



INTERNATIONAL UNION
OF RAILWAYS

THE IMPORTANCE OF STANDARDISATION IN RAILWAY OPERATIONS

An overview of Standardisation in Railway Operations

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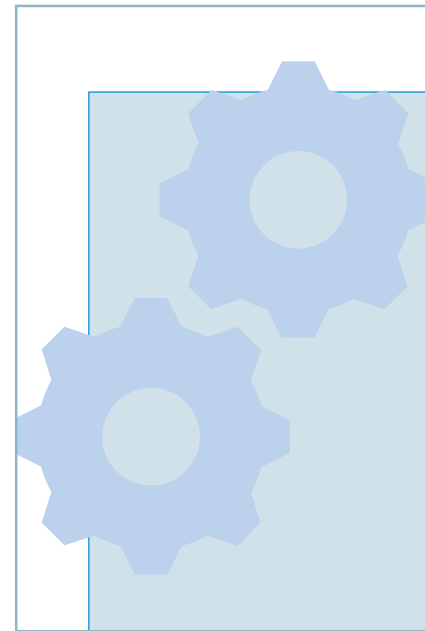
Standardization

From Wikipedia, the free encyclopedia

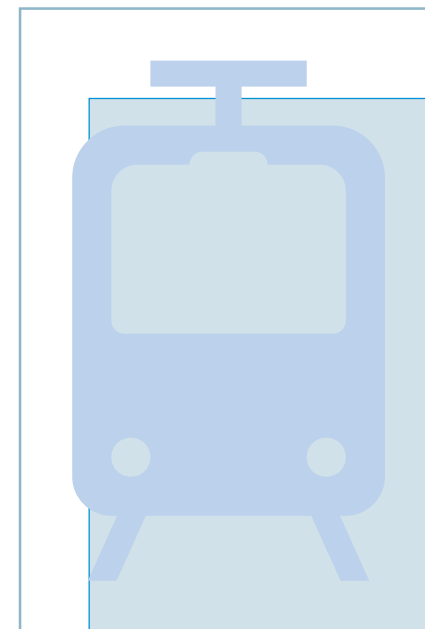
Standardization or **standardisation** is the process of implementing and developing **technical standards** based on the consensus of different parties that include firms, users, interest groups, standards organizations and governments.^[1] Standardization can help maximize **compatibility, interoperability, safety, repeatability, or quality**. It can also facilitate **commoditization** of formerly custom processes. In **social sciences**, including **economics**,^[2] the idea of *standardization* is close to the solution for a **coordination problem**, a situation in which all parties can realize mutual gains, but only by making mutually consistent decisions.

Keywords: different stakeholders, consensus, standards organisations, governments
Help maximize: interoperability, safety, quality
Win-win solution

Railway Systems and Railway Standards



A Railway System consists of several functional and structural subsystems and their components which need to work together in a reliable manner



Any part of a railway system must be developed with due consideration given to the safety and cost impact on other parts of the system



Therefore, standards are necessary for railway systems to perform safe and efficient train operation on its own network as well as on the shared network

Standard

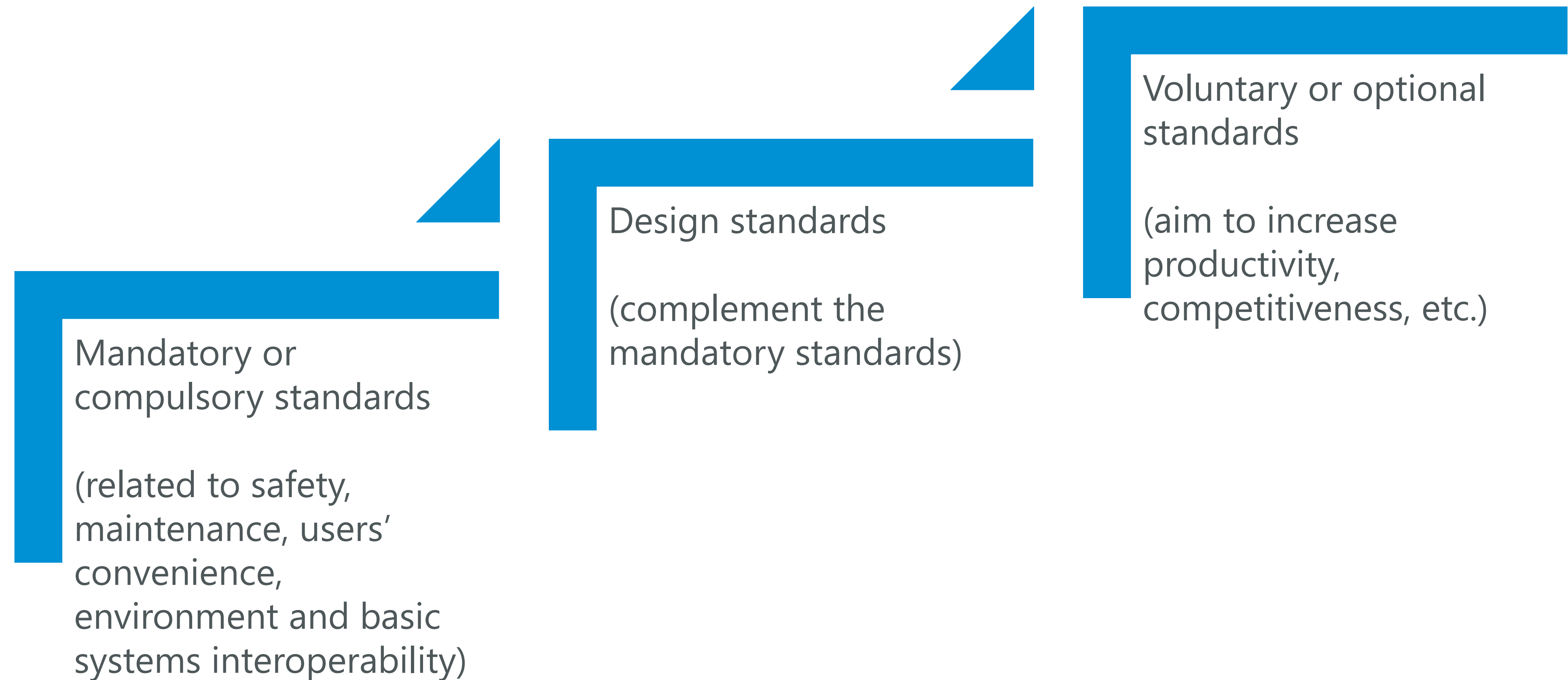
A specification that is formalised and agreed by a wider community of stakeholders according to a governance process that applies the standardisation principles

Standardisation principles

- Transparency
- Openness
- Impartiality
- Consensus
- Independence
- Maintenance
- Availability
- Quality
- Stability
- Effectiveness
- Market relevance
- Coherence

Railway Standards classification

Railway standards can broadly be classified as:



Types of Standardisation bodies

OASB – Officially Appointed Standardisation Bodies

Organisations at:

- National (NSBs – AFNOR, ANSI, BSI, DIN, JIS, ...)
- European (ESOs – CEN, CENELEC, ITU)
- International (ISO, IEC, ITU)

levels which produces Standards under an institutional mandate

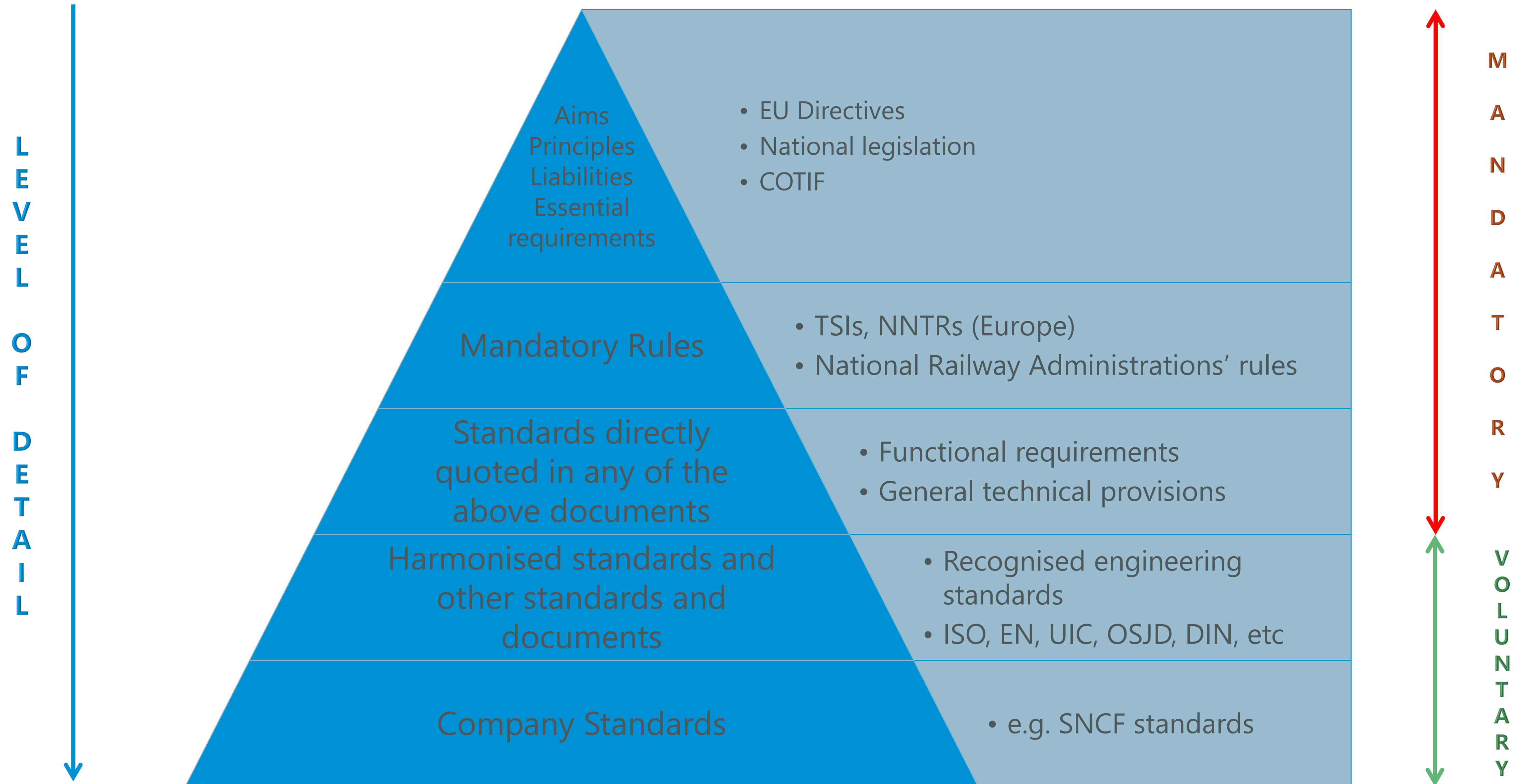
SSO – Standards Setting Organisation

Any organisation whose primary activities is the elaboration of professional technical system standards that are intended to address the needs of a constituent body of users (**UIC**, AAR, ...)

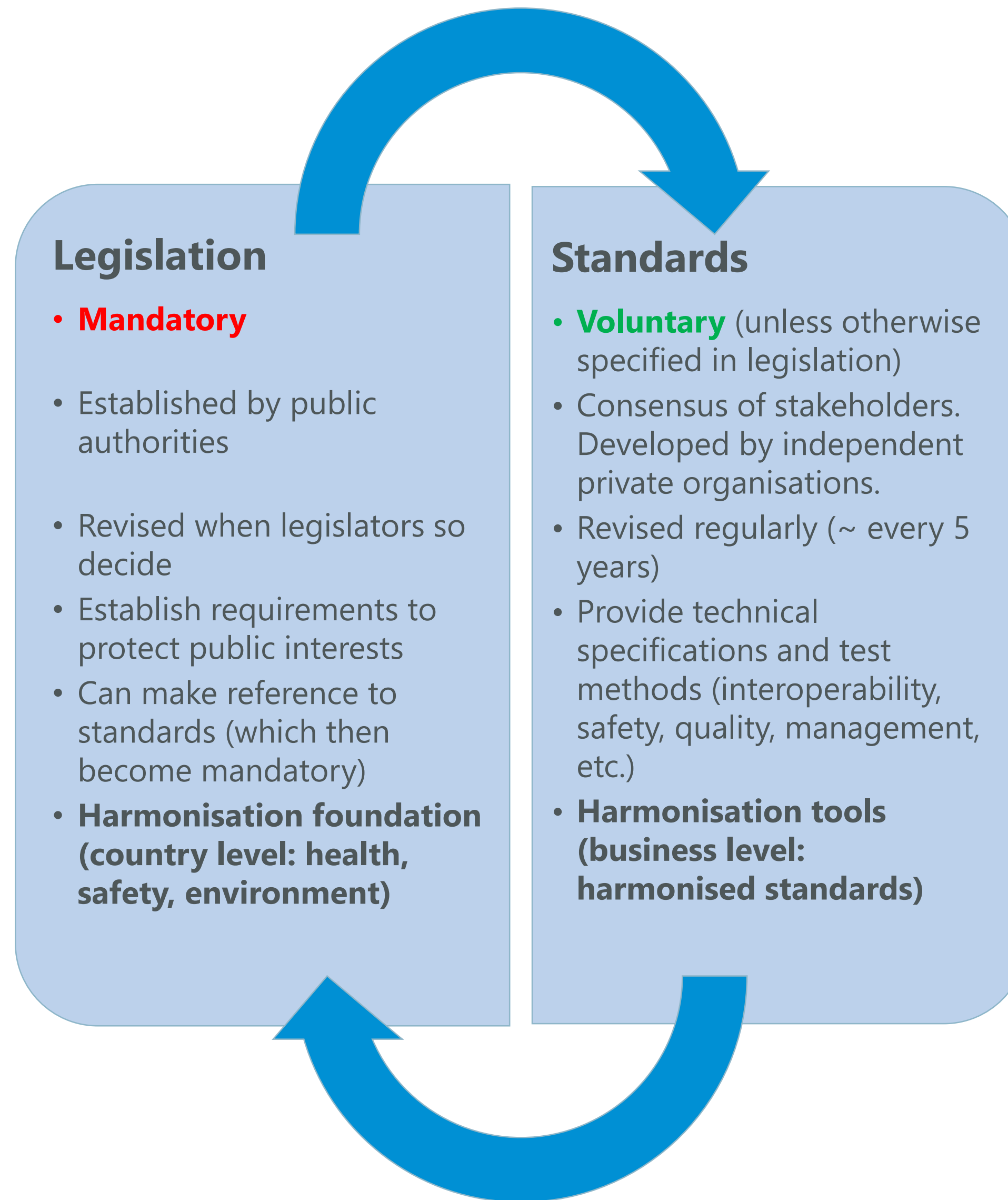
SDO – Standards Development Organisation

It refers to the thousands of industry – or sector based standards that are specific to that standard or business sector (IEEE, AES, ...)

The Railway Standardisation Legal Pyramid



Legislation *versus* Standards



Mandatory *versus* Voluntary Standards



Mandatory standards are legally binding and aim to ensure a specific level of social requirement, generally associated with safety, environment, health, maintenance, user's convenience and a certain level of interoperability

Voluntary standards aim to improve business productivity and competitiveness, being generally associated with quality, efficiency, productivity, costs and the removal of trade barriers



Voluntary Standards

- Adopted without being mandated in law (applicants choose their own specification)
- Provide detailed provisions and related assessment criteria for achieving compliance with mandatory requirements
- Aim additional harmonisation at business level
- Support innovation through standardisation
- Develop business opportunities

Voluntary Standards and Railway Operations

Standards driven by business needs, elaborated by the sector for the sector

Voluntary standards are the shortest way on additional harmonisation, innovation and the development of business opportunities

Railway operation is the bottom line of the several rail subsystems interaction and where the railway service takes place

It is at the railway operation level where the business needs and the needs of the users are highlighted

Conclusions

- The benefits of standardisation in railway systems are well known
- While mandatory standards set the overall framework of railways systems, privileging safety and a systemic approach, voluntary standards are business-led, favouring cost-reductions, new business models (and so innovation), greater system efficiency, productivity and competitiveness
- Railway operations greatly benefit from Standardisation, mainly due to its contribution to:
 - Manage the intrinsic complexity of operating railway systems
 - Cost reduction (at maintenance, operation and suppliers levels)
 - Safety improvement
 - Rail system efficiency and interoperability
 - Competitiveness
 - The creation of new business models

The UIC has been in the business of supporting the railway sector in achieving these objectives ever since publishing its first 'UIC Leaflet' in 1928



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