requires a thorough needs assessment in which the major initial and ongoing investments required in resources, human and physical capital, and ongoing maintenance are carefully assessed against the country or regional need that is being addressed. Very often in developing countries, laboratories have emerged organically, usually based on one-off needs as a result of a crisis. These have normally been constructed without fully evaluating whether there are existing capacities in or near the country that can be capitalized on. An appropriate cost-benefit analysis, and proactive assessment of the sustainability of the laboratory, has also normally been insufficient or totally lacking. Although the initial need and driving force may have been a ministry, private sector or academia, they may have lacked an overview of the country's or region's testing and calibration capabilities. In many cases this has resulted in unnecessary duplication, fragmentation and often interagency competition resulting in inefficient allocation of scarce scientific and technical resources and sub-optimal laboratory capacities and capabilities in countries.

## HOW does it work?

The guide follows a structured and systematic approach to the strengthening and development of a country's required Laboratory Infrastructure that allows for optimal development and sustainable maintenance of the required laboratory capability and capacity necessary to meet national needs. This is achieved by defining a Laboratory Policy that enables coherence in the development of an appropriate and cost effective national/regional laboratory system (macro level). It provides the necessary infrastructure and systems for obtaining and maintaining international recognition of the capacities of the laboratories (meso level). Finally, it can ensure that the required laboratories are designed properly with the technical needs and expected volumes always in mind (micro level).

A well-defined Laboratory Policy has the potential to guide, in an integrated manner, the development of the required laboratories for a country. It can also help balance the current capacities and provide guidance on the efficient allocation of the often-scarce scientific and technical professional staff and other laboratory-

related resources within a country to contribute to safeguarding the health of the people and protecting the environment. It can also guarantee consumer rights, support the competitiveness of national producers and access to international markets, and increase the diversification and sophistication of the national productive apparatus in the most cost and time efficient way.



## IMPACT

The guide intends to help decision-makers understand the need for a Laboratory Policy and guide them using known practices. It also provides suggestions on how to develop a conducive environment for the Laboratory Infrastructure, and one that addresses the different development aims of countries. Specifically, it is expected to facilitate the systematic and orderly development of the type and number of laboratories required for a country, resulting in more optimal allocation of scarce resources. A coherent laboratory development policy, in line with market needs, can also be monitored on a continuous basis to ensure that the change/improvement required to meet a country's changing laboratory capacity needs are suitably and timeously addressed.



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Check out the online tool [LP Development Guide](#)





# QUALITY INFRASTRUCTURE FOR TRADE FACILITATION (QI4TF) TOOLKIT

Identifying gaps in National Quality Infrastructure Systems to support an effective implementation of the Trade Facilitation Agreement



## WHAT is it about?

The **Quality Infrastructure for Trade Facilitation (QI4TF) Toolkit** helps countries, particularly developing countries and least developed countries (LDCs), to systematically identify and address technical gaps in their National Quality Infrastructure Systems (NQIS) that are required to facilitate trade. It enables governments and industries to identify their capabilities and weaknesses when it comes to exporting a specific product to international markets. More specifically, the QI4TF Toolkit enables the National Trade Facilitation Committee (NTFC), or any other authority vested with the responsibilities for trade facilitation, to assess the requirements in the World Trade Organization (WTO) Trade Facilitation Agreement (TFA) relating to NQIS functions and determine whether the latter is effective and efficient in supporting trade facilitation.



## WHY is it needed?

Trade facilitation can be defined as the “the simplification, standardization and harmonization of procedures and associated information flows required to move goods across borders”. The purpose of the recent WTO TFA is to expedite the movement, release and clearance of goods.

An effective NQIS aims at defining quality requirements and providing acceptable evidence, recognized internationally, that products, services, processes, systems, persons or bodies conform to such quality requirements. Trade facilitation relies on the proper operation of NQIS functions relating to standards, conformity assessment procedures (i.e. testing, certification and inspection), accreditation, technical regulations and sanitary and phyto-sanitary measures. Any gap in the NQIS functions should be identified and addressed. Effective trade is subject to unconditional compliance with technical regulations and measures imposed by WTO members in accordance with the



Technical Barriers to Trade (TBT) and Application of Sanitary and Phytosanitary Measures (SPS) Agreements. Without effective and reliable conformity assessment procedures to demonstrate compliance of traded goods with technical requirements from importing markets, the advantages from implementing the WTO TFA will be unattained. It is critical that developing countries and LDCs look at trade facilitation in a holistic manner and understand the pieces of the puzzle linking NQIS to the TFA, TBT and SPS Agreements since they all have an immediate impact on trade.

## HOW does it work?

The QI4TF Toolkit is administered in the form of a questionnaire, through an electronic version of the toolkit (e-tool) hosted on an online platform. It measures the government capacity ('QI4TF 1') and industry capacity ('QI4TF 2') to facilitate exports, specifically in the agro-food value chain, with respect to the QI system.

### QI4TF 1 assesses five capacities:

1. Food safety and public health
2. Sanitary and phyto-sanitary
3. National laboratory
4. Customs authority
5. Educational training

### QI4TF 2 assesses six capacities:

1. Food and business operators
2. HACCP systems
3. Co-operative organizations
4. Freight forwarding companies
5. National Chamber of Commerce
6. International trade shows and exhibitions

Together, these 11 capacities are assessed at three levels to identify the technical gaps at the governance and legislative, institutional and management, and operational levels that government and industry need to address in order for small and medium-sized enterprises to enter and compete in international markets.

The application of the QI4TF Toolkit involves three key stages:

- » **Stage One:** Preparatory Groundwork – buy-in is obtained from the lead Ministry in charge, the value chain is identified, and key stakeholders are also identified and convened.
- » **Stage Two:** Application of the electronic version of the toolkit in a two-day workshop – in this guided workshop, first, the gaps are identified; second, actions are prioritized to address the gaps; and, third, a consensus-built roadmap for action is presented.
- » **Stage Three:** Preparation of a roadmap report for government and industry to action – a report on the results is prepared, which will guide further action and can be featured in national development plans and strategies, for example, the National Trade Facilitation Action Plan, National Development Plans, or Sectorial Development Plans.

## IMPACT

The toolkit and its results will serve as input to support national capacity building and technical cooperation to navigate and focus efforts in addressing key needs/gaps in a more effective and efficient manner. It is expected to contribute to prioritization of interventions and serve as inputs for the NTFC roadmaps. The benefits of implementing this tool include swift action for the best use of trade facilitation measures and smooth flow of goods between borders, high level of ownership among developing countries, and supporting countries in the implementation of the WTO TFA.



This tool will be available soon. Stay tuned!  
<https://hub.unido.org/>



# QUALITY ALONG THE VALUE CHAIN (QI4VC)

Assessing quality-related gaps along the value chain and providing tailored interventions to address them through a systematic methodology



## WHAT is it about?

Trade liberalization has opened market access for many developing countries. However, technical barriers to trade and sanitary and phyto-sanitary measures have gained importance in regulating trade activities. This has been a challenge especially for developing countries, as their exporters, particularly small and medium-sized enterprises, have to prove conformity with market entry requirements, such as standards and technical regulations.

To support its member countries, UNIDO has developed the **Quality Along the Value Chain (QI4VC)** methodology following its successful holistic approach on Quality Infrastructure (QI) strengthening. This methodology is a tool to perform a quality diagnosis of a value chain to gain full understanding of the status and functioning of the sector and design project interventions that tackle targeted QI bottlenecks to increase exports and competitiveness.



## WHY is it needed?

Exporters must ensure the highest product quality to comply with requirements (mandatory and voluntary standards) to avoid rejections and integrate into global markets. To achieve this, QI services need to be available to the private sector.

The QI4VC methodology ensures that QI support is tailored to the needs of the supply-side and demand-side at each critical step of the value chain, thereby targeted interventions are more efficient and effective. It also ensures stakeholder participation in developing a shared vision of value chain performance and requisite improvements.

QI4VC results indicate where to focus efforts and serve as a development roadmap for QI institutions and industry. In addition, QI4VC serves as a policy development tool providing governments, donors and development agencies with an assessment of key quality-related gaps.



## HOW does it work?

The QI4VC is applied together with key partners from the QI system and private sector to assess the quality gaps of every critical step of the value chain, from the supply and demand perspectives. The priorities are defined in consensus with the main stakeholders by following an inclusive approach that allows them to have ownership of the interventions.

After preparatory work, during which the main counterpart, key stakeholders and expected results are defined, the methodology is applied by following three stages of assessment.

**Strategic Stage:** Evaluates the value chain where the methodology will be applied, and for which market the quality requirements will be mapped and analyzed. It also defines the scope of application by selecting the quality pillars that will be assessed.

**Step 1:** Selection of the value chain and target market

**Step 2:** Definition of the scope of application

**Diagnostic Stage:** Aims to develop a database of the quality requirements (mandatory and voluntary) to enter a selected market, and assesses the gaps and current and required capacities of the QI institutions and private sector necessary to demonstrate compliance.

**Step 3:** QI Map - Value chain requirements mapping and analysis

**Step 4:** Diagnosis of the institutional capacities

**Step 5:** Diagnosis of the private sector capacities

**Operational stage:** Appraises the practicality of a possible intervention to address the gaps and develop a feasible project proposal.

**Step 6:** Prioritization and attainability of the intervention

**Step 7:** Design of an implementation strategy



## IMPACT

The methodology allows countries to identify QI bottlenecks and gaps to prioritize possible interventions to address them. It also serves as a useful tool for governments to target technical cooperation as they will already have in advance a roadmap to strengthen the public and private sectors to improve the quality in a value chain. Furthermore, it will serve to identify investment opportunities to provide the lacking services.

In addition, developing countries with a solid QI system are more likely to build the trust of importers and investors. In turn, improved quality of products will result in increased market opportunities and improved livelihoods. This will contribute to the achievement of several of the 17 Sustainable Development Goals of the 2030 Agenda for Sustainable Development and promote inclusive and sustainable development.



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This tool will be available soon. Stay tuned!  
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# ROADMAP TO QUALITY

A state-of-the-art e-learning training programme to promote understanding and facilitate the implementation of quality management effectively throughout a company



## WHAT is it about?

UNIDO has long-standing experience in assisting small and medium-sized enterprises (SMEs) enhance their competitiveness and thus access new markets nationally, regionally and internationally.

In this vein, UNIDO in collaboration with the Japanese Standards Association developed a two-volume e-learning manual, **A Roadmap to Quality**, for implementing total quality management (TQM) throughout a company. Its 20 units provide clear practical guidelines for the full range of management activities—from managing company policy to keeping the workplace clean and tidy.



## WHY is it needed?

SMEs in developing countries face major obstacles in marketing their products, whether competing against foreign imports in their domestic markets, or gaining access to international markets. A number of factors contribute to this—including finance and investment issues, international trading regulations, and agricultural subsidies in developed countries—many of which are largely beyond the power of the SMEs and their governments to influence. There is, however, one critical factor that SMEs have the power to improve themselves—the quality of their products.

Given today's fiercely competitive markets, delivering products with a quality level that meets customer requirements or even exceeds expectations, at a competitive price, is essential to business success. Achieving such a quality level involves every function of a company, and often suppliers and customers as well, brought together in effective quality management. It requires good management systems and practices throughout the organization, from having a vision of the future of the company to maintaining a safe and healthy workplace. It means having well-trained

and motivated employees, standardized work procedures, and effective production control, as well as ensuring the quality of incoming supplies, and operating a fast and efficient after-sales service. Above all, it requires the active participation of senior management.

## HOW does it work?

Quality management can assist SMEs in developing countries to overcome obstacles in managing their (often scarce) resources, comply with international standards and improve the quality of their products. In view of enhancing SME compliance with international standards, improving their compliance capacity through special training, and building on the Roadmap to Quality manual, UNIDO has developed an interactive online training course on quality management, including exercises, examples and a set of final exam questions, which are available through the UNIDO Knowledge Hub. This tool provides comprehensive training on the principles of quality management and introduces all of its main aspects. It enables SMEs to implement TQM themselves—within the limits of their own resources, and by drawing on the capabilities of their own staff. Further, the tool raises awareness on the relevance of international standards for effective operation and promotes the use of ISO 9001: Quality Management System among SMEs in developing countries.

## IMPACT

In addition to the benefits associated with investing in and maintaining an enterprise, including increased productivity, job growth, increased consumer protection and greater innovation capabilities, the impact of this tool will lead to:

- » **Economic gains** through SMEs in developing countries understanding the need for proper quality management and establishing related systems in their enterprises. Better quality management will lead to increased competitiveness resulting in higher sales and economic income.
- » **Human competence** by knowledge transfer to enterprises in developing countries and helping to establish a local pool of experts.
- » **Awareness raising** on the relevance of international standards for effective operation and promotion of the use of ISO 9001.
- » **Technical cooperation** that will provide more consistency and a harmonized approach when assisting SMEs in developing countries to enhance their competitiveness through quality management.



Check out the online tool [A Roadmap to Quality e-learning](#)





# CULTURE FOR QUALITY (C4Q) TOOL

Identifying and holistically assessing beliefs, values, and behaviors to promote quality management in a value chain ecosystem



## WHAT is it about?

In developing countries, quality is often a concept that people, enterprises, institutions and society strive for without necessarily being able to articulate what it is and what their respective roles are in achieving it. In order to improve quality, its meaning and importance must be understood—as well as its benefits for each stakeholder in a value chain—for it to be practiced in a sustainable manner by all members of society.

This is known as a **“culture for quality”**, which is described as “a set of group values that guide how improvements are made to everyday working practices and consequent outputs”.<sup>1</sup> Culture for quality is a virtuous circle in which all actors demand from one another a level of quality in their products or services.

In order to produce quality products, developing countries need to be convinced that quality matters, and consumers need to demand/choose it and have access to a supportive and internationally recognized Quality Infrastructure system that can provide independent attestation of the quality of a product or service, without which access to developed markets is nearly impossible. However, quality certification alone is not sufficient to produce quality products in the long run—enterprises also need to demand quality, and instill a culture of continual improvement and professionalism into its employees.



## WHY is it important?

Over the last 50 years, development agencies have provided countries technical assistance to help improve their Quality Infrastructure systems so that small and medium-sized enterprises (SMEs) can produce (and demonstrate that they have produced) quality products. This includes building the relevant human and physical capital within the framework of standardization, accreditation, metrology, testing, inspection and certification.

<sup>1</sup> Harvey, L. 2004-2018, Analytic Quality Glossary, Quality Research International.

However, the capacity that has been developed has not always been maintained/used/demanded by regulators or enterprises because the core principles of quality are not instilled in the mindset of the various actors and stakeholders. There is often limited capacity for SMEs working in emblematic value chains in their respective countries to fully implement the principles of quality management enshrined in the ISO 9000 family of standards. Therefore, it is important to assess their quality behavior across the building blocks and components that make up a culture for quality.

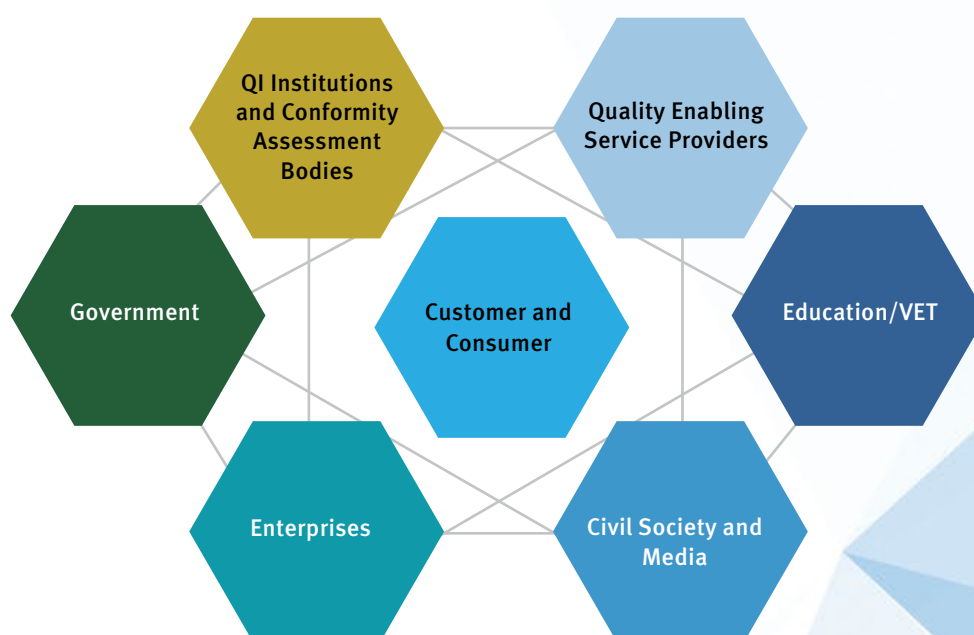
In order to tackle this insufficient demand for quality at the SME level, development agencies have provided technical assistance to enterprises focusing on the implementation of quality standards and systems. Often, though, such efforts have been unsustainable, with product quality remaining inconsistent and service provision unsatisfactory. Sustainable deployment of quality management systems means much more than simply meeting the requirements of a standard, requiring the often-neglected development of a quality culture that incorporates quality principles.

7. Quality-enabling service providers (including professional and industry organizations, among others)

8. Opinion formers (NGOs and the media)

A short questionnaire is deployed to be used by various influencers to ‘evaluate’ others in the value chain. It does so by asking questions related to the seven quality management principles identified as the underlying basis for the ISO 9000 series of standards:

- » QMP1 – Customer focus
- » QMP2 – Leadership
- » QMP3 – Engagement of people
- » QMP4 – Process approach
- » QMP5 – Improvement
- » QMP6 – Evidence-based decision making
- » QMP7 – Relationship management



## HOW does it work?

Developing demand-driven interventions requires addressing the cultural dimension of organizations within the value chain. The **Culture for Quality Tool** allows for the following key quality influencers to be assessed in order to identify the gaps in the culture for quality and professionalism within a selected value chain and to propose actions to address those gaps:

1. Enterprises (raw material or component suppliers, intermediate processors, final processors)
2. B2B customers (distributors, exporters, enterprises who use final outputs as inputs into their own value chain)
3. Consumers (via consumer associations)
4. Government (including policymakers and regulators)
5. Educational/vocational training institutions
6. Quality Infrastructure institutions (standardization, accreditation and metrology) and conformity assessment bodies

## IMPACT

The benefits of implementation of this tool include improvements in the culture for quality in selected value chains, improved production patterns, enhanced quality for local consumption, smoother access to global markets and improved trade performance. In turn, with better skills there will be greater access to better jobs resulting in shared prosperity, thus helping to achieve several of the 17 Sustainable Development Goals of the 2030 Agenda for Sustainable Development and to promote inclusive and sustainable industrial development.



This tool will be available soon. Stay tuned!  
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# STANDARDS COMPLIANCE ANALYTICS

Explore, compare and assess  
countries' compliance record with  
trade standards in major markets



## WHAT is it about?

Technical regulations and standards are increasingly prevalent and continuously evolving in international trade of food and non-food (industrial) products. Moreover, there is evidence that many developing countries face challenges in complying with the safety and quality requirements that these regulations and standards lay down.

Since 2008, UNIDO has regularly collected evidence about trade-related challenges and their evolution over time, particularly in the area of compliance with (quality, certification, labeling, etc.) requirements set by international markets.



## WHY is it needed?

In their efforts to improve compliance, the challenge for national governments and donors is to allocate scarce financial and technical resources amongst a plethora of capacity building needs. There is, therefore, a need to identify where the most acute compliance challenges are faced—in a trade context this means identifying the products and markets with the highest rates of non-compliance—thus recording rejections.<sup>2</sup>

<sup>2</sup> Rejection in this context is based on technical regulation and public standards, and therefore does not include rejections due to quality control along private global supply chains, or rejections based on voluntary standards.



## HOW does it work?

The **Standards Compliance Analytics tool** can be used to facilitate the use of rejection data to identify the key compliance challenges faced by exporting countries and thereby enhance targeting of investments in building relevant compliance capacities.

In addition, the Standards Compliance Analytics tool supports the assessment of the overall impact of rejection on export performance of countries of origin and estimates their compliance capacity by interpreting rejection trends together with additional key development, production and trade-related indicators.

Lastly, the Standards Compliance Analytics tool provides the possibility to compare countries' trade compliance performance in different markets and related to specific product groups.



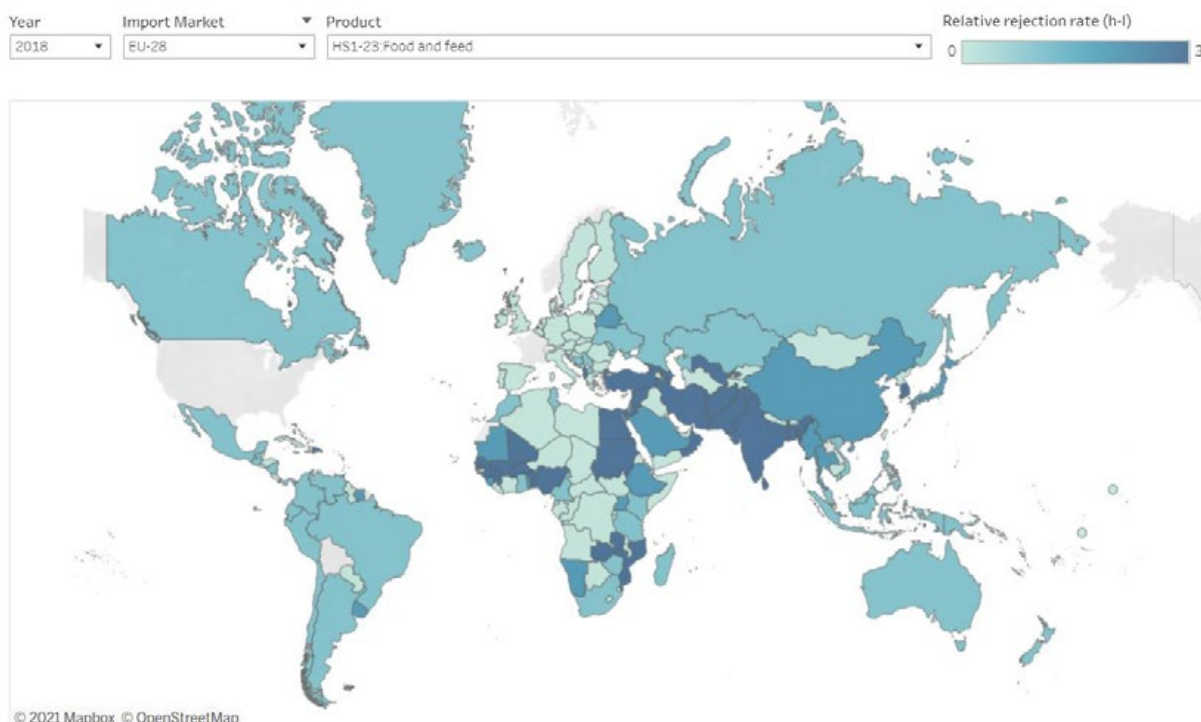
## IMPACT

Information on rejection can inform the policy and technical assistance to navigate and focus efforts in addressing compliance issues in a more effective and efficient manner. Deeper understanding of trade compliance challenges contributes to better preparedness of exporting countries to comply with export market requirements and eventually less rejection in the long term. As a result, the economic losses due to rejection would be avoided while reputational risks due to large scale rejections can be averted.



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Check out the online tool **Standards Compliance Analytics**



The world map shows the distribution of the relative rejection rate (high-low) [RRR (h-l)] across exporting countries, for a given year, market, and product. RRI (h-l) is the natural logarithm of the ratio of country share of total rejections to share of total imports presented in ordinal classes (high-low classes, i.e., high, medium, low and none). The RRI (h-l) ranges from 0-3, with the darkest colour in the map for countries with the maximum RRI (h-l) of 3 and the lightest colour for countries with the minimum of zero. A higher RRI(h-l) shows lower compliance of an exporting country with food safety and quality standards relative to the country's exports.

### Reasons for rejections

Argentina



India



Thailand



#### Reasons for Rejections

- Additive
- Bacterial contamination
- Hygienic condition
- Mycotoxins
- Others
- Pesticide residues
- Adulteration/missing document
- Heavy metal
- Labeling
- Other contaminants
- Packaging
- Veterinary drug residues

The piecharts show the frequency of reasons for rejection of products exported from select countries into a given market, by year and product. The frequency of reasons for rejection is the total counts of consignments rejected at the border of entry for a particular reason. Examples of possible reasons for rejection include labeling, hygienic condition, adulteration, missing document, additive, bacterial contamination, pesticide residues, veterinary drug residues, mycotoxins, heavy metal, and packaging. Note that the "aggregate frequency of reasons of rejection" can be different from "aggregate number of rejections" as a single consignment can be rejected on multiple grounds. This indicator helps exporting countries identify areas of capacity building (solving key reasons for rejection) to attain or improve international trade standards compliance.

Sources: <https://hub.unido.org/data-sources>



# QUALITY POLICY PROGRAMME

Supporting Quality Infrastructure practitioners and policymakers to design and develop robust, holistic, and demand-driven Quality Infrastructure systems



## WHAT is it about?

Countries and regions recognize that **Quality Policy (QP)** is a useful policy instrument to improve the governance of a Quality Infrastructure (QI) system and to coordinate and streamline QI institutions and components. QP sets up the legal framework for the QI system by clearly assigning roles and responsibilities for each stakeholder, and promoting a sustainable balance between the quality services offered and demanded. A well-designed QP avoids fragmentation, improves coordination between different ministries and QI institutions, promotes international recognition and builds trust among value chain participants, regulatory agencies and consumers.



## WHY is it needed?

As the globalization of markets rapidly continues and is shaped by technological developments, more and more governments are carefully reconsidering the overall arrangement of their national QI in order to improve their trade performance and country development. Some of the main issues developing countries, especially exporters, face include a lack of competitive advantage, ineffective technical standards, and poor or non-performing QI.

Developing countries require access to a supportive and internationally recognized QI that can provide the independent attestation of product or service quality, without which access to developed markets is nearly impossible. The private and public sectors need credible evidence that products and services meet regulatory, technical and other requirements. This often-unforeseen need has, in many cases, led to the evolution of a national QI that frequently lacks sufficient coordination, is disjointed, and thus unproductive, with inherent conflicts of interest, inefficiencies, and duplications of effort and costs.



The importance of establishing a QP to set the primary objectives, roles and responsibilities of such a QI is well documented, yet such a QP is often absent or insufficient to provide Good Governance for the operation of QI. The root cause of this gap lies in the lack of adequate local knowledge and specific competencies by policymakers and QI professionals of developing countries.



## IMPACT

The overall impact of the Quality Policy Programme is an effective and efficient QI system, which benefits three of the five Sustainable Development Goal (SDG) pillars, namely people, planet and prosperity, thus contributing to the overall achievement of the SDGs.



## HOW does it work?

Rectifying this situation involves creating an efficient infrastructure to satisfy the demands and requirements of globalization and the multilateral trading system. The challenge is achieving such objectives within a framework of Good Governance that promotes transparency when instituting requirements, eliminates discrimination against producers, and prohibits the introduction of unnecessary safety or deceptive practices.

There is, therefore, a corresponding drive to create a more robust, adaptive, cost-effective, user-friendly and sustainable QI system that provides access to appropriate standardization, metrology, accreditation, conformity assessment, and market surveillance capability and capacity, along with attendant education and promotional programmes.

Based on UNIDO's experience in the development of 26 national and three regional policies, and in assisting developing countries and countries in transition create an inclusive and sustainable QP, UNIDO, in collaboration with its technical partners—the International Network on Quality Infrastructure, the World Trade Organization, the World Bank and others—has developed a set of guiding documents for Quality Policy development. The **Quality Policy Programme tool** integrates these guiding documents, namely the Quality Policy Guiding Principles, Technical Guide and Practical Tool, at country and regional levels. UNIDO has also translated these guiding documents into an online learning programme, which is available on the UNIDO Knowledge Hub and includes case studies and best practice examples. UNIDO's Quality Policy Programme covers the whole cycle of policy development, from inception and strategic planning to design, awareness raising, implementation and monitoring.



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Check out the online tool

[QP Guiding Principles](#)

[QP Technical Guide](#)

[QP Practical Guide](#)

[QP Online training](#)





# TRADE CAPACITY BUILDING RESOURCE GUIDE

A useful information source that can be used to identify suitable partners in the area of trade capacity development



## WHAT is it about?

The 2030 Agenda for Sustainable Development recognizes international trade as an engine for inclusive economic growth and poverty reduction, and an important means to achieve the Sustainable Development Goals (SDGs). The role of trade in promoting sustainable development as well as in the integration of developing countries into regional and global markets is emphasized in several of the SDGs. For example, SDG 8 on “promot[ing] inclusive and sustainable economic growth, employment and decent work for all” directly aims at the increase of Aid for Trade support for developing countries, in particular least developed countries (LDCs). SDG 17 on “strengthen[ing] global partnerships for sustainable development” also includes specific goals related to trade, such as significantly increasing the exports of developing countries, in particular LDCs.

UNIDO’s main contribution to the World Trade Organization-led initiative Aid for Trade and its flagship publication in the area of trade-related technical assistance is the **Trade Capacity Building Resource Guide**, which is a comprehensive compilation that includes information on 37 bilateral and 31 multilateral development partners in the area of trade.



## WHY is it needed?

The rising need for trade-related technical assistance among developing countries, the costs of trading presenting a significant barrier, and the lack of interagency coordination for recipient countries makes the Trade Capacity Building Resource Guide a useful resource for developing countries to identify suitable service providers in the area of trade capacity development. Such service providers include agencies working primarily on trade-related capacity building in developing countries; agencies concentrating on trade or some aspect of it who see assistance to developing countries as an essential part of promoting their



responsibilities; and development agencies, both general and specialist, who recognize that improving the capacity of countries to trade must be part of any development strategy.

## **HOW does it work?**

UNIDO published the first edition of the Trade Capacity Building Inter-Agency Resource Guide in 2008, followed by enhanced editions in 2010 and 2015. The 2017 edition of the Trade Capacity Building Resource Guide, available as an interactive web tool on the UNIDO Knowledge Hub, further increases its relevance in the area of trade-related technical assistance by sharpening its focus on emerging dynamic trends, in particular, on the increasing relevance of e-commerce, digital economy and related services for global trade as well as on crosscutting issues such as gender mainstreaming, employment and youth, which play an integral role in all trade-related services.

The continuous development of the Resource Guide addresses evolving trade capacity building challenges faced by developing countries as they develop their export capacity and related Quality Infrastructure. Further, the Trade Capacity Building Resource Guide can help developing countries identify the right development partners in this area.




## **IMPACT**

The information available within the Trade Capacity Building Resource Guide directly contributes to transparency and thus increases efficiency and exploitation of synergies among technical cooperation partners and beneficiary countries, thereby stimulating trade-led economic growth, increased employment and wealth creation.



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Check out the online tool **[TCB Resource Guide](#)**



## LABORATORY NETWORK (LABNET)

An interactive tool that supports small and medium-sized enterprises to identify the right provider of conformity assessment services by detailing information on available conformity assessment bodies within a specific country



### WHAT is it about?

Conformity assessment is an important element of Quality Infrastructure. Technical assistance in this area focuses on two elements, namely on strengthening supply capacities of conformity assessment bodies (CABs) and creating demand for related services.

The creation of the **Laboratory Network (LabNet)** provides producers/exporters with credible information on CABs and strengthens the capacity of CABs to provide internationally recognized services.



### WHY is it needed?

Producers, suppliers, exporters or regulators regularly face challenges in demonstrating that products and services conform to specified quality requirements, whether these are embodied within voluntary standards or mandatory technical regulations. In addition, CABs, if existing in a country, may lack the capacity to provide the required services to the private sector, especially in low-income developing countries. Therefore, the critical issue for export-related trade is finding CABs that have the capability and technical competence to provide needed attestation of conformity that is recognized both nationally and internationally.

While useful information on CABs, particularly laboratories, already exist within national or regional organizations, there is bound to be a wide disparity in the level of detail of such information. Hence, there is a need for one global database on CABs that is specifically designed to support quality in production. Having access to CABs with internationally recognized conformity assessment reports demonstrates that developing countries' products conform to importing-market requirements. This is key for producers in the process of accessing markets. Furthermore, the lack of reliable information on conformity assessment services offered is a severe hindrance to the smooth conduct

of exports and trade. Producers may be unaware that such services are available in the country, albeit in a different city, or in a neighbouring country, and consequently may purchase such services at excessively high costs from industrialized countries.



## HOW does it work?

LabNet maps out in a database all CABs within (selected) developing countries. This database contains information on the conformity assessment<sup>3</sup> services that particular CAB can offer so that producers, exporters, and other stakeholders may more easily identify service providers to address their specific needs in a timely manner. LabNet is a one-stop shop for searching and identifying relevant CABs in any developing country as the project aims to identify each existing CAB database globally and link it to LabNet in a manner that provides synergy without duplication.

LabNet is not only a repository of information, but also a solution-finder through the use of a guided process flow that serves as a coaching tool prompting users to better define and articulate their needs. While input information to LabNet is carried out at the national level, the output information is available for use by anyone searching the database from any part of the world.

<sup>3</sup> Conformity assessment includes activities such as testing, inspection and certification performed by conformity assessment bodies (CABs), respectively laboratories, inspection bodies (IB) and certification bodies (CB).



## IMPACT

LabNet reduces the time required to identify the right service providers, thereby decreasing costs for producers and enabling fast and reliable access to international markets.



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Check out the online tool [LabNet](#)





# GOOD GOVERNANCE IN QUALITY INFRASTRUCTURE

An online training that aims to assist Quality Infrastructure practitioners to build a Good Governance system within their organizations and to guide their work with samples of useful tools



## WHAT is it about?

Governments create the conditions for the functioning of markets, the operation of private firms, the strengthening of civil society and the welfare of communities and individuals. Governance shapes the decision-making process of these conditions as well as the process by which these decisions are implemented. The trade context of all of this is what is referred to as the Quality Infrastructure (QI) of a country.

**Good Governance** is important to QI services (for example, product testing labs or a standards body developing product standards) as its principles encourage integrity, impartiality, transparency and consensus.

UNIDO has played a leading role in promoting Good Governance whilst assisting developing and transitional economies to implement modern QI, at both national and regional levels, recognizing that appropriate interventions at the policy level are critical for addressing strategic QI-related challenges, and ensuring Good Governance.



## WHY is it important?

Good Governance is perhaps the single most important factor in eradicating poverty and promoting development. Establishing and governing a QI can substantially assist a nation in pursuing a development path aligned with the Sustainable Development Goals (SDGs), overcoming the challenges involved and benefitting from the considerable opportunities generated through achieving the SDGs. More specifically, Good Governance in QI contributes to improvements in three of the five dimensions addressed by the SDGs: prosperity, people and planet.

Despite efforts in assisting developing countries to establish QI and formulate a Quality Policy, many countries still require more

guidance to govern these at both national and organizational levels. Consequently, there is misalignment and poor coordination between QI organizations, which results in capacity deficiency, poor performance and high risk of corruption.

These problems directly affect the competitiveness of companies and national economy indicators, for example, in terms of export, and can directly lead to poverty, unemployment, corruption and dissatisfaction of citizens. Reaching out to the stakeholders of QI services, especially small and medium-sized enterprises, is therefore important.



## HOW does it work?

The **Good Governance in Quality Infrastructure** training addresses these problems directly by promoting awareness of Good Governance, delivering training to QI personnel and leadership at all levels, and providing guidance on the necessary tools and techniques for the effective implementation of Good Governance principles.



## IMPACT

Quality Infrastructure practitioners are equipped with the knowledge to establish and implement an effective Good Governance system and culture within their organizations, and within the context of a Quality Policy and sustainability strategy that contributes to achieving the SDGs.



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Check out the online tool **Good Governance in QI**



# INNOVATION MANAGEMENT

An online training that aims to support innovation activities within organizations, particularly small and medium-sized enterprises



## WHAT is it about?

An innovation is a new or improved product or process that differs significantly from previous products or processes, and is made available to users. The ability of organizations to innovate is key for sustained growth, economic viability, increased well-being, and the development of society. The innovation capabilities of an organization include understanding and responding to the changing conditions of its context, pursuing new opportunities, and leveraging the knowledge and creativity of people within the organization, and in collaboration with external interested parties.

An organization can innovate more effectively and efficiently if requisite activities and other interrelated components are managed as a system. Such a system, referred to as an innovation management system, guides the organization to determine its innovation vision, strategy, policy, and objectives, and to establish the support and processes needed to achieve intended outcomes.



## WHY is it needed?

The large disparities in income and social development between developed and developing countries are often rooted in considerable differences in their industrial development and use of technology, and the resulting gaps in their productivity. These gaps may widen with the shift towards the new industrial revolution, summarized in the concept of Industry 4.0.

For most organizations, innovation is not an option—it has become key for reaching desired business sustainability in a rapidly changing world. However, a significant number of them are dissatisfied with the results they are obtaining in this field and most struggle to manage innovation effectively. An innovation management system can help with this, allowing organizations to capture their best ideas and to continually improve to stay competitive.





## HOW does it work?

The **innovation management training** addresses innovation-related challenges by presenting individuals working in the area of innovation—particularly in small and medium-enterprises (SMEs)—with the **ISO 56002:2019 Innovation Management System – Guidance** standard as a guiding tool to design, implement, maintain and continuously improve an innovation management system. The training, available on the UNIDO Knowledge Hub, also presents principles that form the foundation of a sustainable innovation management system.



## IMPACT

SMEs are equipped to utilize the principles of a sustainable innovation management system throughout their organizations, and the performance and effectiveness of their innovation projects are improved. Overall, this boosts productivity and increases social welfare within countries, thus contributing to the Sustainable Development Goals.



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Check out the online tool [Innovation Management](#)



A background image showing a close-up of a textile loom in a factory setting, with threads and machinery visible. The image is partially obscured by a blue overlay on the left side.

# QUALITY INFRASTRUCTURE AND TRADE

An online training that supports systemic Quality Infrastructure development



## WHAT is it about?

Trade has long been recognized as a potential engine for growth and wealth creation. Despite this, many countries continue to face supply-side capacity and trade-related infrastructure constraints that can inhibit their ability to compete on international markets.

A Quality Infrastructure System is a catalyst for improving the quality of products and services on a national scale, thus helping to stimulate demand for these products and services, and invigorating individual businesses and the economy as a whole.



## WHY is it needed?

By helping national industry to meet the requirements of export markets, a Quality Infrastructure System increases the competitiveness of the nation's economy and its ability to participate in global trade and in value chains. It is therefore essential for every economy to understand the Quality Infrastructure System, its elements, interrelations and how they contribute to the bigger picture.

In recent years it has become clear that a well-implemented Quality Infrastructure System contributes to governmental policy objectives in more areas than trade of products and services. These areas include industrial development, efficient use of natural and human resources, food safety, health, the environment, climate change, as well as other topics covered in the United Nations 2030 Agenda for Sustainable Development and related Sustainable Development Goals.



## HOW does it work?

The **Quality Infrastructure and Trade online training**, developed in collaboration with the International Network on Quality Infrastructure (INetQI), provides an introduction to the international trading system and elaborates on the elements of the Quality Infrastructure System and their interrelationships. The training also touches upon cross-cutting matters, such as Good Governance, sustainability and gender mainstreaming. Interactive exercises and further reading material support the learning experience, which is available on the UNIDO Knowledge Hub.



## IMPACT

Based on a solid analysis of trade challenges and opportunities, the UNIDO online training course on Quality Infrastructure and Trade encourages trade development along value chains. It also supports systemic Quality Infrastructure development based on market needs and promotes inclusive and sustainable industrial development.



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Check out the online tool **[Quality Infrastructure and Trade](#)**



# BLOCKCHAIN FOR VALUE CHAINS (BC4VC)

A readiness assessment to ensure  
inclusiveness of Blockchain  
technology



## WHAT is it about?

It is clear that there are challenges in global commodity supply chains and that many of the challenges are faced by farmers or producers at the beginning of the supply chain. There are not many inclusive supply chains with fair shares in the margin, transparency and data insights and opportunities. There is also a large distance in information between the end consumer and the people at the beginning of the chain that needs to be overcome.

Distributed Ledger Technology (DLT) and Blockchain are applied in the food industry to create trust between supply chain actors to share data about who they are both downstream and upstream, and their activities towards the product that flows in the supply chain through a series of transactions. The technology can improve supply chains by enabling faster delivery of products, enhancing product traceability, improving collaboration between supply chain partners and aiding access to finance particularly for farmers.

UNIDO has developed a methodological framework to assess the readiness of a value chain to adopt blockchain. The objective of this methodology is to both address a general approach to assessing a value chain from a data-sharing perspective, and at the same time to go into the specific requirements that come with implementing blockchain technology. With a special aim on inclusiveness of actors, this methodology can be applied to assess the feasibility and readiness to adopt blockchain for any commodity value chain from any sourcing country.



## WHY is it needed?

UNIDO supports its member states and their private sectors to unlock the new opportunities offered by the Fourth Industrial Revolution (4IR) to drive inclusive positive change by strengthening linkages between supply chain actors, increasing their access

to market and to new technologies, which can help to increase productivity and economic growth. Many times new technologies benefit mostly those with greater access and resources, leaving excluded those most needed. This methodology makes sure that the implementation of Blockchain has benefits for all actors and leaves no one behind.

Blockchain, and DLT in general, offer potential benefits to value chains by the way it connects supply chain partners and the data they agree to share. However, there are nuances specific to this technology that should be understood and considered before an organization or supply chain implements it. This includes considering to what extent the adoption of blockchain can contribute to a potentially positive impact on the environment and the people in a value chain.



## IMPACT

BC4VC allows governments and the private sector to make informed and collective decisions on adopting the right technologies for their needs and have a roadmap on what a value chain needs to improve before embarking on a Blockchain application. Therefore, it reduces risks and costs by targeting the critical areas that required support and investments.



## HOW does it work?

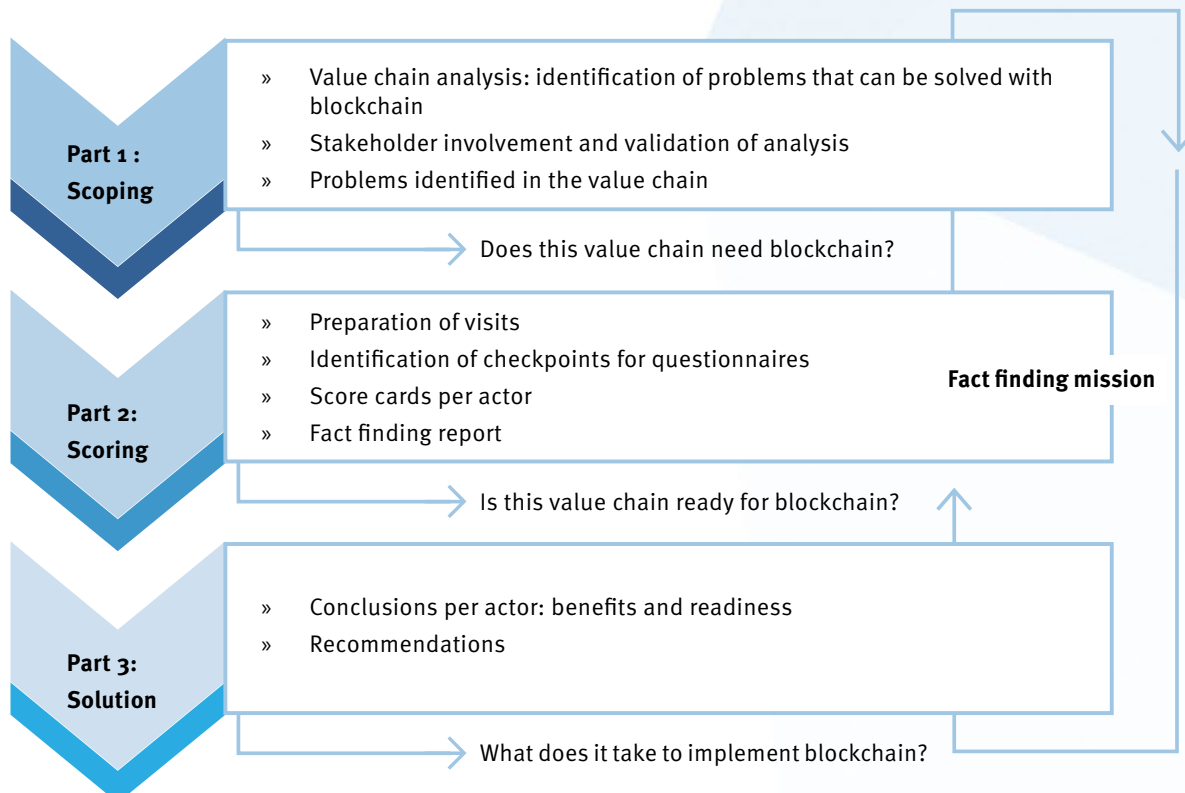
**BC4VC** consists of three parts that are geared to answering the following questions: 1) Scoping: Does this value chain need blockchain? 2) Scoring: Is this value chain ready for blockchain? 3) Solution: What does it take to implement blockchain?

A fact-finding mission is at the centre of the approach to collect information on the ground on the potential benefits of and the possibilities for implementing blockchain. The information gathering is done through a series of questionnaires adjusted for the different value chain actors that assess the conditions related to infrastructure, data availability, IT savviness, traceability systems, transparency, transactions and sustainability.



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This tool will be available soon. Stay tuned!  
<https://hub.unido.org/>





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