



ISO/TC 104 Strategic Business Plan

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1. INTRODUCTION

1.1 ISO technical committees and business planning

The extension of formal business planning to ISO Technical Committees (ISO/TCs) is an important measure which forms part of a major review of business. The aim is to align the ISO work programme with expressed business environment needs and trends and to allow ISO/Technical Committees (TCs) to prioritize among different projects, to identify the benefits expected from the availability of International Standards, and to ensure adequate resources for projects throughout their development.

1.2 International standardization and the role of ISO

The foremost aim of international standardization is to facilitate the exchange of goods and services through the elimination of technical barriers to trade.

Three bodies are responsible for the planning, development and adoption of International Standards: [ISO](#) (International Organization for Standardization) is responsible for all sectors excluding Electrotechnical, which is the responsibility of [IEC](#) (International Electrotechnical Committee), and most of the Telecommunications Technologies, which are largely the responsibility of [ITU](#) (International Telecommunication Union).

ISO is a legal association, the members of which are the National Standards Bodies (NSBs) of some 164 countries (organizations representing social and economic interests at the international level), supported by a Central Secretariat based in Geneva, Switzerland.

The principal deliverable of ISO is the [International Standard](#).

An International Standard embodies the essential principles of global openness and transparency, consensus and technical coherence. These are safeguarded through its development in an ISO/TC, representative of all interested parties, supported by a public comment phase (the ISO Technical Enquiry). ISO and its [Technical Committees](#) are also able to offer the ISO Technical Specification (ISO/TS), the ISO Public Available Specification (ISO/PAS) and the ISO Technical Report (ISO/TR) as solutions to market needs. These ISO products represent lower levels of consensus and have therefore not the same status as an International Standard.

ISO offers also the International Workshop Agreement (IWA) as a deliverable which aims to bridge the gap between the activities of consortia and the formal process of standardization represented by ISO and its national members. An important distinction is that the IWA is developed by ISO workshops and fora, comprising only participants with direct interest, so it is not accorded the status of an International Standard.



2. BUSINESS ENVIRONMENT OF THE ISO/TC

2.1 Description of the Business Environment

The following political, economic, technical, regulatory, legal and social dynamics describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of this ISO/TC, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards:

Economic:

World trade continues to grow and freight containers are, and are expected to remain, the most economical balance between cargo security, transportation costs and speed of delivery interests for the majority of packaged cargo. Similarly, there is increasing economic pressure that is additionally driving traditional bulk commodities into containerized transport. Developing technologies and their application to containerization is helping this economic push to containerization for an increasing number of commodities.

Regulatory:

Existing infrastructure regulations provide an uneven field for the transportation of goods. Freight container standards describe uniform dimensions and ratings that have found almost universal acceptance in both the developing and developed nations of the world. The TC 104 series of standards have become the base line for transportation projects and activities world-wide. Remaining as an issue are various national and regional standards and regulations that are inconsistent with the conveyance envelop set forth in the TC 104 standards and the existence of unit load size standards in various regions that are incompatible with freight container dimensions.

International Dynamics:

TC 104 provides a technical forum that benefits from the frank exchange of engineering and operational expertise. Both developing and developed nations participate actively in TC 104's work ensuring that all implications of advances in containerization are understood and fit into ongoing and planned transportation related activities.

2.2 Quantitative Indicators of the Business Environment

The following list of quantitative indicators describes the business environment in order to provide adequate information to support actions of the ISO/TC:

- The vast majority, in excess of 90%, of world trade in non-bulk goods moves in ISO freight containers.
- Freight container standards and related TC 104 standards are used almost universally.
- ISO's freight container standards are recognized world-wide by organizations as diverse as the International Labor Organization (ILO), International Maritime Organization (IMO), the United Nations Economic Commission for Europe (UNECE), World Customs Organization (WCO and numerous national and regional governmental bodies.
- The global fleet of ISO freight containers amounted to approximately 25 million units in 2023.



- Global container movements including both packed and empty containers amounted to app. 250 million in 2022 according to estimates by the World Shipping Council. The attached diagram shows the historic development in the volume of container units transported

3. BENEFITS EXPECTED FROM THE WORK OF THE ISO/TC

- ISO freight containers are at the heart of the most profound innovation in transportation and trade – containerization.
- Containerization has reduced the time and cost of moving goods to market, and has reduced warehousing and stockpiling needs.
- ISO freight containers have helped remove technical barriers to trade and have helped open markets in various regions of the world.
- The work of ISO/TC 104 is a vital part of the globalization of the world economy.
- ISO/TC 104 standards facilitate the inter-change of transportation among users and different modes of transport on a world-wide basis.
- ISO/TC 104 standards enable easy and expedient exchange of trade and transport related information.
- Containerization has greatly reduced pilferage and theft in the transportation of goods and led to significant improvements in the safety and health of transportation workers. It also has significant environmental benefits.
- ISO/TC 104 standards have helped harmonize national and regional standards; they are cited as normative references in other International Standards as well as in national, regional and international legislation.

4. REPRESENTATION AND PARTICIPATION IN THE ISO/TC

4.1 Membership

[Countries/ISO member bodies that are P and O members of the ISO committee](#)

4.2 Analysis of the participation

- There are 19 P-members and 31 O- members of ISO/TC 104.
- ISO freight containers are primarily produced in China and in some developing countries, and these National Bodies have become involved in the ISO standards process.
- Currently, there is limited participation from the Southern Hemisphere. ISO/TC 104 encourages increased participation from this area.
- There are several types of international organizations in liaison with ISO/TC 104:
 1. United Nations bodies such as the United Nations Conference on Trade and Development (UNCTAD) and International Maritime Organization (IMO);
 2. International governmental organizations (IGOs) such as the World Customs Organization and the European Commission;
 3. Non-governmental organizations (NGOs) such as Bureau International des Containers et du Transport Intermodal (BIC); and



4. Trade associations such as the International Cargo Handling Coordination Association (ICHCA), the Container Owners Association (COA), the Institute of International Container Lessors (IICL), and the International Chamber of Shipping (ICS).
- Time and cost are the major reasons for non-participation in TC 104's work. Lack of knowledge of how the TC and its sub-committees and working groups work to develop and maintain container standards and the current, slow communication of standards development work results also hinder widespread participation.
 - Solutions being pursued by the TC are:
 1. Improvements regarding time, cost and communications. These include the establishment of web sites/sub-sites where committee and working group members can interactively communicate and exchange views and documents used in the development of a standard
 2. Use of the National Standards bodies in every country to promulgate to all industries the work of the TC.
 3. Publication to the UN of the work of the TC by the Central Secretariat.
 4. Direct TC liaison with other TCs, NGOs and IGOs.

5. OBJECTIVES OF THE ISO/TC AND STRATEGIES FOR THEIR ACHIEVEMENT

5.1 Defined objectives of the ISO/TC

The TC will continue to provide standards to define intermodal freight containers, related equipment and technology applicable to the intermodal, containerized movement of freight. Specific areas of expertise codified or being codified in TC 104's series of standards includes design and testing of all types of intermodal freight containers, terminology, equipment to load, stow and secure freight containers on vessels and other conveyances, container handling equipment, electronic tagging and identification of containers and their contents, electronic and mechanical container seals, electronic data exchange and interchange message formats, container markings and container security, tracking and tracing from a design and application perspective.

5.2 Identified strategies to achieve the ISO/TC's defined objectives

The TC uses an open system of balloting of all member bodies to determine new work items and their priorities. The TC's strategies include:

- Use of available national or regional standards (such as CEN standards via the Vienna Agreement) as source documents on which to base International Standards;
- Achieving consensus at the working group level on all new items being standardized or existing standards being modified;
- Achieving the most work possible inter-sessionally through these working groups and their sponsoring subcommittees.
- Making maximum use of electronic media, e.g., email, for balloting, review of drafts and agreeing on items of work to be undertaken;
- TC 104 liaises as necessary with other ISO TCs and a number of international organizations.



- The specific structure of the ISO committee is the TC, 3 SCs and 9 WGs. The Subcommittee structure was specifically established to concentrate the development efforts along specific lines of expertise – freight container structure, handling and securing (SC 1), specific purpose freight containers such as refrigerated and tank containers (SC 2) and electronic data exchange and marking and registration of containers (SC 4). Working Groups currently established and their area of expertise are general cargo containers (WG 1), and handling and securing (WG 2) within SC 1; thermal containers (WG 1), tank containers (WG 4), and Dry Bulk Cargo Containers (WG 7) within SC 2; visual markings and their coding (WG 1), the Automatic Equipment Identification (AEI) for containers and container related equipment (WG 2) and communication and terminology (WG 3) within SC 4.

6. FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE ISO/TC WORK PROGRAMME

There are currently no barriers to the TC completing its program of work. Progress in keeping the body of standards current is hindered however by a shortage of voluntary time of industry experts whose numbers are also dwindling due to industry consolidation and rationalization. Neither government nor other funding is available in most countries to support the individuals who devote their time and expertise to container standardization. Institutional and other barriers as well as diverging national road vehicle legislation are thwarting the international standardization and broader utilization of ISO standardized container types. There also is an increasing number of activities by non-ISO parties and entities in TC 104's areas of responsibilities such as e-seals, container security devices, tracking and tracing and sensor technologies, physical container security and processes/information exchanges, some with a security purpose. While standard-setting activities generally are to be welcomed, it is increasingly difficult for container industry experts to gain insight into, let alone participate in, the various activities relating to containers in other TCs and fora, which in the longer term could erode the credibility and integrity of the overall ISO standard setting activities for freight containers. Therefore, such non-ISO parties should be encouraged to cooperate with TC 104 and its subcommittees, and bring their deliverables to them in order to turn them into genuine international standards, amended as and when appropriate. Better use of electronic communication capabilities would facilitate ISO/TC 104's work.

7. STRUCTURE, CURRENT PROJECTS AND PUBLICATIONS OF THE ISO/TC

Information on ISO online

The link below is to the TC's page on ISO's website: ISO TC 104 on ISO Online. Click on the tabs and links on this page to find the following information:

- About (Secretariat, Secretary, Chair, Date of creation, Scope, etc.)
- Contact details
- Structure (Subcommittees and working groups)
- Liaisons
- Meetings
- Tools



- Work programme (published standards and standards under development)

Please find below some additional information on the structure of ISO TC 104. Scope statements for the TC and SCs are italicized:

ISO TC 104- Freight Containers- *Standardization of freight containers, having an external volume of one cubic meter (35.3 cubic feet) and greater, as regards terminology, classification, dimensions, specifications, handling, test methods and marking.*

- ISO TC 104/SC 1- General cargo containers (pending TC 104 approval)- *Standards related to the classification, dimensions, rating, specifications, and testing requirements for general cargo containers, and standards related to the handling and securing of containers - including specifications for corner fittings as well as those for the lashing of containers aboard vessels.*
 - ISO TC 104/SC 1/WG 1 – General cargo containers
 - This working group is in charge of three standards. Note: In fact, these three standards are governing the full set of series 1 Container standards:
 1. ISO 668: Classification, dimensions and rating
 2. ISO 1496/1: Specification and Testing
 3. ISO TR 15070: Rationale for structural test criteria
 - ISO TC 104/SC 1/WG 2 -- Handling and securing
 - This working group is also in charge of three standards:
 1. ISO 1161 Corner fittings- Specification
 2. ISO 3874 Handling and Securing
 3. ISO TR 15069 Rationale for ISO 3874
- ISO TC 104/SC 2- Specific cargo containers (pending TC 104 approval)- *Standardization of freight containers for specific cargo types or internal configurations to facilitate the primary handling, packing or transport requirements of a specific type of cargo or internal equipment.*
 - ISO TC 104/SC 2/ WG 1-- Thermal containers
 - ISO TC 104/SC 2/WG 4 -- Tank Containers
 - ISO TC 104/SC 2/WG 7 Dry Bulk Cargo Containers
- ISO TC 104/SC 4- Identification and communication- *Standards related to the identification, coding, and marking of freight containers as well as communication of information (including tracking and monitoring information, solutions to support automated equipment interchange, and the coding of messages related to maintenance and repair) about freight containers. Excluded is the temporary marking of containers related to Dangerous Goods.*
 - ISO TC 104/SC 4/WG 1 – Coding, identification and marking- This working group handles ISO standard 6346, which describes how freight containers are coded, identified and marked. The standard helps ensure that each container in operation is uniquely marked through use of a registered owner code. It also includes a check-digit calculation which helps to catch data errors. It also includes the size and type coding necessary to communicate precise details on the dimensions and type of each container in operation, and details how to physically mark containers to ensure safe and efficient operations.
 - ISO TC 104/SC 4/WG 2 – Automated Equipment Identification- This working group is responsible for standards related to automated identification of containers, electronic seals and Container Tracking and Monitoring Systems (CTMS) requirements. Its most



recent output (in 2023) was ISO/TS7352 which provides guidance for the requirements for NFC and/or QR code seals. Also expected to complete in 2023 is ISO/TS7344 which provides guidance for requirements for Short-range Wireless Sensor to Device Communication. Previously, (in 2017) was ISO/TS18625, which provides guidance for the requirements (operational and otherwise) for a system, and its enabling devices, used to track, monitor and/or report the status of the container. This working group is responsible for standards related to automated identification of containers, electronic seals and Container Tracking and Monitoring Systems (CTMS) requirements. Its most recent output (in 2017) was ISO/TS 18625, which provides guidance for the requirements (operational and otherwise) for a system, and its enabling devices, used to track, monitor and/or report the status of the container.

- ISO TC 104/SC 4/WG 3 – Communication and Terminology- This working group is responsible for the ISO 9897 series of standards. ISO 9897, often referred to as the Cedex standard, provides the component, damage, repair and location code lists which allow parties to communicate container status and Maintenance and Repair estimates and instructions. Each day, tens of thousands of messages are sent around the world utilizing ISO 9897-coded messages.

Reference Information

[Glossary of terms and abbreviations used in ISO/TC Business Plans](#)

[General information on the principles of ISO's technical work](#)