

ISO/IEC JTC 1 Advisory Group Overview Standards and Regulations

Executive Summary

This report brings together and summarises information gathered by ISO-IEC/JTC 1 Advisory Group 15 (AG 15) on Standards and Regulations, following the completion of the group's report which set out to investigate any links, the use of standards in regulations and the interactions or connections between standards development organisations and policy makers. It is intended for external JTC 1 publication, to the wider community to share the findings of interactions and the conclusions about opportunities and enhanced communication for information sharing. The full report can be accessed on jtc1info.org¹

Background

The evolution of Information technology (IT) now means that it is an integral part of people's lives, it connects businesses together, enables communications and provides an invisible 24/7 infrastructure for e-commerce, amongst other things. The IT expansion continues unabated, penetrating more and more into everything that people do and everything that people touch.

Governmental regulation provides a safety net, often focussing on risk and safety related aspects, in an effort to ensure the safety of their nation's citizens.

Currently there is limited regulation in place covering IT, although it can be found. The EU Low Voltage Directive (LVD) for instance addresses risks and safety relating to equipment that operates with a voltage between 50V and 1000V and the EU 2017/745 regulation focuses on safety relating to medical devices.

In these examples and other regulations, standards are used to provide a benchmark for measurement and validation, and to set the technical boundaries for operational acceptance. It is the role of a Standards development organisations (SDO) to develop standards. Regulators will define and apply regulations, using standards to support them and define the measurements. However, there is a need for cooperation and communication between the establishments to bridge the gap where standards are used to support regulation.

“Standards, together with conformity assessment are important tools for the regulators. They promote best regulatory practice by providing reference points that allow laws and regulations to stay up to date.”

(Frans Vreeswijk, IEC General Secretary)

Relationships, importance of standards

As a general principle, within ISO/IEC JTC 1 standards are developed under a process relying on consensus and are on the whole of a voluntary application in nature.

Regulations which are de jure are bound by law and as such must be applied.

¹ <https://jtc1info.org/wp-content/uploads/2022/10/JTC-1-Standards-and-Regulations-Report-external-v2.0.pdf>

In some instances, standards can be cited in regulations with the following degrees of effect:

- standards are just cited, without giving them any binding value, without presumption of conformity
- standards are cited as a favoured way to conform with the law, without mandatory value. Compliance to standards is seen as presumption of conformity to the law.
- standards are cited as mandatory. This makes an exception to the voluntary nature of standards.

Regulations and voluntary standards could simply coexist: on one side the regulations set the rules, on the other side stakeholders develop standards to facilitate trade and interoperability. However, with today's globalization, widening of markets, pace of innovation, the citizens' expectations, and especially the increasingly technical basis of regulations, it's becoming more desirable to strengthen the articulation, reliance, and complementarity between standards and regulations

World Trade Organization

The World Trade Organization (WTO), an international and intergovernmental organization that focuses on opening trade up for the benefit of all. The WTO utilizes its agreement *Technical Barriers to trade*² (TBT) as the mechanism to create a predictable trading environment.

The Technical Barriers to Trade Agreement sets out measures to reduce unnecessary obstacles and to ensure that there is no discrimination through the use of:

- Technical regulations
- Standards
- Conformity assessment procedures.

To assist with trade facilitation the TBT Agreement encourages members to base their measures on international standards. TBT Annex 3 also details a "Code of Good Practice" which provides assistance for preparation, adoption and application of standards.

Technical regulations

Technical regulations lay down product characteristics or their related processes and production methods. Compliance is mandatory. They may also deal with terminology, symbols, packaging, marking and labelling requirements.

Standards

Standards are approved by a recognized body which is responsible for establishing rules, guidelines or characteristics for products or related processes and productions methods. Compliance is not mandatory. They may also deal with terminology, symbols, packaging, marking and labelling requirements.

² https://www.wto.org/english/tratop_e/tbt_e/tbt_e.htm

Conformity assessment procedures

Conformity assessment procedures are used to determine if relevant requirements in technical regulations or standards are fulfilled. They include procedures for sampling, testing and inspection; evaluation, verification and assurance of conformity; and registration, accreditation and approval.

(World Trade Organization, 2014)

International differences

By comparing the standards development organisation and regulatory interactions in a number of countries and regions it becomes clear that there are similar aspects to structure however there are also significant differences. Standards organisations operate in different ways in different countries and also have different business relationships with the country's governmental establishment. There is no consistency to the process in selecting/applying standards to regulations and the majority of standards that are created or used are voluntary and have no legal requirement or aspect to them. Only a comparatively small number of standards are used to support regulation and only where it is needed. In addition standards are more often adopted, or created to support legislation rather than being used to help define legislation.

With regards to communication aspects, where a standards organisation is part of the country's governmental establishment or a direct government department it is possible that the lines of communication are clearer and better established. This should result in a more transparent operation and sharing of information, important to both sides. Where there is a disconnect, and two independent bodies exist, then communication poses a more difficult challenge.

Standards as foundational work and regulations

There are standards which are developed voluntarily and used to demonstrate compliance but are not used for conformity assessment, however they do provide a basis for the ecosystem to start structuring further work. Typically, this can be the case for standards about terminology, frameworks and ontology. In this case, the standard content is not for supporting any particular regulatory obligation or set of obligations, but it can be used to feed technical interpretations of regulations or even can be helpful to policy makers for the writing of policies. Neither complement the regulation but are needed as a pre-existing tool to establish the regulation itself or to write a policy.

Examples of technical areas in IT where standards could be foundational work

-Artificial Intelligence: the topic is such that establishing common international understanding on the concepts is a pre-requisite to any other kind of policy-type work. A key consideration here is whether or not any standard development pertaining to the use of AI involves that of its application to a Person in general or that of an individual particular. If so, for such standards, including those of ISO/IEC JTC1, added legal/regulatory requirements will apply and need to be supported.

-Cloud Computing:

ISO IEC 17788, 17789: allowed to have a standardized terminology and architecture. Those standards have been foundational for developing other standards, such as ISO IEC 27017, ISO IEC 27018.

ISO IEC 19944: names and describes the categories of data, flows of data in cloud computing.³

ISO IEC 19941 specifies cloud computing interoperability and portability types.

-Coded Character sets

ISO/IEC 10646:2017 specifies the Universal Coded Character set (UCS). It is applicable to the representation, transmission, interchange, processing, storage, input and presentation of the written form of the languages of the world, as well as of additional symbols. As a foundational standard, this is made freely available⁴.

-Electronic data Interchange (EDI) and e-business

ISO/IEC 14662 *“Open-edi reference model”* remains the only standard jointly adopted formally by ISO, IEC ITU and UN/ECE as the foundational standard concerning standardization in the field of electronic business.

The multipart ISO/IEC 15944 eBusiness series of standards focus on the “business operational view (BOV)” of the Open-edi reference model focusing on the modelling and specification of business transactions⁵.

The way forward

The fact is that countries have evolved over many years, being shaped by the people within it and observing influences from external sources. But each country’s development has been formed stemming from philosophical, moral and cultural individuality, leading to many different structures, processes and approaches in delivering, what is largely the same thing.

Countries now have significant cross-border trade which adds to the importance of the work done by WTO in addition to the nations’ own critical internal requirements leading to a wider need for having a benchmark, provided by international standards.

Different people responsible for regulations hold differing opinions on direction and collaboration. One view being that standards should be the essence of regulation, another indicating that standards and regulations should be kept completely apart and only come together where there is a specific need to do so.

³ ISO/IEC 19944 is also an ISO/IEC JTC1 “freely available standard” for use by standard developers. See further <https://standards.iso.org/ittf/PubliclyAvailableStandards/index.html>

⁴ See further at the ITTF site <https://standards.iso.org/ittf/PubliclyAvailableStandards/index.html>

⁵ All Parts of the multipart ISO/IEC 15944 series of the eBusiness standard are deemed to be of the nature of base or “foundational” ISO/IEC standards in support of standards development by ISO/IEC JTC1 and are available as such at <https://standards.iso.org/ittf/PubliclyAvailableStandards/index.html>

Conclusion

Creation of standards

It is imperative that SDOs are as open and transparent as possible to ensure that information is naturally available about work programs and technological directions so that other stakeholders can plan effectively.

Usage of standards

Use of standards brings in recognized common and good practices, which can often help businesses flourish and give consumers piece of mind.

Application of standards in regulation

It is a fact that applying regulation in areas like safety, rights of individuals and environmental protection helps address these areas. Regulation will reference standards to provide the technical details to give all participants clear guidelines of acceptable or expected limits and levels. It appears to be a consistent approach where risk, safety, human rights and the environment, to name a few, are concerned. This supports a view that there is a good foundation of many of the mechanisms currently in place.

Sharing of standards information with regulators

If regulators are not aware of specific work being done in standardization organizations they cannot appreciate how this work can help them. Likewise, initial thoughts and ideas within regulators are not necessarily transparent to those outside when developing standards.

More work is needed to disseminate information widely so that more parties are aware of upcoming ideas, strategies and directions from both sides. Regulators would benefit from this as they would be made aware of standardization trends that could help in their strategy and decisions.

Education

All parties need to be clear on the purpose of a standard or a regulation and understand where the line of separation between the two lies. Apart from transparency and openness, it is also extremely important that active parties understand when, where and why there should be an alliance between standards organizations and regulators.

This can be achieved through the use of general education, workshops, briefings, handouts, flyers, etc. giving guidance on the focus of standards and the focus of regulators, but also where they join.

ISO/IEC JTC 1/AG 15 is developing and enhancing current marketing information, useful to everyone, but can include references to the boundaries of a standard, the purpose and where it sees standards assisting in the delivery of regulation. The groups is also establishing individual workshops to foster wider communication and information sharing with many stakeholders.