The role of new technologies in facilitating international trade:

the case of electronic certificates

Dr. Lucian Cernat
Head of Global Regulatory Cooperation and International Procurement Negotiations
DG TRADE, European Commission
Staying ahead of the curve:
Five challenges for conformity assessment in the 21st century

• How to operate in a world where **products are increasingly digital**, relying on embedded software for smart functionalities?

• How can we **embrace new digital technologies** to enhance conformity assessment processes?

• How to meet the ever increasing **demand for quality, safety and traceability** from global consumers?

• How to move us towards a more **circular economy**, by driving more sustainable production and responsible consumption?

• How to adapt to a **post-covid reality** that accelerated the adoption of disruptive technologies?
Conformity assessment gets “smarter”

Smart Labs:
- using digital images in a semi-automated process to reduce mistakes and take away the uncertainty of conformity assessments in industrial testing.

Big Data:
- to help the management and analysis of the increasing qualities and types of data available for testing and inspecting products.

Cloud computing:
- to share data instantly, report issuing and automate certification.

Blockchain Technology:
- transparent, secure and decentralized verification of certificates – especially as they are becoming increasingly digital. This is particularly important for data safety and reliability of services in e-commerce.

Sensors:
- applying smart measuring sensors, 3D scanning, and mobile-tools for real-time calibration and measurement.

Real-time information:
- Management systems can be improved by remote access to information in real-time. Auditing conformity to management system standards such as ISO 9001 (Quality), ISO 14001 (Environmental) and ISO 50001 (Energy).
The importance of digital technologies for conformity assessment procedures: The EU example

• The role of digital networks has been recognized globally, providing **three key benefits:**
  • (i) Economic development, (ii) Social inclusion and (iii) Environmental protection

• The European Commission Digital Single Market Strategy:
  • cloud computing, big data, Internet of Things, artificial intelligence, etc.

• The New Approach[COM2016/C272] sets up a “quality infrastructure” where **measuring instruments and legal requirements** are mutually reinforcing:
  • standardization, metrology, accreditation and conformity assessment services necessary to provide evidence that products and services meet defined requirements

• Modern **measuring instruments contain sensors**, often fully developed within the scope of the required/legal measurement accuracy
A digital quality infrastructure: the EU example

- It is estimated that there are **850 million measuring instruments** in the EU market under the New Approach.
- Many of these devices involve “intelligent” or “smart” metering.
- Around **3000 notified bodies** listed in the EU NANDO database.
- Market surveillance involves around **5 million verifications per year**.
- Legally relevant measurements are responsible for **4-6 % of the EU GDP**.

Digitalisation of old-fashioned trade procedures: why and how?

• In spite of decades of efforts to digitalize trade, it remains paper-intensive. And hence inefficient.

• Shipping a container from Mombasa to Rotterdam (or vice versa) generates a pile of paper 25 cm tall!

There is still a lot of red tape!

• Around 30 private/public entities involved. Paperwork is send back and forth between them around 200 times...

• One piece of paper in the pile might be the certificate of conformity!

New areas for conformity assessment:
embedded (aka mode 5) software in a smart device
Conformity assessment and digital certificates: a blockchain illustration
Blockchain-based digital certification: some trade examples

• Lots of examples of digital solutions using blockchain:
  • A recent DG TRADE mapping identified several hundreds around the world

• Traceability, trust and product tracking
  • Tracking and traceability for agrifood products
  • Mineral production processes (conflict minerals)
  • Certification and verification of conformity of product and consumer safety along supply chain processes

• Customs formalities
  • Acceptance of digital certificates of origin/conformity
  • Exchange of information of product safety/counterfeit with other regulatory agencies
  • Acceptance of digital G2G and B2G documentations

![Number of blockchain initiatives, by trade-related topic](image-url)

Source: Everis (2021) Blockchain solutions for international trade - Final report