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TRAINING ACADEMY

Beginner 2

Course 4

STANDARDISATION TRAINING ACADEMY

Topic:

QUALITY INFRASTRUCTURE

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Module Objectives

After completing this module, you should be able to:

1. understand that Quality Infrastructure (QI) denotes the system comprising the organisations (public and private), together with the policies, relevant legal and regulatory framework, and practices needed to support and enhance the quality, safety and environmental soundness of goods, services, and processes;
2. understand that National Quality Infrastructure (NQI) denotes the ecosystem which consists of three core components (metrology, standardisation, and accreditation) without which its other parts (e.g. calibration, testing, inspection, certification, and market surveillance) cannot operate optimally; and
3. understand that QI may also be considered at the regional and international levels, considering most governmental and non-governmental organisations that have been established over the years, as well as multinational companies offering a broad range of conformity assessment services in many countries worldwide.

Key Terms

Quality Infrastructure (QI), National Quality Infrastructure (NQI)

About The Author

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Biljana Tošić is a Teaching Assistant and a Research Assistant at the Faculty of Organisational Sciences, University of Belgrade. She earned a B.Sc. and M.Sc. in Quality Management and Standardisation and another M.Sc. in Human Resources Management at the same Faculty. She is currently a Ph.D. Candidate, working on a doctoral dissertation titled ''The significance of the expertise in standardisation for the internationalisation of SMEs''. To date, she has been engaged in teaching several courses at the Faculty: Fundamentals of Quality, Standardisation 1, Metrology with the Fundamentals of Engineering, Normative Regulation of Quality, and Accreditation and Certification. She has been a member of the organisational board of the World Standards Cooperation Academic Day 2019 and the International Cooperation for Education about Standardisation (ICES) WorkShop 2019. She has been a member of the technical board of the International Symposium SymOrg 2020 titled ''Business and Artificial Intelligence'' and the SymOrg 2022 titled ''Sustainable Business Management and Digital Transformation: Challenges and Opportunities in the post-COVID Era''. She has been engaged in project III 47003 ''Infrastructure for technology-enhanced learning in Serbia'', supported by the Ministry of Education, Science, and Technological Development of the Republic of Serbia (2017-2020). She has been Editor in Chief of the Quality Media Station, the first media centre for quality established within the TEMPUS project titled ''Enhancement of Quality Infrastructure in Western Balkan Countries (EQIWBC)'' (2015-2017). She is currently a member of the National Mirror Committee Conformity Assessment & Quality Management KS CASCO at the Institute for Standardisation of Serbia (National Technical Committee related to ISO/CASCO, ISO/TC 176, ISO/TC 176/SC 1, ISO/TC 176/SC 2, ISO/TC 176/SC 3, ISO/TC 283, CEN/SS F20, CEN/TC 279, CEN/TC 379, CEN/TC 381, CEN/TC 389, CEN/CLC/JTC 1, and CEN/CLC/JTC 4).

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1 QUALITY INFRASTRUCTURE (QI)

The members of the International Network on Quality Infrastructure (INetQI) have recently agreed upon the definition of **Quality Infrastructure (QI)** as ''the system comprising the organisations (public and private), together with the policies, relevant legal and regulatory framework, and practices needed to support and enhance the quality, safety and environmental soundness of goods, services, and processes''. [1] QI is required for global market activities, encouraging sustainable development, and environmental and social well-being. [2]

QI relies on: [3]

- metrology,
- standardisation,
- accreditation,
- conformity assessment, and
- market surveillance.

Many countries have established national policies to develop and sustain efficient and effective QI.

1.1 Why is QI important?

As the world becomes complex, countries compete less based on the availability of natural resources, geographical advantages, and lower labour costs and more on factors related to firms' ability to enter and compete in the global market. [4] One of these factors is the ability to demonstrate the quality and safety of goods and services and compliance with global standards. [5] Consumers are ''the ultimate judges of the quality of goods and services'', so goods need to comply with specifications that buyers set, and they need not be harmful to public health and safety. To demonstrate such compliance, a sound QI ecosystem must be crucial. [6]

1 InetQI. (2025). Quality Infrastructure. Accessed on 20.02.2025. Retrieved from: https://www.inetqi.net/documentation/quality-infrastructure-definition/.
2 Ibid.
3 Ibid.
4 Kellerman, M. (2019). Ensuring Quality to Gain Access to Global Markets (A Reform Toolkit). Accessed on 20.02.2025. Retrieved from: https://thedocs.worldbank.org/en/doc/249621553265195570-0090022019/original/FullQIToolkitReport.pdf, p. 4.
5 Ibid.
6 Ibid.

The QI denotes the ecosystem of public and private organisations, as well as, legal and regulatory frameworks and environments that have successfully established and used metrology, standardisation, accreditation, conformity assessment, and market surveillance. [7] Such an ecosystem proves that goods and services comply with the market requirements regarding quality and safety. [8] It boosts trade and reduces trade costs, enhances technology transfer and innovation, enhances investments and competitiveness, and protects consumers. [9]

The QI ecosystem: [10]

- enhances market access, product diversification, and investment opportunities;
- boosts productivity by:
  - reducing trade costs,
  - streamlining operations,
  - eliminating restrictive regulations,
  - benefiting from economies of scale through standardised working methods and achieving interoperability between manufacturers along the value chain,
  - enhancing innovation and technology diffusion;
- promote public policy objectives by enforcing effective technical regulations which ensures public health and safety and consumer, environmental and social protection.

The QI ecosystem serves governments, businesses, and consumers in several ways: [11]

- *for governments*, a QI ecosystem serves as a mechanism to support effective trade and industrial policies and ensures the enforcement of technical regulations;
- *for businesses*, a QI ecosystem limits production costs, enhances productivity, and enables businesses to be more competitive in domestic and foreign markets;
- *for consumers*, a QI ecosystem ensures public health and safety by

7 The World Bank. (2018). Quality Infrastructure. Accessed on 20.02.2025. Retrieved from: https://www.worldbank.org/en/topic/competitiveness/brief/qi.

8 Kellerman, M. (2019). Ensuring Quality to Gain Access to Global Markets (A Reform Toolkit). Accessed on 20.02.2025. Retrieved from: https://thedocs.worldbank.org/en/doc/249621553265195570-0090022019/original/FullQIToolkitReport.pdf, p. 4.

9 Ibid.

10 The World Bank. (2018). Quality Infrastructure. Accessed on 20.02.2025. Retrieved from: https://www.worldbank.org/en/topic/competitiveness/brief/qi.

11 Kellerman, M. (2019). Ensuring Quality to Gain Access to Global Markets (A Reform Toolkit). Accessed on 20.02.2025. Retrieved from: https://thedocs.worldbank.org/en/doc/249621553265195570-0090022019/original/FullQIToolkitReport.pdf, p. 4.

ensuring that fraudulent and counterfeit products are not traded in the marketplace.

2 NATIONAL QUALITY INFRASTRUCTURE (NQI)

National Quality Infrastructure (NQI) is a system which consists of three core components without which its other parts cannot operate optimally: **metrology**, **standardisation**, and **accreditation** and services based on these components consist of **calibration** (derived from metrology), **testing**, **inspection**, and **certification**, that are also enhanced by **market surveillance** (derived from the government's feedback and control mechanism). [12]

All of these could be voluntary, meaning that compliance is a choice and non-compliance is not a legal offence. Still, governments require mandatory compliance for specific cases, such as technical regulations, in which non-compliance may become a legal offence. [13] The development and enforcement of technical regulations utilise all the core elements and services of the QI, and QI implementation is further enhanced by market surveillance. [14] **Fig. 1**. describes the relationships among the key QI elements at the national level.

QI may also be considered at the regional and international levels, especially considering the vast majority of governmental and non-governmental organisations and agencies that have been established over the years, as well as the majority of multinational companies offering a broad range of conformity assessment services in many countries over the world. [15]

12 Ibid., pp. 42.
13 Ibid., pp. 42.
14 Ibid., pp. 42.
15 Ibid., pp. 42.

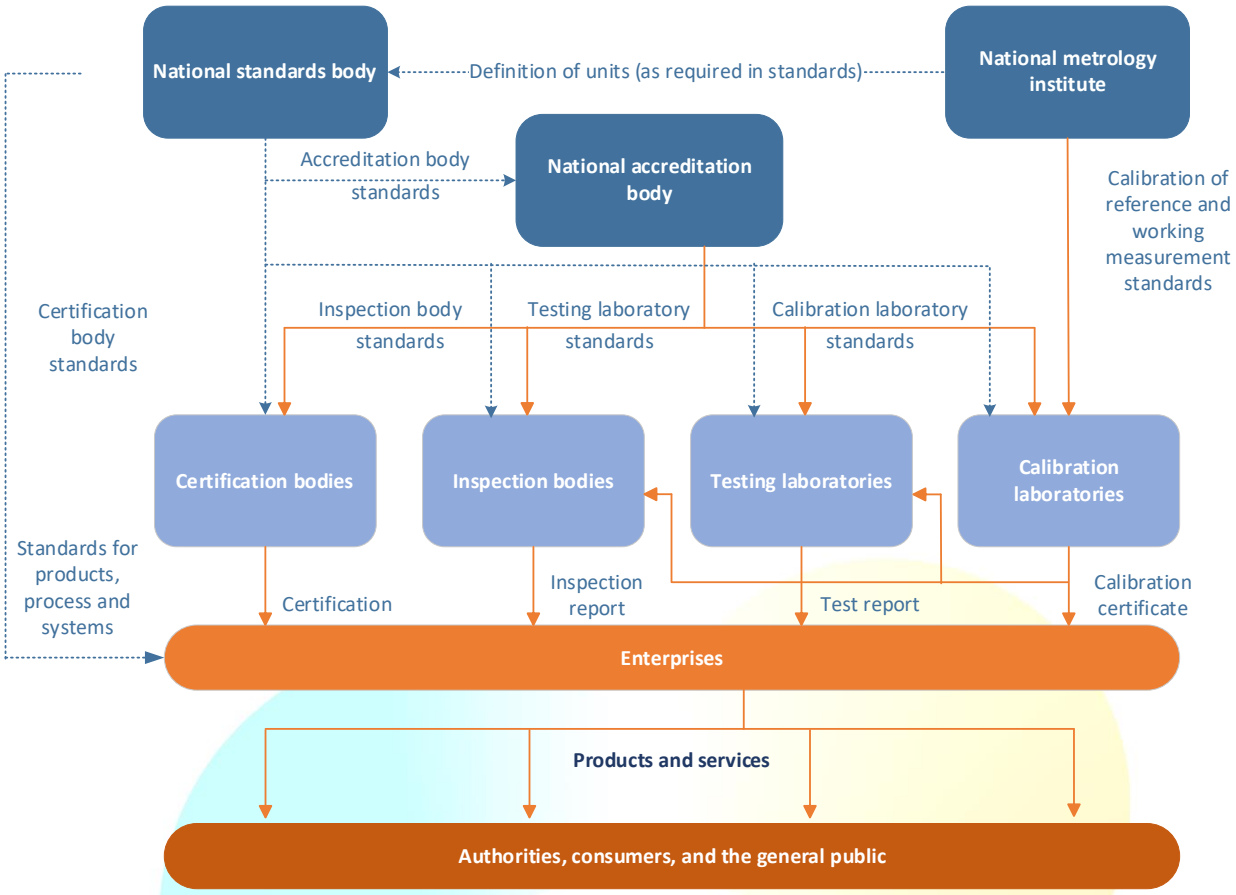

Fig. 1. National Quality Infrastructure [16]

QI Diagnostics and Reforms Toolkit (Part 2), jointly developed by the World Bank Group and the National Metrology Institute of Germany, explores in detail the significance of the QI reform and demand assessment, and may be accessed freely via the following link:

https://thedocs.worldbank.org/en/doc/249621553265195570-0090022019/original/FullQIToolkitReport.pdf

16 Ibid., pp. 42.

SUMMARY

The members of the International Network on Quality Infrastructure (INetQI) have recently agreed upon the definition of **Quality Infrastructure (QI)** as "the system comprising the organisations (public and private), together with the policies, relevant legal and regulatory framework, and practices needed to support and enhance the quality, safety and environmental soundness of goods, services, and processes". [17] QI is required for global market activities, encouraging sustainable development, and environmental and social well-being. [18]

QI relies on: [19]

- metrology,
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Many countries have established national policies to develop and sustain efficient and effective QI.

National Quality Infrastructure (NQI) is a system which consists of three core components without which its other parts cannot operate optimally: **metrology**, **standardisation**, and **accreditation** and services based on these components consist of **calibration** (derived from metrology), **testing**, **inspection**, and **certification** that are also enhanced by **market surveillance** (derived from the government's feedback and control mechanism). [20]

17 InetQI. (2025). Quality Infrastructure. Accessed on 20.02.2025. Retrieved from: https://www.inetqi.net/documentation/quality-infrastructure-definition/.
18 Ibid.
19 Ibid.
20 Kellerman, M. (2019). Ensuring Quality to Gain Access to Global Markets (A Reform Toolkit). Accessed on 20.02.2025. Retrieved from: https://thedocs.worldbank.org/en/doc/249621553265195570-0090022019/original/FullQIToolkitReport.pdf, p. 42.

GLOSSARY

Quality Infrastructure (QI)

''the system comprising the organisations (public and private), together with the policies, relevant legal and regulatory framework, and practices needed to support and enhance the quality, safety and environmental soundness of goods, services, and processes''. [21]

National Quality Infrastructure (NQI)

a system which consists of three core components without which its other parts cannot operate optimally: metrology, standardisation, and accreditation, and services based on these components consist of calibration (derived from metrology), testing, inspection, and certification that are also enhanced by market surveillance (derived from the government's feedback and control mechanism). [22]

21 InetQI. (2025). Quality Infrastructure. Accessed on 20.02.2025. Retrieved from: https://www.inetqi.net/documentation/quality-infrastructure-definition/.

22 Kellerman, M. (2019). Ensuring Quality to Gain Access to Global Markets (A Reform Toolkit). Accessed on 20.02.2025. Retrieved from: https://thedocs.worldbank.org/en/doc/249621553265195570-0090022019/original/FullQIToolkitReport.pdf, p. 42.

BIBLIOGRAPHY

InetQI. (2025). Quality Infrastructure. Accessed on 20.02.2025. Retrieved from: https://www.inetqi.net/documentation/quality-infrastructure-definition/.

Kellerman, M. (2019). Ensuring Quality to Gain Access to Global Markets (A Reform Toolkit). Accessed on 20.02.2025. Retrieved from: https://thedocs.worldbank.org/en/doc/249621553265195570-0090022019/original/FullQIToolkitReport.pdf.

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