



BSI Standards Publication

Information technology — Business operational view

Part 10: IT-enabled coded domains as semantic components in business transactions

National foreword

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**Information technology — Business
operational view —**

**Part 10:
IT-enabled coded domains as semantic
components in business transactions**

Technologies de l'information — Vue opérationnelle d'affaires —

*Partie 10: Domaines codés activés comme composantes sémantiques
dans les transactions d'affaires*



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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives or www.iec.ch/members_experts/refdocs).

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 32, *Data management and interchange*.

This second edition cancels and replaced the first edition (ISO/IEC 15944-10:2013), of which it constitutes a minor revision.

The changes are as follows:

- [Clause 1](#) (Scope) has been amended to move the detailed description of "Exclusions" and "Aspects not currently addressed" to a separate informative annex;
- entries in [Clause 2](#) and [Clause 3](#) have been removed to be more conformant to ISO Directives;
- definitions in [Clause 3](#) have been updated to be aligned with other referenced source definitions;
- clauses and annexes have been aligned to changes in ISO/IEC Directives, Part 2;
- minor edits of a temporal nature with respect to dated references, changes in URLs referenced, minor edits, change of font to Cambria, as well as application of the new "ISO House Style", etc.

A list of all parts in the ISO/IEC 15944 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

Introduction

0.1 Overview of purpose and nature of coded domains

Coded domains already exist in ISO/IEC 15944 series eBusiness standards, especially ISO/IEC 15944-1, ISO/IEC 15944-2, ISO/IEC 15944-5 and ISO/IEC 15944-8. There are also widely used standards, specifications, authority files, etc., of a “codes representing X” nature used in business transactions involving the making of (legally-binding) commitments, based on common business practices, and doing so in an IT-enabled manner. The primary purpose of this document is to provide an integrated approach, methodology and tool in a single consolidated document the key concepts and their definitions as well as rules pertaining to coded domains.

This document supports all three strategic directions for standards development of ISO/IEC JTC1: namely “portability”, “interoperability”, and “cultural adaptability”.

Within an Open-edi context (based on the ISO/IEC 14662 “Open-edi reference model”¹⁾), business transactions are viewed from both a Business Operational View (BOV) and the Functional Services View (FSV). ISO/IEC 15944 focuses on the many requirements of the business operational view aspects of Open-edi in support of electronic business transactions. The primary aspect which distinguishes and differentiates “Open-edi” (and ISO/IEC 14662 Open-edi Reference Model compliant standards) is that they are developed to be able to support the making of commitments among autonomous parties. This requires that the set(s) of recorded (SRIs) information interchanged in the form of Information Bundles (IBs) as well as Semantic Components (SCs), which form part of an IB, are not only IT-enabled and IT-platform neutral. It is especially important that, where these semantics are captured, recorded, referenced and used via a specified coded domain, these are communicated in a very precise and in an “unambiguous” manner, i.e. at the “level of certainty and explicitness required” to support the goal of the commitment exchange forming the goal of the business transaction.

In addition, the following Open-edi requirements need to be supported:

- a) need for unambiguity in commitment exchange applies especially to semantics of the data interchanged among the parties concerned;
- b) ensure as high a degree of data integrity of the semantics of the data interchanged;
- c) maximize an IT-enabled approach;
- d) maximize granularity and flexibility.

Given the fact that in Open-edi there are many differing internal and external constraints as well as the wide variety of applications and sectors, it is important that the recorded information interchanged among the parties concerned be as “granular” and precise as possible. Here “coded domains” serve as flexible “lego blocks” from which data values can be retrieved and used as unambiguous semantic components.

The concept of “coded domain” is unique in the context of an Open-edi approach and has been defined in an ISO/IEC 15944 context. This concept and its definition represent an approach, methodology and tool which is needed to support appropriate level of unambiguity of (electronic) data interchange needed to support. The concept of “coded domain” covers several perspectives. For the definition, see entry “D033” in ISO/IEC 15944-7:2009 and ISO/IEC 15944-7:2009, 5.3.2.

- 1) Business and information (modelling) perspective, i.e., those of users and the BOVs;

1) ISO/IEC 14662(E/F) is an English/French, side-by-side, International Standard. Its 2010 3rd edition has become a stabilized standard and is now also an ISO/IEC declared “horizontal” standard, i.e., one serving as a base standard for those developing standards in the various fields of EDI, including eBusiness. The stabilized status of ISO/IEC 14662 was re-affirmed for another 10 years by ISO/IEC JTC1 in 2021. ISO/IEC 14662 has since its 1997 1st edition been an ISO/ISO freely available standard. [See further <https://standards.iso.org/ittf/PubliclyAvailableStandards/index.html>]

- 2) IT modelling perspectives such as:
 - a) Entity-relationship modelling where a coded domain is viewed as an entity type functioning as a “domain”; and,
 - b) Object-oriented modelling where a coded domain is viewed as an “object class”.
- 3) An information science (information management, library, records management, etc.) perspective where coded domains are viewed as “schedules”, “authority files”, “tables” (which one at times “attaches” to a concept/term thesauri (or indexing/classification schemes of “instance relationships”;
- 4) An electronic data interchange perspective where coded domains are known as “code sets” i.e., a set of codes representing “xyz”. (pop-ups choices in a data entry module); and,
- 5) Application and implementation perspective (and physical data model) where coded domains are commonly known as (edi) tables (or reference tables).

The term “coded domain” is introduced to differentiate Open-edi, BOV and e-Business requirements from various other concepts and associated terms such as generic (encodable) value domains, “enumerated domains”, code sets, which appear to be similar in nature similar in nature in ISO standards. (See [Annex C](#) for more detailed information).

In addition, a key purpose of this document is to ensure that at the granular level as much information is made available about a semantic component, at whatever level of granularity as is required to ensure unambiguity in a commitment exchange.

Another key purpose of this document is to maximize the level of “intelligence” at the highest most precise level, i.e., that of the actual data values being interchanged. Here, use of coded domains presents a simple and pragmatic approach. No “expert system”, intelligent interface, use of heuristics, etc., can metamorphose “dumb” fuzzy data into unambiguous data values which are precise enough to be able to serve as EDI IBs or SCs in support of the making of commitments as actualized in a instantiated business transaction. On the other hand, “smart data” within an intelligent structure, i.e., as part of a coded domain, can not only stand on its own but also be much simpler, precise, easier to reference and use.

This approach at the data element level focuses on the development of intelligently coded data elements as part of coded domains. This involves rule-based, structured and pre-defined values whose purpose and use has been stated clearly and unambiguously (hereby facilitating an IT-enabled approach).

0.2 Benefits of the use of coded domains

The benefits of using the construct, methodology and implementation of “coded domains”, in compliance with this document, presented below include (in no order of importance):

- 1) maximizing if not ensuring unambiguity in semantics among parties to a commitment exchange instantiated as a business transaction;
- 2) ensuring ability to support Human Interface Equivalencies (HIEs) in support of multilingualism and individual accessibility requirements;
- 3) maximize a total quality management (TQM) approach for data integrity control and trustworthiness and quality assurance;
- 4) maximize exchange ability of data among Persons and their applications through computer-to-computer electronic data interchange (EDI) among the IT-systems of the parties involved;
- 5) serve as a methodology and tool which its IT-neutral, i.e., ISO/IEC 15944-10 conformant “coded domains” are completely independent of application software and IT-platforms used;
- 6) minimization of data entry costs and simplification data entry processes;

- 7) enables more efficient and effective search, retrieval and use of recorded information (in multiple languages);
- 8) significant minimization in costs and duplication of effort due to the inherent shareable nature of coded domains;
- 9) increased efficiencies and cost reductions in both the internal operations of organizations and public administrations as well as among them via EDI;
- 10) promotes modularity, re-usability of shared solutions supporting both paperless environments;
- 11) increased productivity, through reduction of common (non-competitive) costs at organizations and public administrations as well as at the jurisdictional domain level; and,
- 12) serve as a methodology in support of the development of consensus building with respect to the development of permitted values of a data element in support of the use of a semantic component in (electronic) data interchange (based on the Pareto principle²⁾).

0.3 Identification, mapping and IT-enablement of existing standards for widely-used code sets

A coded domain consists of entries of “entities” which the responsible Source Authority (SA) has decided to include into its “Set of codes representing X” for the specified and particular purpose for which this SA has decided to establish and maintain the resulting “set of codes representing X” to be used by its members. However, it is recognized that many “Persons” of different nature, i.e., either as an “organization” and/or “public administration”, and at times, “individuals” as well use a “Set of codes representing X” for a purpose and in a context which is quite different from that of the purpose and use of the Source Authority which created and maintains that “Set of Codes representing X”.

Two primary examples here are ISO 3166-1 and ISO 3166-2 and ISO 4217 which from an “object class” methodology perspective contain several distinct object classes (see the ISO/IEC definition for “object class” from ISO/IEC 11179-1:2023, 3.31 (as referenced as entry “D147” in ISO/IEC 15944-7 and so used in all parts of the ISO/IEC 15944 series where applicable including in this document as found in [3.94](#)). [Annex H](#) provides further information on these two examples via the use of a “semantic qualifier”.

In this document, there is frequent use of the phrase “set of codes representing X”. This is because there are many existing and widely used sets of codes which need to be converted into “coded domains” from an Open-edi, eBusiness, commitment exchange, etc., user perspective.

In an Open-edi and/or eBusiness context of the use of an actual values of SRIs, i.e. as instantiations, that are intended to be used as “coded domains”, are already widely used in existing ISO, IEC, and ITU standards in the form of a “codes representing X” nature, as well as those found in specifications of differing industry sectors. These standards are managed and maintained by recognized authorities and implemented in business practices. From an Open-edi and generic commitment exchange perspective in general as well as that of eBusiness requirements in particular, Open-edi standards support their use and implementation in an IT-enabled form.

As illustrated in [Figure 1](#), the standard for the IT-enablement of the widely used “codes representing X” standards is needed to provide guidance for the transformation and achieve consistency among applications of different standards. Requirements need to be specified for the coded domain, including identification, mapping to existing codes, as well as cultural adaptability features. In this document, these specifications are based on explicitly stated rules and scope of coded domains, rules and guidelines for the construct and characteristics of coded domain and its member codes, especially from the semantic perspectives, to support commitment exchanges of Open-edi.

It is a general rule and practice in ISO/IEC 15944 standards series development that one maximizes the use of Formal Description Techniques (FDTs). The rules and guidelines along with associated definitions

2) This document, which focuses on the more primitive aspects of “coded domain”, also applies the “Pareto Principle” Also known as the “80-20 rule”, or the “law of the vital few”, it states that in many cases 80 % of the effects come from 20 % of the causes. In this context, the concepts and definitions as well as the rules and guidelines presented in this document can be viewed to be the 20 % which covers 80 % of the common user requirements.

of concepts is an approach of using a lexical model as the formal approach to specify requirements from a business operational view (BOV) perspective. The FDTs can also be used to produce the formal models or to describe the rule-base for coded domain, which in turn become a integrate part of coded domains.

This document also specifies that Open-edi coded domains need to be registered as such in compliance with ISO/IEC 15944-2:2015 requirement. (See further [Clause 11](#)).

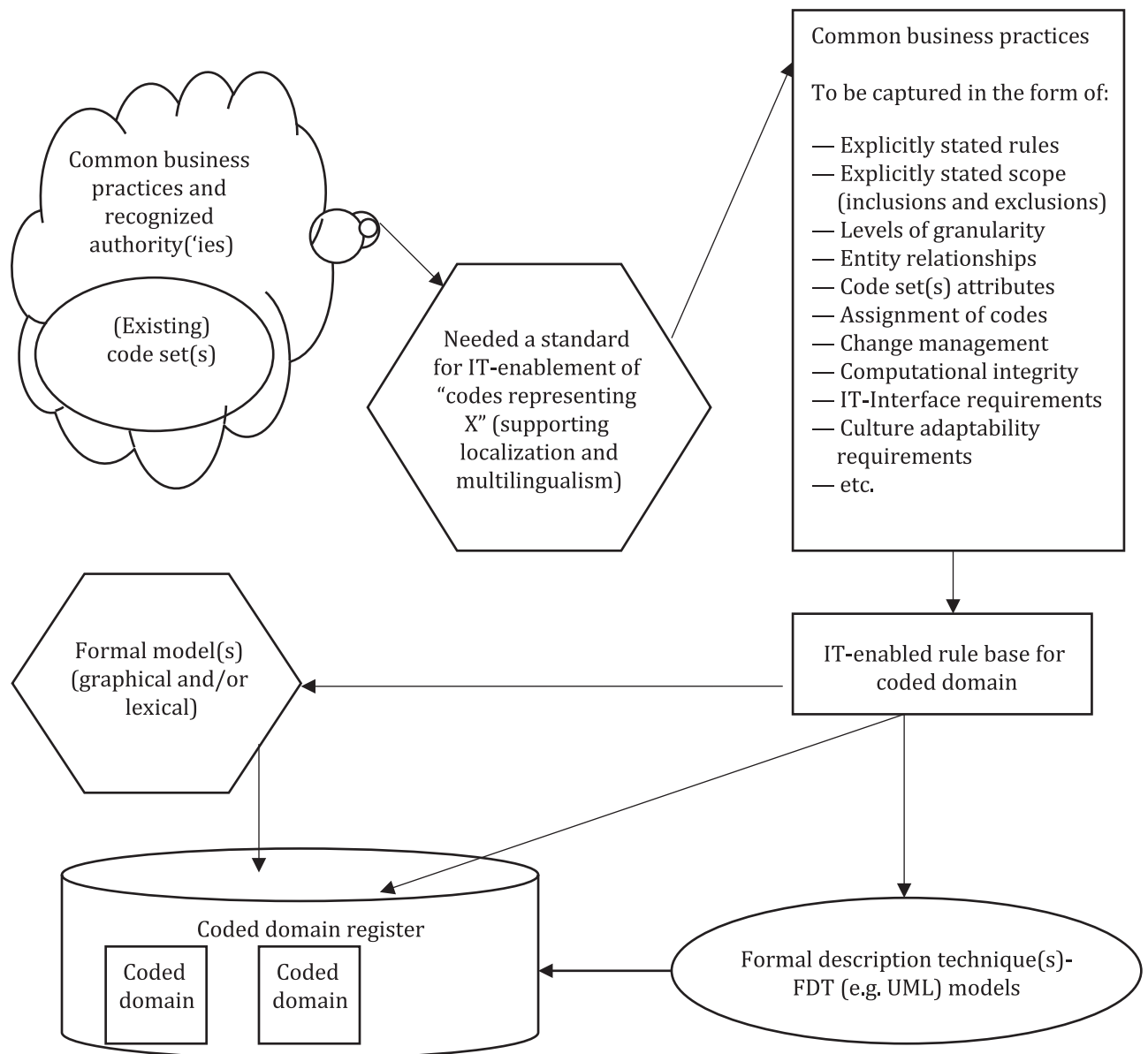


Figure 1 — Need for standard and methodologies for coded domains

Thus, this document facilitates and allows for the:

- development of Referenceable Semantic Components in Open-edi Scenarios (e.g. as “roles” and “information bundles”)
- mapping into existing standards and tools for repositories, interchange, access, encoding, syntax, (e.g. ASN.1, IRDS, SQL, 11179-based registries, HTML, XML, ANSI X.12, UN/CEFACT, ISO 9735 “EDIFACT”, etc.).

0.4 Link to fundamental components in Business Transaction Model (BTM)

As described in ISO/IEC 15944-1:2023, 6.1.5, a business transaction requires three basic components, namely “Person”, “process” and “data”.

These three fundamental elements of the Business Transaction Model (BTM) are represented graphically in [Figure 2](#), which has been adapted from ISO/IEC 15944-1:2023, Figure 7.

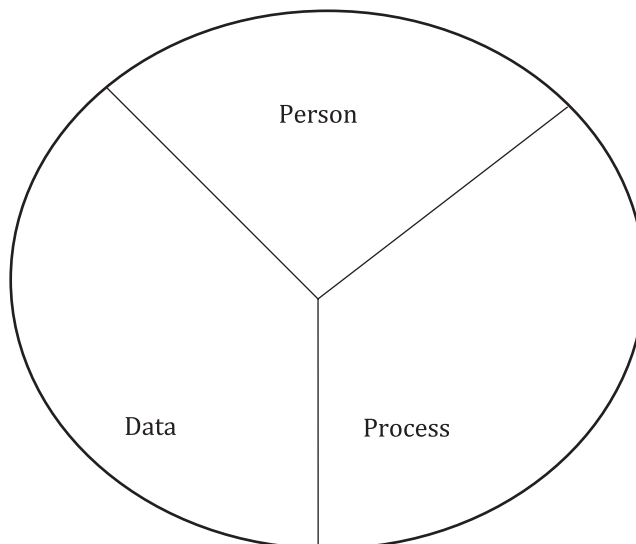


Figure 2 — Business Transaction Model — Fundamental components

The “coded domains” apply to all three of these fundamental components of the BTM. For example, with respect to “data” (and data element), numerous sets of codes representing XYZ” exist which are already or can be transformed into IT-enabled domains. With respect to “Person”, ISO/IEC 15944-1 identified existing “coded domains” for the identification and registration of Persons in the form of ISO standards:

- ISO/IEC 6532 for organizations;
- ISO/IEC 7812 for individuals, organizations and public administrations; and
- ISO/IEC 7501 for individuals (See ISO/IEC 15944-1:2023, Annex D for further information on these identification schemas.)

With respect to the “process” component, ISO/IEC 15944-1 identified a set of five fundamental activities which may take place in any order. The five fundamental activities are: (a) planning; (b) identification; (c) negotiation; (d) actualization; and, (e) post-actualization.

- On the whole, a coded domain consists of predefined and structured data elements. ISO/IEC 15944-1:2023, 6.4.2 described the relations between concepts of “recorded information” and “data”. Data is one type of recorded information that can be processed by computer systems. Data is data-element based or non-data element based, as described by [Figure 3](#) and [Figure 4](#), which are adapted from ISO/IEC 15944-1:2023, 6.4.2.

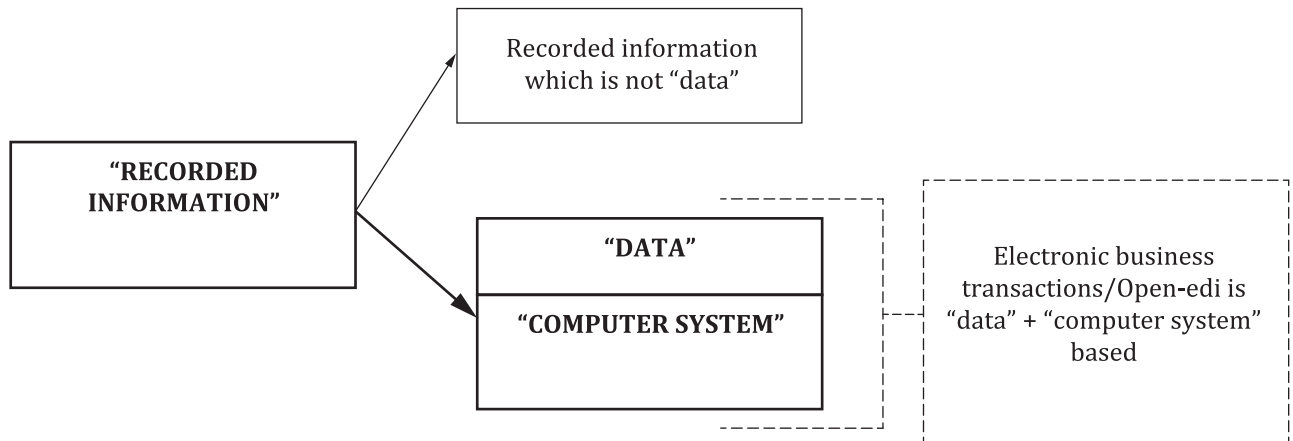


Figure 3 — Relation of “recorded information”, “data” and “computer system” in electronic business transactions/Open-edition

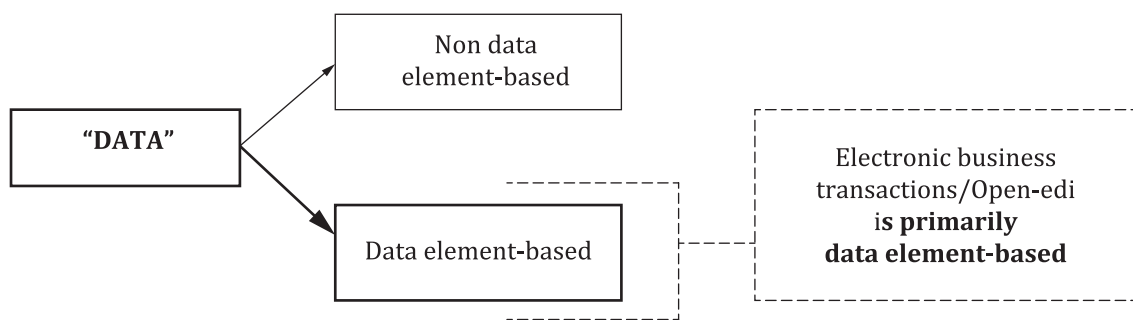


Figure 4 — Relations “data” and “data elements” in electronic business transactions / Open-edition

0.5 IT-enabled and content predefined semantic components

As specified by ISO/IEC 14662, Open-edition scenarios include components of roles, information bundles, and scenario attributes. The coded domain is related to information bundles, which consist of semantic components (SC). A semantic component is a unit of recorded information unambiguously defined in the context of business goal of the business transaction.

Since not specifically required by the ISO/IEC 14662, the semantic components for “Person”, “process” and “data” can be either structured or unstructured, and they can also have predefined contents or undefined contents. It is an ISO/IEC JTC1 requirement that a standard shall support IT-enablement and computational integrity when possible. Therefore, it is the purpose of this document to maximize the IT-enablement, interoperability, computational integrity approach through the use of coded domains whose context provided predefined and structured data values for use as semantic component, as shown in [Figure 5](#).

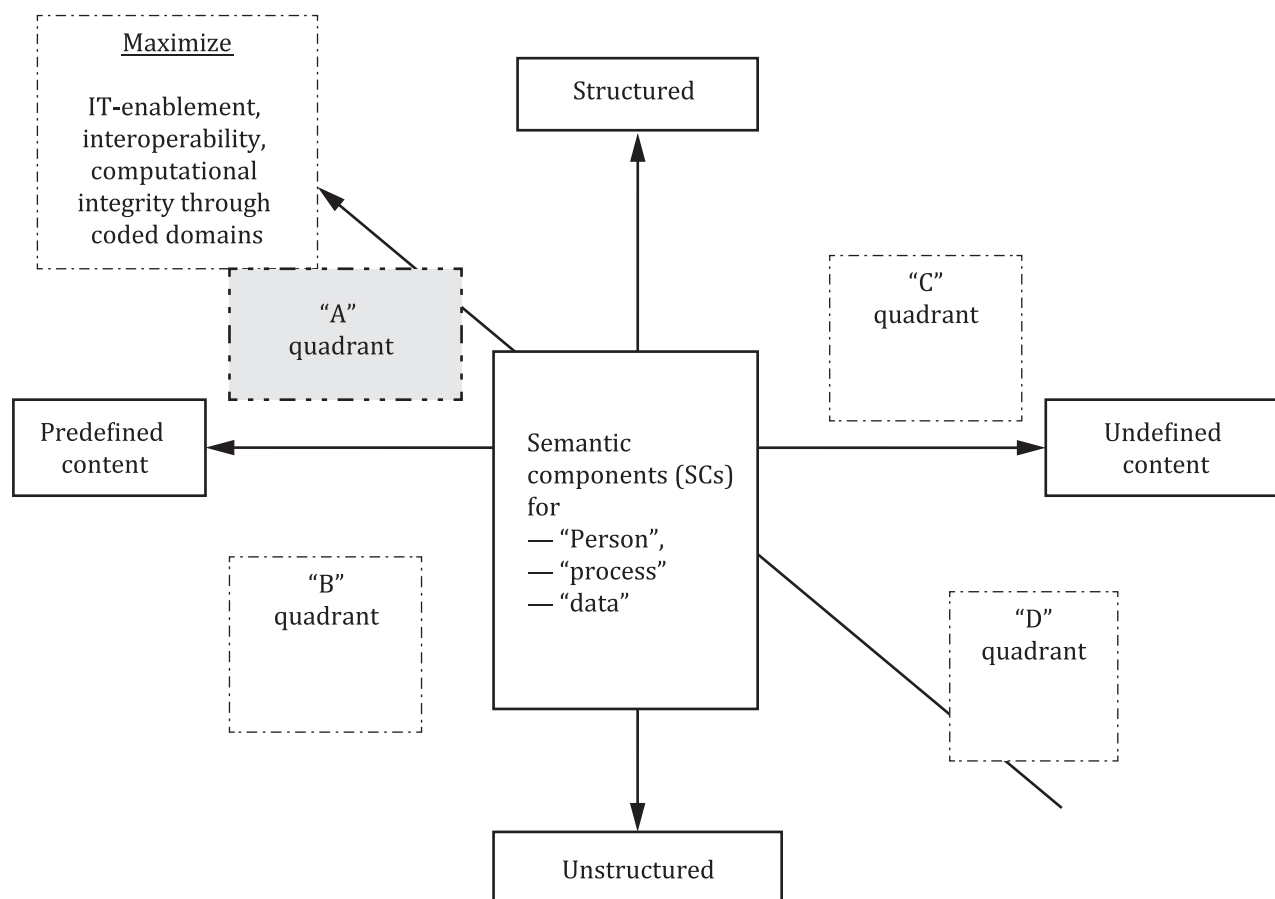


Figure 5 — Purpose of coded domain as IT-enabled and content predefined semantic components

The focus of this document is to support “Quadrant A” requirements in the development and use of “coded domains”. This means that the rules governing the allowable contents, i.e., values, in a set of recorded information which (1) support and enable a structured approach; and (2) all the permitted values for the semantic component are predefined (and if not there is a very systematic and rule-base to deal with “Others” in an IT-enabled manner)."

0.6 Coded domains as reusable business objects

In existing business transactions, whether conducted on a for-profit or not-for-profit basis, business information documents as well as implementable (executable) computer programs consist of reusable components unambiguously understood among participating parties. Coded domains can be used in support of any type of scenario component, i.e., “roles”, “Information Bundles (IBs)”, and “semantic components” (SCs). Coded domains can also be used in support of a scenario attribute registered through procedures specified by ISO/IEC 15944-2.

Registration of coded domains offers several benefits to the e-Business community, including the following:

- supports wider use of registered coded domains both by providing international recognition to the fact that such coded domains conform to an International Standard and by making them publicly available to potential users;
- provides both immediate recognition to extensions of an International Standard and a source for updates to that International Standard during the regular maintenance cycle;
- may provide a single mechanism to access information concerning coded domains that are specified in different standards;

- d) provides a mechanism for managing temporal change. Coded domains specified in a standard or in a register may change over time either due to changes in technology or for other reasons. Published standards do not clearly document what changes may have occurred, and do not include information about earlier versions of specified code sets. Such information can be maintained in a register;
- e) may be used to make sets of standardized tags available for encoding of registered coded domains in data sets;
- f) supports cultural and linguistic adaptability by providing both a means for recording equivalent HIEs of coded domains used in different languages, cultures, application areas, and professions and a means for making those equivalent names publicly available.

0.7 Use of "Person", "organization" and "party" in the context of business transaction and commitment exchange

In electronic business transactions, whether undertaken on a for profit or not-for-profit basis, the key element of any type of business transaction is commitment exchange among Persons made among their Decision Making Applications (DMAs) of the Information Technology Systems (IT Systems) acting on behalf of "Persons". (For the applicable normative elements here, see further ISO/IEC 14662:2010, 5.2.) "Persons" are the only entities able to make commitments (The text in this section is based on existing text in ISO/IEC 15944-1:2023, 0.3 and ISO/IEC 14662:2010). Quoting from ISO/IEC 15944-1:2023, 0.4:

"When the ISO/IEC 14662 Open-edi Reference Model standard was being developed, the "Internet" and "WWW" were an embryonic stage and their impact on private and public sector organizations was not fully understood. The Business Operational View (BOV) was therefore initially defined as:

"a perspective of business transactions limited to those aspects regarding the making of business decisions and commitments among organizations which are needed for the description of a business transaction".

The existing and widely-used ISO/IEC 6523 definition of "organization" was used in the 1st edition of ISO/IEC 14662. The fact that today Open-edi through the Internet and WWW also involves "individuals" has now been taken into account in the current editions of both ISO/IEC 14662 and all parts of ISO/IEC 15944. [The 1st edition of ISO/IEC 14662 (1997) did not define "commitment", nor the discrete properties and behaviours an entity must have to be capable of making a "commitment" as well as bridging legal and IT perspectives in the dematerialized world of the Internet].

During the development of ISO/IEC 15944-1:2023, the term "commitment" was defined. At the same time, it was recognized that in order to be able to make a commitment, the term "Open-edi Party" was not specific enough to satisfy scenario specifications when the legal aspects of commitment were considered. In many instances, commitments were noted as being actually among IT systems acting under the direction of those legally capable of making commitment, rather than the individuals in their own capacities. It was also recognized that in some jurisdictions a commitment can be made by "artificial" persons such as corporate bodies. Finally, it was recognized that there are occasions where agents act, either under the instruction of a principal, or as a result of requirement(s) laid down by a jurisdiction, or where an individual is prevented by a relevant jurisdiction from being able to make a commitment.

To address these extended requirements, the additional concept and term of "Person" was defined. The construct of Person has been defined in such a way that it is capable of having the potential legal and regulatory constraints applied to it".

There are three categories, i.e. sub-types, of Persons as players in Open-edi, namely (1) the Person as "individual", (2) the Person as "organization", and (3) the Person as "public administration". There are also three basic (or primitive) roles of Persons in business transactions, namely "buyer", "seller", and "regulator".

In modelling business transactions, jurisdictional domains prescribe their external constraints in the role of "regulator" and execute them as "public administration". (See ISO/IEC 15944-1:2023, 5.4)

Very often, the requirements of jurisdictional domains are specified through the use of sets of "Codes representing X...". These sets of codes are created and maintained by Source Authorities via a rulebase with a resulting coded domain(s) in the form of a data element(s) whose permitted values represent predefined semantics and in a structured form, i.e. as a type of semantic component. As such, jurisdictional domains serve as Source Authorities for coded domains.

These three sub-types of Persons are also the possible Source Authorities for coded domains. On the whole, Source Authorities for coded domains are either "organizations" or "public administrations".

In this document:

- the use of Person with a capital "P" represents Person as a defined term, i.e. as the entity within an Open-edi Party that carries the legal responsibility for making commitment(s);
- "individual", "organization", and "public administration" are defined terms representing the three common sub-types of "Person"; and,
- the words "person(s)" and/or "party(ies)" are used in their generic contexts independent of roles of "Person" as defined in ISO/IEC 14662 and ISO/IEC 15944-1. A "party" to a business transaction has the properties and behaviours of a "Person".

0.8 Importance and role of terms and definitions

An essential element of any standard is that of having clearly and explicitly stated definitions for the concepts which it uses or introduces. Definitions capture the key concepts of a standard and form the essential foundation for any standard. As such, it is important that definitions be explicit, unambiguous and precise with respect to the semantics conveyed. At times, in order to ensure that the concept being defined is not confused with other related concepts (or words that have common or possible different meanings), International Standards introduce, i.e. "invent", new terms as labels for these concepts. This is also because the use of "synonyms" is not allowed in definitions in International Standards. The same approach has been taken in ISO/IEC 15944. (See further [5.3.2](#), [5.4](#), as well as [Clause 6](#) and [Clause 7](#))

The ISO/IEC Directives, Part 2 provide for "Terms and definitions" as a "Technical normative element", necessary for the understanding of certain terms used in the document. A primary reason for having "Terms and definitions" in a standard is because one cannot assume that there exists a common understanding, worldwide, for a specific concept. And even if one assumes that such an understanding exists, then having such a common definition in [Clause 3](#) serves to formally and explicitly affirm (re-affirm) such a common understanding, i.e. ensure that all parties concerned share this common understanding as stated through the text of the definitions of these concepts in [Clause 3](#).

A primary objective of ISO/IEC 15944 is to ensure that there is a common understanding of the Business Operational View (BOV) from commercial, legal, ITC, public policy and cross-sectoral perspectives. It is therefore very important to ascertain and confirm that which may be considered a "common understanding" in one of these domains is also unambiguously understood and accepted in the others.

One concludes this introductory clause by:

- 1) noting that the "definition" of the concept "definition" is *"representation of a concept by a descriptive statement which serves to differentiate it from related **concepts**"* [ISO 2087-1:2000, 3.3.1]
- 2) noting that an essential characteristic of eBusiness standards is that they involve and support the making of (legally recognized) "commitments" among two or more autonomous Persons. This requires not only a "common understanding" among all the parties involved but also is one which is as unambiguous as possible, especially where such business transactions are executed via Open-edi based IT systems; and
- 3) stating that a very effective and practical approach to supporting the requirements noted in 1) and 2) above, is to develop and provide bilingual/multilingual equivalencies of the definition of a concept (and its associated label or "term") in two or more languages. A primary reason here is that establishing an equivalency of the definition of a concept in another language from the "source language" uncovers "hidden ambiguities" in the source language. Often, it is in the preparation

of an HIE for the definition (and its associated term) that ambiguities, i.e. in the semantics, from one language into one or more other languages are discovered. At times, this results in the need to improve the text of the definition of the concept in the source language. Alternatively, such development of one or more HIEs of the definition of a concept can result in the addition of a clarifying "Note(s)" or "Example(s)" in both the source language and its HIEs. (For the normative elements, see further ISO/IEC 15944-7:2009, 5.3 and in particular, ISO/IEC 15944-7:2009, 5.3.1)

0.9 Use of "identifier" as "identifier (in business transaction)" to prevent ambiguity

ISO/IEC 15944-1:2023, 6.1.4 focuses on the requirement for the unambiguous identification of entities in business transactions. "Unambiguous" is a key issue in business transaction because states of ambiguity and uncertainty are not desired from commercial, legal, consumer and information technology perspectives. Issues of unambiguity apply to all aspects of a business transaction and even more so to those which are EDI-based.

A key objective of ISO/IEC 15944 is to serve as a methodology and tool for the specification and unambiguous identification of Open-edi scenarios, scenario attributes and scenario components as re-useable elements, i.e. as re-useable business objects, in support of common business transactions. These and related objectives of interoperability and re-usability of Open-edi scenarios and scenario components for business transaction require their unambiguous identification.

See 3.1.36 for the definition of unambiguous.

"Identifier (in business transaction)" is defined as: *an **unambiguous**, unique and a linguistically neutral value, resulting from the application of a **rule-based identification process**. **identifiers** must be unique within the identification scheme of the issuing authority.* [ISO/IEC 15944-1:2023, 3.27]

Thus, users of this document should understand that the "identifier" in this document is used as a defined term as "identifier (in a business transaction)".

As specified in [5.5](#) and [Clause 8](#) of this document, each entry within a coded domain contains a identifier and HIE(s), the HIE provides human readable semantics, while the identifier unambiguously identifies the semantics.

0.10 Standard based on rules and guidelines

This document is based on rules and guidelines, which are explained in ISO/IEC 15944-1:2023, 6.1.2. The common rules are sequentially enumerated and presented in bold font. Where guidelines are provided for a rule they are numbered sequentially after that rule and are shown in an italic font. Choice of words in the rules, the guidelines and the terms and definitions are governed by maximizing the ability to map, on the one hand, to commercial and legal frameworks of the day-to-day world of business, and on the other, to information and technology frameworks, service providers, and standardizers, etc.

0.11 Organization and description of document

This document identifies requirements for the IT-enablement, semantics unambiguity, as well as other requirements of coded domains, which originates from the existing standards about codes representing X nature, through the specification of their principle, identification and description, composition, management and registration, and templates as a tool for implementation.

The Introduction (Clause 0) provides the detailed description of the need for a standard about coded domains, from various view points, i.e. the need for coded domain on general perspectives and its relationship with reusability, unique identification, and other important aspects of Open-edi.

[Clause 1](#) provides the scope of the current version of this document. Some of the aspects that are not currently addressed may be specified in future versions.

Following [Clause 2](#), [3](#) and [4](#), [Clause 5](#) describes the overall principles of coded domains that govern all other clauses of this document.

[Clause 6](#) specifies the identification and business operational description of coded domains. By the specification of the construct of coded domain, a number of components of coded domains are specified and will be specified in detail in [Clauses 7, 8 and 9](#).

[Clause 10](#), [Clause 11](#) and [Clause 12](#) specify more formal presentations of coded domains. [Clause 10](#) specifies rules for the registration of coded domains, [Clause 11](#) describes the description of coded domains using OeDT, and [Clause 12](#) provides templates for IT-enabled coded domains.

This document contains several annexes with [Annexes A](#) and [B](#) being normative and the following [Annexes C, D, E, F, G, H and I](#) presented for information purposes.

Information technology — Business operational view —

Part 10:

IT-enabled coded domains as semantic components in business transactions

1 Scope

This document specifies the fundamental principles governing coded domains, identification and description of the coded domains from the BOV view, the rules governing the rule-base of coded domains, the rules for management of ID codes, rules for specifying Human Interface Equivalents (HIEs) to an ID Code, the relations between the coded domain and controlled vocabularies, the rules governing the registration of coded domains as re-usable business objects, and the IT-enablement of coded domains.

The document is applicable to the use of standards, specifications, authority files, etc., of a “codes representing X” nature being used in electronic business transactions among parties engaged in Open-edi, which pertains to flows of information using information bundles which cause pre-defined (or pre-definable) changes in the states of the IT systems of the parties to such electronic data interchanges.

Detailed exclusions to the scope of this document are provided in [Annex I](#).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 639-2:1998, *Codes for the representation of names of languages — Part 2: Alpha-3 code*

ISO/IEC 14662:2010, *Information technology — Open-edi reference model*

ISO/IEC 15944-1:2023, *Information technology — Business operational view — Part 1: Operational aspects of Open-edi for implementation*

ISO/IEC 15944-2:2015, *Information technology — Business operational view — Part 2: Registration of scenarios and their components as business objects*

ISO/IEC 15944-5:2008, *Information technology — Business operational view — Part 5: Identification and referencing of requirements of jurisdictional domains as sources of external constraints*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

abbreviation

designation (3.39) that is formed by omitting words or letters from a longer form and designating the same *concept* (3.24)

Note 1 to entry: Abbreviations can be created by removing individual words, or can be acronyms, initialisms, or clipped terms.

[SOURCE: ISO 1987:2019, 3.4.14]

3.2

acronym

abbreviation (3.1) that is made up of the initial letters of the components of the full form of a *term* (3.129) or proper name or from syllables of the full form and that is pronounced syllabically

EXAMPLE "laser", "ISO", "GATT", "UNESCO", "UNICEF".

[SOURCE: ISO 1087:2019, 3.4.15]

3.3

address

set (3.123) of *data elements* (3.31) that specifies a *location* (3.67) to which a *recorded information* (3.105) item(s), a *business object(s)* (3.6), a *material object(s)* (3.73) and/or a person(s) can be sent or from which it can be received

Note 1 to entry: An address can be specified as either a physical address and/or electronic address.

Note 2 to entry: In the identification, referencing and retrieving of registered business objects, it is necessary to state whether the pertinent recorded information is available in both physical and virtual forms.

Note 3 to entry: In the context of Open-edī, a "recorded information item" is modelled and registered as an Open-edī scenario (OeS), Information Bundle (IB) or Semantic Component (SC).

[SOURCE: ISO/IEC 15944-2:2015, 3.1]

3.4

attribute

characteristic (3.12) of an *object* (3.73) or *entity* (3.43)

[SOURCE: ISO/IEC 11179-3:2013, 3.1.4, modified — "set of object" has been replaced by "entity"]

3.5

business

series of *processes* (3.101), each having a clearly understood purpose, involving more than one *Person* (3.93), realized through the exchange of *recorded information* (3.105) and directed towards some mutually agreed upon goal, extending over a period of time

[SOURCE: ISO/IEC 14662:2010, 3.2]

3.6

business object

unambiguously identified, specified, referenceable, registered and re-useable *Open-edī scenario* (3.86) or *scenario component* (3.118) of a *business transaction* (3.8)

Note 1 to entry: As an "object", a "business object" exists only in the context of a business transaction.

[SOURCE: ISO/IEC 15944-2:2015, 3.6]

3.7

Business Operational View BOV

perspective of *business transactions* (3.8) limited to those aspects regarding the making of *business* (3.5) decisions and *commitments* (3.21) among *Persons* (3.93), which are needed for the description of a *business transaction*

[SOURCE: ISO/IEC 14662:2010, 3.3]

3.8

business transaction

predefined *set* (3.123) of activities and/or *processes* (3.101) of *Persons* (3.93) which is initiated by a *Person* to accomplish an explicitly shared *business* (3.5) goal and terminated upon recognition of one of the agreed conclusions by all the involved *Persons* although some of the recognition may be implicit

[SOURCE: ISO/IEC 14662:2010, 3.4]

3.9

business transaction identifier BTI

identifier assigned by a *seller* (3.120) or a *regulator* (3.111) to an instantiated *business transaction* (3.8) among the *Persons* (3.93) involved

Note 1 to entry: The identifier assigned by the seller or regulator shall have the properties and behaviours of an “identifier (in a business transaction)”.

Note 2 to entry: As an identifier (in a business transaction), a BTI serves as the unique common identifier for all *Persons* involved for the identification, referencing, retrieval of recorded information, etc., pertaining to the commitments made and the resulting actualization (and post-actualization) of the business transaction agreed to.

Note 3 to entry: A business transaction identifier can be assigned at any time during the planning, identification or negotiation phases but shall be assigned at least prior to the start or during the actualization phase.

Note 4 to entry: As and where required by the applicable jurisdictional domain(s), the recorded information associated with the business transaction identifier (BTI) may well require the seller to include other identifiers, (e.g., from a value-added good or service tax, etc., perspective) as assigned by the applicable jurisdictional domain(s).

[SOURCE: ISO/IEC 15944-5:2008, 3.12]

3.10

buyer

Person (3.93) who aims to get possession of a good, service and/or right through providing an acceptable equivalent value, usually in money, to the *Person* providing such a good, service and/or right

[SOURCE: ISO/IEC 15944-1:2023, 3.8]

3.11

character

member of a *set* (3.123) of elements that is used for the representation, organization or control of *data* (3.29)

Note 1 to entry: Characters may be categorized as follows:

- types and examples;
- graphic character: (e.g., digit, letter, ideogram, special character);
- control character: (e.g., transmission control, character, format effector, code extension character, device control character).

[SOURCE: ISO/IEC 2382:2015, 2121335]

3.12

characteristic

abstraction of a property of an *object* (3.73) or of a *set* (3.123) of *objects*

Note 1 to entry: Characteristics are used for describing concepts.

[SOURCE: ISO 1087:2019, 3.2.1]

3.13

character set

finite *set* (3.123) of different *characters* (3.11) that is complete for a given purpose

EXAMPLE The international reference version of the character set of ISO 10642.

[SOURCE: ISO/IEC 2382:2015, 2121547]

3.14

classification system

systematic *identification* (3.53) and arrangement of *business* (3.5) activities and/or *scenario components* (3.118) into categories according to logically structured conventions, methods and procedural *rules* (3.115) as specified in a classification schema

Note 1 to entry: The classification code or number often serves as a semantic identifier (SI) for which one or more human interface equivalents exist.

Note 2 to entry: The rules of a classification schema governing the operation of a classification system at times lead to the use of ID codes which have an intelligence built into them, (e.g., in the structure of the ID, the manner in which it can be parsed, etc. Here the use of block-numeric numbering schemas is an often used convention.

[SOURCE: ISO/IEC 15944-5:2008, 3.17]

3.15

code

data (in a business transaction) (3.30) representation in different forms according to a pre-established *set* (3.123) of *rules* (3.115)

Note 1 to entry: In this document the "pre-established set of rules" are determined and enacted by a Source Authority and shall be explicitly stated.

[SOURCE: ISO 639-2:1998, 3.1]

3.16

coded domain

value domain for which (1) the boundaries are defined and explicitly stated as a *rulebase* (3.116) of a *coded domain Source Authority* (3.18); and, (2) each *entity* (3.43) which qualifies as a member of that domain is identified through the assignment of a unique *ID Code* (3.52) in accordance with the applicable *Registration Schema* (3.109) of that *Source Authority* (3.125)

Note 1 to entry: The rules governing the assignment of an ID code to members of a coded domain reside with its Source Authority and form part of the Coded Domain Registration Schema of the Source Authority.

Note 2 to entry: Source Authorities which are jurisdictional domains are the primary source of coded domains.

Note 3 to entry: A coded domain is a data set for which the contents of the data element values are predetermined and defined according to the rulebase of its Source Authority and as such have predefined semantics.

Note 4 to entry: Associated with a code in a coded domain can be: (a) one and/or more equivalent codes; and/or, (b) one and/or more equivalent representations especially those in the form of Human Interface Equivalent (HIE) (linguistic) expressions.

Note 5 to entry: In a coded domain the rules for assignment and structuring of the ID codes shall be specified.

Note 6 to entry: Where an entity as member of a coded domain is allowed to have, i.e., assigned, more than one ID code, i.e., as equivalent ID codes (possibly including names), one of these shall be specified as the pivot ID code.

Note 7 to entry: A coded domain in turn can consist of two or more coded domains, i.e., through the application of the inheritance principle of object classes.

Note 8 to entry: A coded domain may contain an ID code which pertains to predefined conditions other than qualification of membership of entities in the coded domain. Further, the rules governing a coded domain may or may not provide for user extensions.

EXAMPLE 1 (1) the use of ID Code "0" (or "00", etc.) for "Others, (2) the use of ID Code "9" (or "99", etc.) for "Not Applicable"; (3) the use of "8" (or "98") for "Not Known"; and/or, if required, (4) the pre-reservation of a series of ID codes for use of "user extensions".

Note 9 to entry: In object methodology, entities which are members of a coded domain are referred to as instances of a class.

EXAMPLE 2 In UML modelling notation, an ID code is viewed as an instance of an object class.

Note 10 to entry: In the context of metadata registries, a "value domain" is defined as a "set of permissible values" See further ISO/IEC 11179-3:2012³⁾.

[SOURCE: ISO/IEC 15944-2:2015, 3.13]

3.17

coded Domain Registration Schema

cdRS

formal *definition* (3.38) of both (1) the *data (in a business transaction)* (3.30) fields contained in the *identification* (3.53) and specification of an *entity* (3.43) forming part of the members a *coded domain* (3.16) including the allowable contents of those fields; and, (2) the *rules* (3.115) for the assignment of identifiers

[SOURCE: ISO/IEC 15944-5:2008, 3.21]

3.18

coded domain Source Authority

cdSA

Person (3.93), usually an *organization* (3.89), as a *Source Authority* (3.125) which sets the *rules* (3.115) governing a *coded domain* (3.16)

Note 1 to entry: Source Authority is a role of a Person and for widely used coded domains the coded domain Source Authority is often a jurisdictional domain.

Note 2 to entry: Specific sectors, (e.g., banking, transport, geomatics, agriculture, etc.), may have particular coded domain Source Authority(ies) whose coded domains are used in many other sectors.

Note 3 to entry: A coded domain Source Authority usually also functions as a Registration Authority but can use an agent, i.e., another Person, to execute the registration function on its behalf.

[SOURCE: ISO/IEC 15944-2:2015, 3.14]

3.19

code (in coded domain)

identifier, i.e., an ID *Code* (3.52), assigned to an *entity* (3.43) as member of a *coded domain* (3.16) according to the pre-established *set* (3.123) of *rules* (3.115) governing that coded domain

[SOURCE: ISO/IEC 15944-5:2008, 3:19]

3) 3rd edition. Withdrawn.

3.20

collaboration space

business (3.5) activity space where an economic exchange of valued resources is viewed independently and not from the perspective of any business partner

Note 1 to entry: In collaboration space, an individual partner's view of economic phenomena is de-emphasized. Thus, the common use business and accounting terms like purchase, sale, cash receipt, cash disbursement, raw materials, and finished goods are not allowed because they view resource flows from a participant's perspective.

[SOURCE: ISO/IEC 15944-4:2015, 3.12]

3.21

commitment

making or accepting of a right, obligation, liability or responsibility by a *Person* (3.93) that is capable of enforcement in the *jurisdictional domain* (3.61) in which the commitment is made

[SOURCE: ISO/IEC 14662:2010, 3.5]

3.22

composite identifier

identifier (in a *business transaction* (3.8)) functioning as a single unique identifier consisting of one or more other identifiers, and/or one or more other *data elements* (3.31), whose interworkings are rule-based

Note 1 to entry: Identifiers (in business transactions) are for the most part composite identifiers.

Note 2 to entry: The rules governing the structure and working of a composite identifier should be specified.

Note 3 to entry: Most widely used composite identifiers consist of the combinations of: (1) the ID of the overall identification/numbering schema, (e.g., ISO/IEC 6523, ISO/IEC 7812, ISO/IEC 7501, UPC/EAN, ITU-T E.164, etc.), which is often assumed; (2) the ID of the issuing organization (often based on a block numeric numbering schema); and, (3) the ID of the entities forming part of members of the coded domain of each issuing organization.

[SOURCE: ISO/IEC 15944-2:2015, 3.16]

3.23

computational integrity

expression of a *standard* (3.127) in a form that ensures precise description of behaviour and semantics in a manner that allows for automated processing to occur, and the managed evolution of such *standards* in a way that enables dynamic introduction by the next generation of information systems

Note 1 to entry: Open-edi standards have been designed to be able to support computational integrity requirements especially from a registration and re-use of business objects perspectives.

[SOURCE: ISO/IEC 15944-2:2015, 3.17]

3.24

concept

unit of knowledge created by a unique combination of *characteristics* (3.12)

Note 1 to entry: Concepts are not necessarily bound to particular natural languages. They are, however, influenced by the social or cultural background which often leads to different categorizations.

[SOURCE: ISO1987:2019, 3.2.7, modified — Removal of Note 2 to entry.]

3.25

constraint

rule (3.115), explicitly stated, that prescribes, limits, governs or specifies any aspect of a *business transaction* (3.8)

Note 1 to entry: Constraints are specified as rules forming part of components of Open-edi scenarios, i.e., as scenario attributes, roles, and/or information bundles.

Note 2 to entry: For constraints to be registered for implementation in Open-edi, they shall have unique and unambiguous identifiers.

Note 3 to entry: A constraint may be agreed to among parties (condition of contract) and is therefore considered an "internal constraint". Or a constraint may be imposed on parties, (e.g., laws, regulations, etc.), and is therefore considered an "external constraint".

[SOURCE: ISO/IEC 15944-1:2023, 3.11]

3.26

Contact

instance of a *role* (3.112) of a *Person* (3.93) to whom a *recorded information* (3.105) item(s), a material *object(s)* (3.73), a *business object(s)* (3.6), can be sent to or received from in a specified context

Note 1 to entry: A Person here as a Contact can be an individual, an organization (or organization part or organization Person).

Note 2 to entry: Contact is capitalized to distinguish it from the many ordinary uses of the term.

Note 3 to entry: Harmonized with ISO/IEC 11179 but from an eBusiness perspective.

[SOURCE: ISO/IEC 11179-3:2013, 3.2.23, modified — replaced "individual" with "Person" and added Notes to entry 1, 2 and 3.]

3.27

contact information

information to enable a *Contact* (3.26) to be located or communicated with

[SOURCE: ISO/IEC 11179-3:2013, 3.2.24]

3.28

controlled vocabulary

CV

vocabulary (3.138) for which the entries, i.e., *definition* (3.38)/*term* (3.129) pairs, are controlled by a *Source Authority* (3.125) based on a *rulebase* (3.116) and *process* (3.101) for addition/deletion of entries

Note 1 to entry: In a controlled vocabulary, there is a one-to-one relationship of definition and term.

EXAMPLE The contents of "Clause 3 Definitions" in ISO/IEC standards are examples of controlled vocabularies with the entities being identified and referenced through their ID code, i.e., via their clause numbers.

Note 2 to entry: In a multilingual controlled vocabulary, the definition/term pairs in the languages used are deemed to be equivalent with respect to their semantics.

Note 3 to entry: The rulebase governing a controlled vocabulary may include a predefined concept system.

[SOURCE: ISO/IEC 15944-5:2008, 3.34]

3.29

data

reinterpretable representation of information in a formalized manner suitable for communication, interpretation, or processing

Note 1 to entry: Data can be processed by humans or by automatic means.

[SOURCE: ISO/IEC 2382:2015, 2121272]

3.30

data (in a business transaction)

representations of *recorded information* (3.105) that are being prepared or have been prepared in a form suitable for use in a computer system

[SOURCE: ISO/IEC 15944-1:2023, 3.14]

3.31

data element

unit of *data (in a business transaction)* ([3.30](#)) for which the *definition* ([3.38](#)), *identification* ([3.53](#)), representation and permissible values are specified by means of a *set* ([3.123](#)) of *attributes* ([3.4](#))

[SOURCE: ISO/IEC 15944-1, 2023, 3.15]

3.32

data element (in organization of data)

unit of *data (in a business transaction)* ([3.30](#)) that is considered in context to be indivisible

EXAMPLE The data element "age of a person" with values consisting of all combinations of 3 decimal digits.

Note 1 to entry: Differs from the entry 17.06.02 in ISO/IEC 2382-17.

[SOURCE: ISO/IEC 2382:2015, 2121599]

3.33

dataset

identifiable collection of *data (in a business transaction)* ([3.30](#))

Note 1 to entry: A dataset may be a smaller grouping of data which, though limited by some constraint such as spatial extent or feature type, is located physically within a larger dataset. Theoretically, a dataset may be as small as a single feature or feature attribute contained within a larger dataset. A hardcopy map or chart may be considered a dataset.

[SOURCE: ISO 19115-1:2014, 4.3]

3.34

date

ISO 8601 compliant representation of a date in a YYYY-MM-DD format using the Gregorian calendar

[SOURCE: ISO/IEC 15944-2:2015, 3.26]

3.35

Decision Making Application

DMA

model ([3.69](#)) of that part of an *Open-edition system* ([3.87](#)) that makes decisions corresponding to the *role(s)* ([3.112](#)) that the *Open-edition Party* ([3.78](#)) plays as well as the originating, receiving and managing *data (in a business transaction)* ([3.30](#)) values contained in the instantiated *Information Bundles* ([3.56](#)) which is not required to be visible to the other *Open-edition Party(ies)* (*OeP*)

[SOURCE: ISO/IEC 14662:2010, 3.6]

3.36

de facto language

natural language ([3.72](#)) used in a *jurisdictional domain* ([3.61](#)) which has the properties and behaviours of an *official language* ([3.75](#)) in that *jurisdictional domain* without having formally been declared as such by that *jurisdictional domain*

Note 1 to entry: A de facto language of a jurisdictional domain is often established through long term use and custom.

Note 2 to entry: Unless explicitly stated otherwise and for the purposes of modelling a business transaction through scenario(s), scenario attributes and/or scenario components, a de facto language of a jurisdictional domain is assumed to have the same properties and behaviours of an official language.

[SOURCE: ISO/IEC 15944-5:2008, 3.42]

3.37**defined market model**

trade *model* (3.69) where the *buyer* (3.10) and *seller* (3.120) accept the entry terms of a specified market in advance and where that market has an accepted and recognized source for *business* (3.5) *rules* (3.115) and conventions

Note 1 to entry: In a defined market, the phases of a business transaction –planning, identification, negotiation, actualization, and post-actualization – are governed by the rules and conventions of the particular defined market.

[SOURCE: ISO/IEC 15944-4:2015, 3.17]

3.38**definition**

representation of a *concept* (3.24) by an expression that describes it and differentiates it from related *concepts*

[SOURCE: ISO 1087:2019, 3.3.1]

3.39**designation**

representation of a *concept* (3.24) by a sign which denotes it

Note 1 to entry: In terminology work three types of designations are distinguished: symbols, appellations, (a.k.a. names), and terms.

[SOURCE: ISO/IEC 15944-2:2015 3.29]

3.40**eBusiness**

business transaction (3.8), involving the making of *commitments* (3.21), in a defined *collaboration space* (3.20), among *Persons* (3.93) using their *IT systems* (3.57), according to *Open-edi standards* (3.127)

Note 1 to entry: eBusiness can be conducted on both a for-profit and not-for-profit basis.

Note 2 to entry: A key distinguishing aspect of eBusiness is that it involves the making of commitment(s) of any kind among the Persons in support of a mutually agreed upon goal, involving their IT systems, and doing so through the use of EDI (using a variety of communication networks including the Internet).

Note 3 to entry: eBusiness includes various application areas such as “e-commerce”, “e-administration”, “e-logistics”, “e-government”, “e-medicine”, “e-learning”, etc.

Note 4 to entry: The equivalent French language term for “eBusiness” is always presented in its plural form.

[SOURCE: ISO/IEC 15944-7:2009, 3.06]

3.41**electronic address**

address (3.3) used in a recognized electronic addressing scheme, (e.g., telephone, telex, IP, etc.), to which *recorded information* (3.105) item(s) and/or *business object(s)* (3.6) can be sent to or received from a *Contact* (3.26)

[SOURCE: ISO/IEC 15944-2:2015, 3.32]

3.42**Electronic Data Interchange****EDI**

automated exchange of any predefined and structured *data (in a business transaction)* (3.30) for *business* (3.5) purposes among information systems of two or more *Persons* (3.93)

Note 1 to entry: This definition includes all categories of electronic business transactions.

[SOURCE: ISO/IEC 14662:2010, 3.8]

3.43 entity

any concrete or abstract thing that exists, did exist, or might exist, including associations among these things

EXAMPLE A person, object, event, idea, process, etc.

Note 1 to entry: An entity exists whether data about it are available or not.

[SOURCE: ISO/IEC 2382:2015, 2121433]

3.44 exchange code set

set (3.123) of ID Codes (3.52) identified in a coded domain (3.16) as being suitable for information exchange as shareable data (in a business transaction) (3.30)

EXAMPLE The 3 numeric, 2-alpha and 3-alpha code sets in ISO 3166-1.

[SOURCE: ISO/IEC 15944-5:2008, 3.49]

3.45 external constraint

constraint (3.25) which takes precedence over internal constraints (3.58) in a business transaction (3.8), i.e., is external to those agreed upon by the parties to a business transaction

Note 1 to entry: Normally external constraints are created by law, regulation, orders, treaties, conventions or similar instruments.

Note 2 to entry: Other sources of external constraints are those of a sectorial nature, those which pertain to a particular jurisdictional domain or a mutually agreed to common business conventions, (e.g., INCOTERMS, exchanges, etc.).

Note 3 to entry: External constraints can apply to the nature of the good, service and/or right provided in a business transaction.

Note 4 to entry: External constraints can demand that a party to a business transaction meet specific requirements of a particular role.

EXAMPLE 1 Only a qualified medical doctor may issue a prescription for a controlled drug.

EXAMPLE 2 Only an accredited share dealer may place transactions on the New York Stock Exchange.

EXAMPLE 3 Hazardous wastes may only be conveyed by a licensed enterprise.

Note 5 to entry: Where the information bundles (IBs), including their Semantic Components (SCs) of a business transaction are also to form the whole of a business transaction, (e.g., for legal or audit purposes), all constraints shall be recorded.

EXAMPLE 4 There may be a legal or audit requirement to maintain the complete set of recorded information pertaining to a business transaction, i.e., as the information bundles exchanged, as a "record".

Note 6 to entry: A minimum external constraint applicable to a business transaction often requires one to differentiate whether the Person, i.e., that is a party to a business transaction, is an "individual", "organization", or "public administration". For example, privacy rights apply only to a Person as an "individual".

[SOURCE: ISO/IEC 15944-1:2023, 3.23]

3.46**Formal Description Technique****FDT**

specification method based on a description *language* (3.62) using rigorous and *unambiguous* (3.136) *rules* (3.115) both with respect to developing expressions in the *language* (formal syntax) and interpreting the meaning of these expressions (formal semantics)

[SOURCE: ISO/IEC 14662:2010, 3.9]

3.47**Functional Service View****FSV**

perspective of *business transactions* (3.8) limited to those information technology interoperability aspects of *IT Systems* (3.57) needed to support the execution of *Open-edited transactions* (3.88)

[SOURCE: ISO/IEC 14662:2010, 3.10]

3.48**glyph**

recognizable abstract graphic *symbol* (3.128) which is independent of any specific design

[SOURCE: ISO 5127:2017, 3.1.6.04]

3.49**grammatical gender**

grammatical category that indicates grammatical relationships between words in sentences

Note 1 to entry: The concept of grammatical gender varies from language to language and is not a universal feature of all languages.

Note 2 to entry: This is taken from ISO 12620:1999, A.2.2.2.

EXAMPLE In French, *la vie* (life) is feminine and is used with feminine articles such as *la*, the feminine pronoun *elle*, and feminine adjective endings, (e.g., *une vie longue*).

PERMISSIBLE INSTANCES Types of grammatical gender commonly documented in terminology databases include: (a) masculine, (b) feminine; (c) neuter; (d) other.

[SOURCE: ISO/IEC 15944-10, 2021, 3.65]

3.50**Human Interface Equivalent****HIE**

representation of the *unambiguous* (3.136) and IT-enabled semantics of an *IT interface equivalent* (3.60) (in a *business transaction* (3.8)), often the *ID Code* (3.52) of a *coded domain* (3.16) (or a *composite identifier* (3.22)), in a formalized manner suitable for communication to and understanding by humans

Note 1 to entry: Human interface equivalents can be linguistic or non-linguistic in nature but their semantics remains the same although their representations may vary.

Note 2 to entry: In most cases there will be multiple Human Interface Equivalent representations as required to meet localization requirements, i.e. those of a linguistic nature, jurisdictional nature, and/or sectoral nature.

Note 3 to entry: Human Interface Equivalents include representations in various forms or formats, (e.g., in addition to written text those of an audio, symbol (and icon) nature, glyphs, image, etc.).

[SOURCE: ISO/IEC 15944-2:2015, 3.35]

3.51

IB Identifier

unique, linguistically neutral, *unambiguous* (3.136) referenceable identifier for an *Information Bundle* (3.56)

[SOURCE: ISO/IEC 15944-2:2015, 3.36]

3.52

ID Code

identifier assigned by the *coded domain Source Authority* (3.18) (cdSA) to a member of a *coded domain* (3.16) ID

Note 1 to entry: ID codes shall be unique within the Registration Schema of that coded domain.

Note 2 to entry: Associated with an ID code in a coded domain can be (a) one or more equivalent codes; or, (b) one or more equivalent representations, especially those in the form of human equivalent (linguistic) expressions.

Note 3 to entry: Where an entity as a member of a coded domain is allowed to have more than one ID code, i.e., as equivalent codes (possibly including names), one of these shall be specified as the pivot ID code.

Note 4 to entry: A coded domain may contain ID codes pertaining to entities which are not members as peer entities, i.e., have the same properties and behaviours, such as ID codes which pertain to predefined conditions other than member entities. If this is the case, the rules governing such exceptions shall be predefined and explicitly stated.

EXAMPLE Common examples include: (1) the use of an ID code "0" (or "00", etc.), for "Other"; (2) the use of an ID code "9" (or "99") for "Not Applicable"; (3) the use of "8" (or "98") for "Not Known"; if required, (4) the pre-reservation of a series or set of ID codes for use for "user extensions".

Note 5 to entry: In UML modeling notation, an ID code is viewed as an instance of an object class.

[SOURCE: ISO/IEC 15944-2:2015, 3.37]

3.53

identification

rule-based *process* (3.101), explicitly stated, involving the use of one or more *attributes* (3.4), i.e., *data elements* (3.31), whose value (or combination of values) are used to identify uniquely the occurrence or existence of a specified *entity* (3.43)

[SOURCE: ISO/IEC 15944-1:2023, 3.26]

3.54

individual

Person (3.93) who is a human being, i.e., a natural person, who acts as a distinct indivisible *entity* (3.43) or is considered as such

[SOURCE: ISO/IEC 15944-1:2023, 3.28]

3.55

individual accessibility

set (3.123) of *external constraints* (3.45) of a *jurisdictional domain* (3.61) as rights of an *individual* (3.54) with disabilities to be able to use *IT systems* (3.57) at the human, i.e., user, interface and the concomitant obligation of a *seller* (3.120) to provide such adaptive technologies

Note 1 to entry: Although "accessibility" typically addresses users who have a disability, the concept is not limited to disability issues.

EXAMPLE Examples of disabilities in the form of functional and cognitive limitations include: (a) people who are blind; (b) people with low vision; (c) people with colour blindness; (d) people who are hard of hearing or deaf, i.e., are hearing impaired; (e) people with physical disabilities; and, (f) people with language or cognitive disabilities.

[SOURCE: ISO/IEC 15944-5:2008, 3.60]

3.56**Information Bundle****IB**

formal description of the semantics of the *recorded information* (3.105) to be exchanged by *Open-ed Parties* (3.78) playing *roles* (3.112) in an *Open-ed scenario* (3.86)

[SOURCE: ISO/IEC 14662:2010, 3.11]

3.57**Information Technology System****IT System**

set (3.123) of one or more computers, associated software, peripherals, terminals, human operations, physical processes, information transfer means, that form an autonomous whole, capable of performing information processing and/or information transfer

[SOURCE: ISO/IEC 14662:2010, 3.13]

3.58**internal constraint**

constraint (3.25) which forms part of the *commitment(s)* (3.21) mutually agreed to among the parties to a *business transaction* (3.8)

Note 1 to entry: Internal constraints are self-imposed. They provide a simplified view for modelling and re-use of scenario components of a business transaction for which there are no external constraints or restrictions to the nature of the conduct of a business transaction other than those mutually agreed to by the buyer and seller.

[SOURCE: ISO/IEC 15944-1:2023, 3.33]

3.59**IT-enablement**

transformation of a current *standard* (3.127) used in *business transactions* (3.8), (e.g., *coded domains* (3.16)), from a manual to computational perspective so as to be able to support *commitment* (3.21) exchange and *computational integrity* (3.23)

[SOURCE: ISO/IEC 15944-5:2008, 3.65]

3.60**IT interface equivalent**

computer processable *identification* (3.53) of the *unambiguous* (3.136) semantics of a scenario, *scenario attribute* (3.117) and/or *scenario component(s)* (3.118) pertaining to a *commitment* (3.21) exchange in a *business transaction* (3.8) which supports *computational integrity* (3.23)

Note 1 to entry: IT interface equivalents have the properties of identifiers (in business transactions) and are used to support semantic interoperability in commitment exchange.

Note 2 to entry: The value of an IT interface equivalent at times is a composite identifier.

Note 3 to entry: An IT interface equivalent as a composite identifier can consist of the identifier of a coded domain plus an ID code of that coded domain.

Note 4 to entry: An IT interface equivalent is at times used as a semantic identifier.

Note 5 to entry: An IT interface equivalent may have associated with it one or more Human Interface Equivalents (HIEs).

Note 6 to entry: The value of an IT Interface is independent of its encoding in programming languages or APIs.

[SOURCE: ISO/IEC 15944-2:2015, 3.45]

3.61 jurisdictional domain

jurisdiction, recognized in law as a distinct legal and/or regulatory framework, which is a source of *external constraints* (3.45) on *Persons* (3.93), their behaviour and the making of *commitments* (3.21) among *Persons* including any aspect of a *business transaction* (3.8)

Note 1 to entry: The pivot jurisdictional domain is a United Nations (UN) recognized member state. From a legal and sovereignty perspective they are considered "peer" entities. Each UN member state, (a.k.a. country) may have sub-administrative divisions as recognized jurisdictional domains, (e.g., provinces, territories, cantons, länder, etc.), as decided by that UN member state.

Note 2 to entry: Jurisdictional domains can combine to form new jurisdictional domains, (e.g., through bilateral, multilateral and/or international treaties).

EXAMPLE The European Union (EU), NAFTA, WTO, WCO, ICAO, WHO, Red Cross, the ISO, the IEC, the ITU, etc.

Note 3 to entry: Several levels and categories of jurisdictional domains may exist within a jurisdictional domain.

Note 4 to entry: A jurisdictional domain may impact aspects of the commitment(s) made as part of a business transaction including those pertaining to the making, selling, transfer of goods, services and/or rights (and resulting liabilities) and associated information. This is independent of whether such interchange of commitments is conducted on a for-profit or not-for-profit basis and/or include monetary values.

Note 5 to entry: Laws, regulations, directives, etc., issued by a jurisdictional domain are considered as parts of that jurisdictional domain and are the primary sources of external constraints on business transactions.

[SOURCE: ISO/IEC 15944-5:2008, 3.67]

3.62 language

systematic use of sounds, *characters* (3.11), *symbols* (3.128) or signs to express meaning or communicate meaning or a message

[SOURCE: ISO 5127:2017, 3.1.5.01]

3.63 language code

combination of *characters* (3.11) used to represent a *language* (3.62) or *languages*

Note 1 to entry: In the ISO/IEC 15944 series, the ISO 639-2/T (terminology) three alpha-code set, shall be used.

[SOURCE: ISO 639-2:1998, 3.2]

3.64 legally recognized name LRN

persona (3.94) associated with a *role* (3.112) of a *Person* (3.93) recognized as having legal status and so recognized in a *jurisdictional domain* (3.61) as accepted or assigned in compliance with the *rules* (3.115) applicable of that *jurisdictional domain*, i.e. as governing the *coded domain* (3.16) of which the LRN is a member

Note 1 to entry: An LRN may be of a general nature and thus be available for general use in commitment exchange or may arise from the application of a particular law, regulation, program or service of a jurisdictional domain and thus will have a specified use in commitment exchange.

Note 2 to entry: The process of establishment of an LRN is usually accompanied by the assignment of a unique identifier.

Note 3 to entry: An LRN is usually a registry entry in a register established by the jurisdictional domain (usually by a specified public administration within that jurisdictional domain) for the purpose of applying the applicable rules and registering and recording LRNs (and possible accompanying unique identifiers accordingly).

Note 4 to entry: A Person may have more than one LRN (and associated LRN identifier).

[SOURCE: ISO/IEC 15944-5:2008, 3.72]

3.65

list

ordered *set* ([3.123](#)) of *data elements* ([3.31](#))

[SOURCE: ISO/IEC 2382:2015, 2121612]

3.66

localization

pertaining to or concerned with anything that is not global and is bound through specified sets of *constraints* ([3.25](#)) of: (a) a linguistic nature including *natural* and *special languages* ([3.126](#)) and associated multilingual requirements; (b) jurisdictional nature, i.e., legal, regulatory, geopolitical, etc.; (c) a sectorial nature, i.e., industry sector, scientific, professional, etc.; (d) a human rights nature, i.e., privacy, disabled/handicapped persons, etc.; (e) consumer behaviour requirements; and/or (f) safety or health requirements

Note 1 to entry: Within and among "locales", interoperability and harmonization objectives also apply.

[SOURCE: ISO/IEC 15944-5:2008, 3.75]

3.67

location

place, either physical or electronic, that can be defined as an *address* ([3.3](#))

[SOURCE: ISO/IEC 15944-2:2015, 3.50]

3.68

metadata

data ([3.29](#)) about *data elements* ([3.31](#)), including their *data* descriptions, and *data* about *data* ownership, access paths, access rights and *data* volatility

[SOURCE: ISO/IEC 2382:2015, 2121595]

3.69

model

abstraction of some aspect of reality

[SOURCE: ISO 19115-1:2014, 4.14]

3.70

multilingualism

ability to support not only *character sets* ([3.13](#)) specific to a (*natural*) *language* ([3.62](#)) (or family of *languages*) and associated *rules* ([3.115](#)) but also *localization* ([3.66](#)) requirements, i.e., use of a *language* ([3.62](#)) from *jurisdictional domain* ([3.61](#)), sectoral and/or consumer marketplace perspectives

[SOURCE: ISO/IEC 15944-5:2008, 3.82]

3.71

name

designation ([3.39](#)) of an *object* ([3.73](#)) by a linguistic expression

Note 1 to entry: Adapted from ISO 5217:2000 and ISO 1087-1:2000.

[SOURCE: ISO/IEC 15944-1:2023, 3.35]

3.72

natural language

language ([3.62](#)) which is or was in active use in a community of people, and the *rules* ([3.115](#)) of which are mainly deduced from the usage

[SOURCE: ISO/IEC 15944-8:2012, 3.82]

3.73

object

anything perceivable or conceivable

Note 1 to entry: Objects can be material (e.g. 'engine', 'sheet of paper', 'diamond'), immaterial (e.g. 'conversion ratio', 'project plan') or imagined (e.g. 'unicorn', 'scientific hypothesis').

[SOURCE: ISO 1087:2019, 3.1.1]

3.74

object class

set ([3.123](#)) of ideas, abstractions, or things in the real world that can be identified with explicit boundaries and meaning and whose properties and behaviour follow the same *rules* ([3.115](#))

[SOURCE: ISO/IEC 11179-1:2015, 3.3.18]

3.75

official language

external constraint ([3.45](#)) in the form of a *natural language* ([3.72](#)) specified by a *jurisdictional domain* ([3.61](#)) for official use by *Persons* ([3.93](#)) forming part of and/or subject to that *jurisdictional domain* for use in communication(s) either: (1) within that *jurisdictional domain*; and/or, (2) among such *Persons*, where such communications are *recorded information* ([3.105](#)) involving *commitment(s)* ([3.21](#))

Note 1 to entry: Unless official language requirements state otherwise, Persons are free to choose their mutually acceptable natural language and/or special language for communications as well as exchange of commitments.

Note 2 to entry: A jurisdictional domain decides whether or not it has an official language. If not, it will have a de facto language.

Note 3 to entry: An official language(s) can be mandated for formal communications as well as provision of goods and services to Persons subject to that jurisdictional domain and for use in the legal and other conflict resolution system(s) of that jurisdictional domain, etc.

Note 4 to entry: Where applicable, use of an official language may be required in the exercise of rights and obligations of individuals in that jurisdictional domain.

Note 5 to entry: Where an official language of a jurisdictional domain has a controlled vocabulary of the nature of a terminology, it may well have the characteristics of a special language. In such cases, the terminology to be used shall be specified.

Note 6 to entry: For an official language, the writing system(s) to be used shall be specified, where the spoken use of a natural language has more than one writing system.

EXAMPLE 1 The spoken language of use of an official language may at times have more than one writing system. For example, three writing systems exist for the Inuktitut language. Canada uses two of these writing systems, namely, a Latin-1 based (Roman), the other is syllabic-based. The third is used in Russia and is Cyrillic based.

EXAMPLE 2 Another example is that of Norway which has two official writing systems, both Latin-1 based, namely, Bokmål (Dano-Norwegian) and Nynorsk (New Norwegian).

Note 7 to entry: A jurisdictional domain may have more than one official language but these may or may not have equal status.

EXAMPLE 3 Canada has two official languages, Switzerland has three, while the Union of South Africa has eleven official languages.

Note 8 to entry: The BOV requirement of the use of a specified language will place that requirement on any FSV supporting service.

EXAMPLE 4 A BOV requirement of Arabic, Chinese, Russian, Japanese, Korean, etc., as an official language requires the FSV support service to be able to handle the associated character sets.

[SOURCE: ISO/IEC 15944-5:2008, 3.87]

3.76**Open-edi**

Electronic Data Interchange (3.42) among multiple autonomous *Persons* (3.93) to accomplish an explicitly shared *business* (3.5) goal according to *Open-edi standards* (3.127)

[SOURCE: ISO/IEC 14662:2010, 3.14]

3.77**Open-edi Description Technique****OeDT**

specification method such as a *Formal Description Technique* (3.46), another methodology having the *characteristics* (3.12) of a *Formal Description Technique*, or a combination of such techniques as needed to formally specify *BOV* (3.7) concepts, in a computer processable form

[SOURCE: ISO/IEC 14662:2010, 3.16]

3.78**Open-edi Party****OeP**

Person (3.93) that participates in *Open-edi* (3.76)

Note 1 to entry: Often referred to generically in this, and other eBusiness standards, (e.g., parts of the ISO/IEC 15944 series “eBusiness” standard) as “party” or “parties” for any entity modelled as a *Person* as playing a role in *Open-edi* scenarios.

[SOURCE: ISO/IEC 14662:2010, 3.17]

3.79**Open-edi register**

information store or database maintained by an *Open-edi Registry* (3.84)

[SOURCE: ISO/IEC 15944-2:2015, 3.62]

3.80**Open-edi registration administration attribute**

member of a *set* (3.123) of *attributes* (3.4) to uniquely identify an *Open-edi scenario* (3.86), *Information Bundle* (3.56), or *Semantic Component* (3.121) and the relevant *Person* (3.93) responsible for its maintenance

[SOURCE: ISO/IEC 15944-2:2015, 3.63]

3.81**Open-edi Registration Authority****OeRA**

Person (3.93) responsible for maintaining the *register* (3.106) of *OeROs* (3.82) and for the issuance of *OeRO* identifiers

[SOURCE: ISO/IEC 15944-2:2015, 3.64]

3.82**Open-edi Registration Organization****OeRO**

Person (3.93) qualified by the *OeRA* (3.81) to assume the responsibility for the *registration* (3.107) of scenario and *scenario components* (3.118)

[SOURCE: ISO/IEC 15944-2:2015, 3.65]

3.83

Open-edi Registration Organization address

physical and/or *electronic address* ([3.41](#)) of the *Open-edi Registration Organization (OeRO)* ([3.82](#))

Note 1 to entry: A physical address includes a “pick-up” address such as a mailbox or such other location one can deliver to.

[SOURCE: ISO/IEC 15944-2:2015, 3.66]

3.84

Open-edi Registry

OeR

information technology system ([3.57](#)) for the *registration* ([3.107](#)) of scenarios and *scenario components* ([3.118](#))

[SOURCE: ISO/IEC 15944-2:2015, 3.69]

3.85

Open-edi Registry Item

OeRI

recorded information ([3.105](#)) within a *registry* ([3.110](#)) relating to a specific *Open-edi scenario* ([3.86](#)) or *scenario components* ([3.118](#)) of *scenario* including linkage information to a scenario content

[SOURCE: ISO/IEC 15944-2:2015, 3.70]

3.86

Open-edi scenario

OeS

formal specification of a class of *business transactions* ([3.8](#)) having the same *business* ([3.5](#)) goal

[SOURCE: ISO/IEC 14662:2010, 3.18]

3.87

Open-edi system

Information Technology System (IT system) ([3.57](#)) which enables an *Open-edi Party* ([3.78](#)) to participate in *Open-edi transactions* ([3.88](#))

[SOURCE: ISO/IEC 14662:2010, 3.22]

3.88

Open-edi transaction

business transaction ([3.8](#)) that is in compliance with an *Open-edi scenario* ([3.86](#))

[SOURCE: ISO/IEC 14662:2010, 3.23]

3.89

organization

unique framework of authority within which a person or persons act, or are designated to act, towards some purpose

Note 1 to entry: The kinds of organizations covered by this International Standard include the following examples:

EXAMPLE 1 An organization incorporated under law.

EXAMPLE 2 An unincorporated organization or activity providing goods and/or services including: 1) partnerships; 2) social or other non-profit organizations or similar bodies in which ownership or control is vested in a group of individuals; 3) sole proprietorships; 4) governmental bodies.

EXAMPLE 3 Groupings of the above types of organizations where there is a need to identify these in information interchange.

[SOURCE: ISO/IEC 15944-1:2023, 3.44]

3.90**organization part**

any department, service or other *entity* (3.43) within an *organization* (3.89), which needs to be identified for information interchange

[SOURCE: ISO/IEC 15944-1:2023, 3.45]

3.91**organization Person**

organization part (3.90) which has the properties of a *Person* (3.93) and thus is able to make *commitments* (3.21) on behalf of that *organization* (3.89)

Note 1 to entry: An organization can have one or more organization Persons.

Note 2 to entry: An organization Person is deemed to represent and act on behalf of the organization and to do so in a specified capacity.

Note 3 to entry: An organization Person can be a "natural person" such as an employee or officer of the organization.

Note 4 to entry: An organization Person can be a legal person, i.e., another organization.

[SOURCE: ISO/IEC 15944-1:2023, 3.46]

3.92**origin**

source (document, project, discipline or *model* (3.69)) for the *OeRI* (3.85)

[SOURCE: ISO/IEC 15944-2:2015, 3.77]

3.93**Person**

entity (3.43), i.e., a natural or legal person, recognized by law as having legal rights and duties, able to make *commitment(s)* (3.21), assume and fulfil resulting obligation(s), and able of being held accountable for its action(s)

Note 1 to entry: Synonyms for "legal person" include "artificial person", "body corporate", etc., depending on the terminology used in competent jurisdictions.

Note 2 to entry: "Person" is capitalized to indicate that it is being used as formally defined in the standards and to differentiate it from its day-to-day use.

Note 3 to entry: Minimum and common external constraints applicable to a business transaction often require one to differentiate among three common subtypes of Person, namely "individual", "organization", and "public administration".

[SOURCE: ISO/IEC 14662:2010, 3.24]

3.94**persona**

set (3.123) of data *elements* (3.31) and their values by which a *Person* (3.93) wishes to be known and thus identified in a *business transaction* (3.8)

[SOURCE: ISO/IEC 15944-1:2023, 3.51]

3.95**personal information**

any information about an identifiable *individual* (3.54) that is recorded in any form, including electronically or on paper

EXAMPLE Recorded information about an individual's religion, age, financial transactions, medical history, address, or blood type.

[SOURCE: ISO/IEC 15944-5:2008, 3.103]

3.96

Person identity

Pi

combination of *persona* (3.94) information and identifier used by a *Person* (3.93) in a *business transaction* (3.8)

[SOURCE: ISO/IEC 15944-1:2023, 3.49]

3.97

physical address

address (3.3) that is used/recognized by a postal authority and/or courier service to deliver information item(s), material *object(s)* (3.73), or *business object(s)* (3.6) to a *Contact* (3.26) at either an actual *address* or a pick-up point *address*, (e.g., P.O. Box, rural route, etc.)

[SOURCE: ISO/IEC 15944-2:2015, 3.80]

3.98

pivot ID code

most stable *ID Code* (3.52) assigned to identify a member of a *coded domain* (3.16) where more than one *ID Code* may be assigned and/or associated with a member of that *coded domain*

EXAMPLE ISO 3166-1:1920 contains three code sets: (a) a three digit numeric code; (b) a two alpha code; and (3) a three alpha code. The three-digit numeric code serves as the pivot code. It is the most stable, remains the same even though the two alpha and/or three alpha codes may and do change.

[SOURCE: ISO/IEC 15944-5:2008, 3.105]

3.99

principle

fundamental, primary assumption and quality which constitutes a source of action determining particular objectives or results

Note 1 to entry: A principle is usually enforced by rules that affect its boundaries.

Note 2 to entry: A principle is usually supported through one or more rules.

Note 3 to entry: A principle is usually part of a set of principles which together form a unified whole.

EXAMPLE Within a jurisdictional domain, examples of a set of principles include a charter, a constitution, etc.

[SOURCE: ISO/IEC 15944-2:2015, 3.81]

3.100

privacy protection

set (3.123) of *external constraints* (3.45) of a *jurisdictional domain* (3.61) pertaining to *recorded information* (3.105) on or about an identifiable *individual* (3.54), i.e., *personal information* (3.95), with respect to the creation, collection, management, retention, access and use and/or distribution of such *recorded information* about that *individual* including its accuracy, timeliness, and relevancy

Note 1 to entry: Recorded information collected or created for a specific purpose on an identifiable individual, i.e., the explicitly shared goal of the business transaction involving an individual shall not be used for another purpose without the explicit and informed consent of the individual to whom the recorded information pertains.

Note 2 to entry: Privacy requirements include the right of an individual to be able to view the recorded information about him/her and to request corrections to the same in order to ensure that such recorded information is accurate and up-to-date.

Note 3 to entry: Where jurisdictional domains have legal requirements which override privacy protection requirements these shall be specified, (e.g., national security, investigations by law enforcement agencies, etc.).