

ISO/IEC JTC 1 "Information technology"

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SC 31 Business Plan 2025

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Description

This document is circulated for review and consideration at the November 2025 JTC 1 Plenary.

BUSINESS Plan for ISO/IEC JTC 1/SC 31

Automatic Identification and Data Capture Techniques

PERIOD COVERED: October 2024 to September 2025

1 Executive summary

JTC 1/SC 31 focuses on the standardization of data structures and technologies for Automatic Identification and Data Capture (AIDC). The AIDC technologies addressed by SC 31 include Optical Character Recognition (OCR), Barcodes, Radio Frequency Identification (RFID), and Real-Time Location Systems (RTLS). SC 31 standards are used in every sector of the global economy.

In 2024, around 10 billion barcodes are scanned daily, primarily in retail, logistics, health care, and supply chain sectors. Nearly 53 billion UHF RFID tags, compliant with ISO/IEC 18000-63, were shipped worldwide in 2024. These technologies enhance efficiency across various applications: Barcodes streamline retail checkouts and warehouse logistics, QR codes increase consumer engagement, RFID tags manage retail inventory.

Automatic identification and data capture is often the first critical step before passing the data for processing and communications between computer applications. Stable, efficient, open and interoperable AIDC standards are foundational to enable digitalisation.

SC 31 is dedicated to maintain the foundational AIDC standards, to upgrade them as required following technology evolution and to address new standard requirements arising from the industry.

2 Environment

The global Automatic Identification and Data Capture (AIDC) market is expected to grow at a compound annual growth rate (CAGR) of around 10-15% from 2025 to 2030.

Several factors contribute to this robust growth:

- **Increasing adoption of automation:** Businesses across industries are automating operations to enhance efficiency and reduce costs.
- **Increasing regulations.** Governmental organisations around the world issue increasing number of regulations including compulsory AIDC solutions.
- **Advancements in technology:** Innovations in RFID, barcode scanners, and biometric systems are expanding the capabilities of AIDC solutions.
- **Growing e-commerce and supply chain complexity:** The need for real-time visibility and tracking is driving AIDC adoption.
- **Rising focus on data analytics:** AIDC-generated data is increasingly used for valuable insights and decision-making.

SC 31 remains committed to develop, maintain, and promote AIDC standards essential for businesses, industry sectors, and governmental agencies worldwide.

3 Achievements and benefits

SC 31 is responsible for 136 published standards. In addition, 25 standards are under development. During the period September 2024 to August 2025, SC 31 has published the following documents:

- ISO/IEC 8506:2024 Information technology — Automatic identification and data capture technology — AIDC application in industrial construction
 - This new standard is a framework for using AIDC in industrial construction. It represents opportunities for AIDC applications in a huge sector.

- ISO/IEC 20248:2022/Amd 1:2024 Information technology — Automatic identification and data capture techniques — Digital signature data structure schema — Amendment 1: Domain authority identifier (DAID) specification for the GS1 legal entity identifier and encoding clarifications
- ISO/IEC 18975:2024 Information technology — Automatic identification and data capture techniques — Encoding and resolving identifiers over HTTP
 - This standard published in November 2024 specifies the link between an object identifier encoded in an AIDC data carrier and information about the object. This standard is critical for the implementation of Digital Product Passports (DPP) that are subject to an increasing number of laws and regulations.
- ISO/IEC 15415:2024 Automatic identification and data capture techniques — Bar code symbol print quality test specification — Two-dimensional symbols
 - The new version of this standard includes continuous grading and other grading consistency improvements that enable better quality control and thus better overall quality of bar codes.
- ISO/IEC 15416:2025 Automatic identification and data capture techniques — Bar code print quality test specification — Linear symbols
 - The new version of this standard includes continuous grading and other grading consistency improvements that enable better quality control and thus better overall quality of bar codes.
- ISO/IEC 15434:2025 Information technology — Automatic identification and data capture techniques — Syntax for high-capacity ADC media
 - The new version of this standard include the JSON syntax that can be used with high capacity AIDC media, such as 2D bar codes.
- ISO/IEC 18046-5:2025 Information technology — Radio frequency identification device performance test methods — Part 5: Test methods for the environmental characteristics of RFID tags used in sporting goods
- ISO/IEC 15424:2025 Information technology — Automatic identification and data capture techniques — Data carrier identifiers (including symbology identifiers)
- ISO/IEC 29158:2025 Automatic identification and data capture techniques — Bar code symbol quality test specification — Direct part mark (DPM)
- ISO/IEC 19762:2025 Information technology — Automatic identification and data capture (AIDC) techniques — Vocabulary
 - A comprehensive AIDC vocabulary is the reference used for all the projects developed and maintained by SC 31.

SC 31 contributes to the following Sustainable Development Goals (SDG) of the United Nations:

- SDG 3 Good health and well-being;
- SDG 8 Decent work and economic growth;
- SDG 9 Industry, innovation, and infrastructure;
- SDG 10 Reduced inequalities;
- SDG 11 Sustainable cities and communities;
- SDG 12 Responsible consumption and production;
- SDG 13 Climate action

4 Participation and cooperation/collaboration

SC 31 has 25 Participating members and 26 Observing members. 15 members participated in at least the last 2 plenary meetings.

SC 31 is privileged to have top world experts participating actively in the working groups and taking the initiative to propose new work items. It will continue paying attention to the inclusion of additional participants to make sure that the expertise is maintained and enhanced.

SC 31 enjoys liaisons with 14 ISO and JTC 1 technical bodies. The following table lists these liaisons and includes some comments:

Committee	Name	Comments
IEC TC 65	Industrial-process measurement, control and automation	The liaison should facilitate the resolution of a potential overlap between IEC 6140-1, 2 and ISO/IEC 18975
ISO/IEC JTC 1/SC 6	Telecommunications and information exchange between systems	This new liaison should facilitate the cooperation on high-frequency radio standards
ISO/IEC JTC 1/SC 17	Cards and security devices for personal identification	Collaboration on OCR quality standards and RFID
ISO/IEC JTC 1/SC 27	Information security, cybersecurity and privacy protection	
ISO/IEC JTC 1/SC 41	Internet of things and digital twin	
ISO/IEC JTC 1/SC 42	Artificial intelligence	
ISO/TC 23/SC 19	Agricultural electronics	
ISO/TC 31	Tyres, rims and valves	SC 31 RFID standards adopted by ISO TC 31 for tyres
ISO/TC 59	Buildings and civil engineering works	This new liaison should facilitate the coordination of the development of AIDC in industrial construction application standards
ISO/TC 104	Freight containers	
ISO/TC 104/SC 4	Identification and communication	
ISO/TC 122	Packaging	Some ISO TC 122 application standards are based on SC 31 standards. A close cooperation with ISO/TC 122/WG 12 is ongoing
ISO/TC 154	Processes, data elements and documents in commerce, industry and administration	Potential collaboration on project dealing with bar coded documents
ISO/TC 292	Security and resilience	
ISO/TC 321	Transaction assurance in E-commerce	
ISO/TC 323	Circular economy	
ISO/TC 347	Data-driven agrifood systems	

SC 31 has liaisons with two committees through the Vienna agreement:

Committee	Name	Comments
CEN TC 225	AIDC technologies	CEN TC 225 was established before SC 31. Several SC 31 standards have been transposed into EN's.

CEN/CLC/JTC 24	Digital Product Passport - Framework and System	DPP will mandate the use of AIDC and information lookup for different categories of products sold in Europe and have thus a global impact.
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SC 31 also enjoys liaisons with several external organisations. The following table lists these liaisons and includes some comments:

Organisation	Name	Comments
AIM Global	Association for Automatic Identification and Mobility	AIM acts as Registration Authority for 4 standards managed by SC 31
Ecma International	Ecma International	
ETSI	European Telecommunications Standards Institute	Standards for radio regulations maintained by ETSI are critical for RFID deployment
GS1	GS1	Several GS1 standards have been transposed into ISO/IEC standards by SC 31
IATA	International Air Transport Association	
IEEE	Institute of Electrical and Electronics Engineers, Inc	
RAIN Alliance	RAIN Alliance	The RAIN Alliance is very active in promoting the adoption of SC 31 RFID UHF standards
UPU	Universal Postal Union	
NATO	North Atlantic Treaty Organisation (AC/35)	

5 Objectives and strategies to achieve them

5.1 Standards Maintenance

SC 31 manages a large portfolio of standards. The systematic review process enables to ensure that the standards are kept up-to-date or withdrawn if needed. SC 31 has put in place a process requesting the relevant working groups to issue advice to national bodies on how to proceed with standards reaching the systematic review stage. This process helps ensuring that the standards portfolio remains relevant.

5.2 Education

The large number of standards and options makes it complex for Users to choose the right solutions to address the problems that they wish to resolve. In response to specific demands from its members, SC 31 developed a guidance document giving an overview of SC 31 standards related to bar codes and encoded data. This document is freely available. A similar document on RFID is under development.

5.3 New projects

Several new project proposals were submitted in 2025 and will be addressed. The systematic review of foundational standards for identification will likely lead to major revisions to meet the evolution of technology and new demands.

6 Factors affecting completion and adoption of the work program

Communication. There is a risk of a proliferation of application standards from various ISO and IEC committees, making use of AIDC technologies without a sufficient understanding of the core AIDC standards. This may result

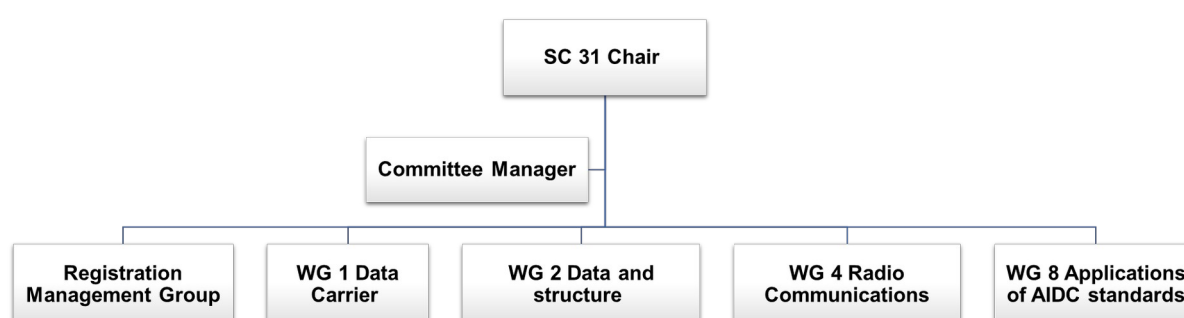
in poor quality and implementations that are not interoperable. This issue is addressed by encouraging effective liaison relationships with the relevant committees. SC 31 also aims to communicate about existing standards and is willing to share its expertise with committees intending to use AIDC in their application standards. This factor does not directly impact the completion of the SC 31 work program. However, standards makes sense only when they are adopted and correctly implemented. This is why SC 31 is keen to improve the communications and is ready to assist where needed.

Participation. SC 31 lost a number of key experts over the last few years, due to retirement or change of functions. This situation is not specific to SC 31 and several SC's have likely experienced the same. This factor has not impacted the completion and adoption of the work program. It is a point of attention and SC 31 tries to ensure that its working groups and plenaries are populated with the adequate level of expertise.

7 Structure, current projects, and publications

SC 31 is responsible for [136 published standards](#). In addition, [25 standards](#) are under development.

The figure below shows the SC 31 organisational structure:



7.1 Registration Management Group

AIM serves as the Registration Authority (RA) for four standards managed by SC 31. The SC 31 Registration Management Group is available to the RA to answer questions about the RA Standards. It is also available to the RA to provide advice and support if needed. This group was created in 2024. The SC 31 Registration Management Group is an advisory body, not a standard development group

7.2 WG 1 - Data Carrier

SC 31/WG1 manages Optical Character Recognition, linear and 2D bar code symbologies and symbol quality standards.

In the last couple of years WG1 worked on updating symbol quality measurements. In particular, by introducing decimal values to quality measurements, instead of a few integer, or letter, grades, we allow the results of these measurements to degrade gracefully, rather than falling off cliffs. This resulted in updated publications of ISO/IEC 15415 (2D barcode quality), 15416 (Linear barcode quality), 16022 (DataMatrix), 18004 (QR Code), 21471 (DMRE), and 29158 (DPM quality). In addition, ISO/IEC 15424 (Data carrier identifiers) was also updated, and revised ISO/IEC 15420 is in the last stages of being published.

In the coming year, WG1 will work on ISO/IEC 25449 (Ultracode), ISO/IEC TR 24720 (Guidelines for DPM), preliminary work on 15426-3 (DPM verifier conformance), and on Decoder Interface.

7.3 WG 2 - Data and structure

WG 2 focuses on the structure of the data to be encoded in Automatic Identification and Data Capture (AIDC) devices. This includes rules for constructing unique identifiers.

Last year was mainly dedicated to maintenance with a revision of ISO/IEC 15434 and small corrections of ISO/IEC 20248. A possible conflict between ISO/IEC 15459 and ISO 22376 applying this 15459 standard incorrectly was resolved in a joint ad hoc group between ISO/IEC JTC 1/SC 31/WG 2 and ISO/TC 292/WG 4 in constructive cooperation.

The data structures in identification currently see several partly contradicting technological trends. Increasingly tiny products require very short codes. On the contrary in many applications the longer URL-syntax supplants more compact “pre-internet” syntaxes.

For simple codes the overhead and complexity of ISO/IEC 15434 is not suited. This challenge gets addressed with the new project for a “Keyboard and web compatible encoding of data elements in machine readable symbols using Data Identifiers”.

Many of the experts in SC 31/WG 2 are also involved in the project of CENCLC/JTC 24 for EN 18219 Unique Identifiers.

7.4 WG 4 - Radio communications

WG 4 deals with all aspects of Radio-Frequency Identification (RFID) and Real Time Locating Systems (RTLS) including air interfaces, security, conformance, and performance.

In the last year the focus was on revision and updates of existing standards. In order to follow the innovation in RFID both the air interface ISO/IEC 18000-63 and the conformance standard ISO/IEC 18047-63 are under revision. Furthermore, the crypto suites of the ISO/IEC 29167 series and the respective conformance standards of the ISO/IEC 19823 series have been revised and are expected for publication in late 2025 or early 2026.

The new work on streaming sensors is completed and the publication of ISO/IEC 18000-65 is expected in late 2025.

ISO/IEC 18305 on Test and evaluation of localization and tracking systems is under revision and expected for publication in later 2026.

There is currently no new work expected for 2026, however substantive work will happen on standards that are currently open for revision and more revisions are expected to be started in the next months.

7.5 WG 8 - Applications of AIDC

The purpose of WG 8 is to develop AIDC applications standards and to be the external focal point for SC 31 and its working groups.

Looking forward, WG 8 will prioritize new work items on circular economy and traceability applications, aligning with global policy trends and sustainability goals. The group is also monitoring market-driven needs for supply chain transparency, food safety, and healthcare applications, where AIDC standards underpin compliance and consumer trust.

WG 8 expects new work item in the area of industrial construction. ISO/IEC 17360 might be revised to clearly differentiate between technical rules for encoding RFID tags and application rules. AIDC application standards managed by ISO/TC 122/WG 12 might be transferred to SC 31/WG 8.

WG 8's role as the primary interface between SC 31 and external stakeholders remains critical to ensuring that application standards are relevant, globally interoperable, and responsive to regulatory and market pressures.