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**Information technology — Identification  
of privacy protection requirements  
pertaining to learning, education and  
training (LET) —**

Part 1:

**Framework and reference model**

iTeh STANDARD PREVIEW

*Technologies de l'information — Identification des exigences de  
protection privée concernant l'apprentissage, l'éducation et la formation  
(AÉF) —*

ISO/IEC 29187-1:2013

*Partie 1: Cadre général et modèle de référence*

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Published in Switzerland

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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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 29187-1 was prepared by Joint Technical Committee ISO/IEC JTC1, *Information technology*, Subcommittee SC 36, *Information technology for learning, education, and training*.

ISO/IEC 29187 consists of the following parts, under the general title *Information technology — Identification of privacy protection requirements pertaining to learning, education and training (LET)*:

— *Part 1: Framework and reference model* [ISO/IEC 29187-1:2013](https://standards.iteh.ai/catalog/standards/sist/3e258d12-a695-42b2-8ec1-f06e5e0b5bd2/iso-iec-29187-1-2013)

Further parts may be added in the future.

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## 0 Introduction

### 0.1 Purpose and overview

For the purposes of this standard, the use of LET covers learning, education and training. In order to determine the need and focus of LET standards in support of privacy protection requirements applicable to personal information of an individual learner, ISO/IEC JTC1/SC36 established an “Ad-Hoc on Privacy (AHP)”<sup>1)</sup> The results of this detailed preparatory work and survey by this JTC1/SC36 AHP the identified user requirements and serve as the basis for the need for this multipart standard<sup>2)</sup> {See further Annex F below}

ISO/IEC JTC1/SC36 considers it important that international standards which facilitate the use of information and communication technologies (ICT) be structured to be able to support legal requirements of the jurisdictional domains in which they are to be implemented and used. This is particularly so where such standards are used to capture and manage recorded information for decision-making about individuals. Common legal and regulatory requirements of this nature, which impact the development of ICT-based standards, include those of a public policy nature such as those pertaining to consumer protection, privacy protection, individual accessibility, human rights, etc.

The role of ISO/IEC JTC1/SC36 is to develop ICT-based standards in the fields of learning, education and training (LET). Since the application and use of a majority of JTC1/SC36 standards involve the role of an individual as “learner”, i.e. as an “individual learner”, this means that any recorded information on or about an identifiable individual as a “learner” is subject to applicable privacy/data protection a requirement.

ISO/IEC 29187-1 serves as a “Framework and Reference Model”. Based on a set of (primary) principles, the “Framework and Reference Model” is composed of a number of conceptual and structural models. These are represented via “illustrative” figures and associated lexical models<sup>3)</sup> in the form of rules.

More specific and detailed “typical models” are to be developed in Parts 2+ of this multipart standard. These Part 2+ will focus on more detailed specifications of particular components of the Framework and Reference Model.

### 0.2 Benefits of using a multipart ISO/IEC 29187 standard approach

There are several benefits from taking an integrated approach: First, a multipart standard approach provides for a systematic, cost-efficient and effective approach to the creation of robust, (re-)useable components in support of LET privacy protection requirements, including those needed to facilitate the use of generic global requirements perspective as well as added requirements of particular jurisdictional domains of human interface equivalents (HIEs) at any level of granularity.

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<sup>1)</sup> The majority of JTC1/SC36 P-members represent jurisdictional domains which are governed by privacy/data protection requirements of a legislative/regulatory nature which apply to “individual learners

<sup>2)</sup> The mandate and objectives of this JTC1/SC36 AHP as well as the Survey instrument are stated in document 36N1436

<sup>3)</sup> One such lexical model is the key concepts and their definitions of the Framework and Reference Model as presented in Clause 3.0 below.

Second, this multipart standard will provide cost savings to those organizations and public administrations, individual learners and suppliers of LET-based products and services, i.e., “LET providers”. It will do so from a multilingual requirements<sup>4)</sup> perspective and in support of cultural adaptability, individual accessibility and diversity.

Third, having a common IT-facilitated approach will: (1) benefit individual users world-wide (doing so in respect and support of cultural diversity); (b) ensure that requirements of jurisdictional domains (at whatever level) can be supported in a very cost-effective and efficient manner; and, (3) also benefit suppliers of LET focused products and services.

The concept of (semantic) collaboration space (SCS), introduced in Clause 7 below is directed at supporting the implementation of the *UN Convention on the Rights of Persons with Disabilities* in an ITLET context including those of a privacy protection nature.

### 0.3 Informed consent and learning transaction <sup>5)</sup>

A key privacy protection requirement is that it requires informed consent of the individual, including in the role of an individual learner. It also requires the identification of the purpose(s), goal for which the personal information is to be created/collected, used, managed, shared, deleted, etc. In addition to identifying purpose(s) and informed consent (presented below) as Privacy Protection principles in Clauses 5.3.3 and 5.3.4. There are also the Privacy Protection Principles of “accountability”, “limiting collection”, “limiting use, disclosure and retention”, “accuracy”, “openness”, “individual access”, and “challenging compliance” (presented below Privacy Protection principles in Clauses 5.3.2, 5.3.5, 5.3.6, 5.3.7, 5.3.9, 5.3.10, and 5.3.11 respectively).

Requirements of this nature focus on what might be considered the LET operational view (LET-OV). In addition, there are ICT technical support requirements for privacy protection principles #8 “safeguards” (see Clause 5.3.8 below). These include security services, communication services, etc.

Requirements of this nature are not unique to a LET (or ITLET) context. They have already been identified and addressed in a generic manner in the ISO/IEC 14662 Open-edi Reference Model as being a “transaction” nature in support of an agreed upon commitment exchange between an individual learner and a LET provider.

Consequently, the “LET Privacy Protection Framework and Reference Model” (presented below in Figure 1) is based on the “Open-edi Reference Model”. A key construct of the Open-edi Reference Model is that it recognizes that a commitment exchange, modelled as a transaction needs to be treated and supported as a whole. At the same time, and from an ICT (including ITLET perspective) it is recognized that ICT-based support service, i.e., functional support services view change as ICT changes on the whole, but those of the user and operational requirements view remain fairly constant. This operation between the user view and the ICT view in modelling a transaction and developing standards in support of the same is presented in the Open-edi Reference Model as the need to differentiate between the business operation view (BOV) and functional services view (FSV).<sup>6)</sup> LET privacy protection Framework and Reference Model uses these two views of the Open-edi Reference Model to describe the relevant aspects of a learning transaction:

- a) the “Learning Operational View (LET-OV) aspects of a learning transaction; and,
- b) the “LET- FSV view of a learning transaction.

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<sup>4)</sup> Multilingual communications (whatever the supporting IT platform used including the Internet) is already supported by existing technologies. Many ISO/IEC and ISO standards already exist (or are under development) whose contents can and will be used as building blocks for the integration of this new LET standard.

<sup>5)</sup> Annex E below “Open-edi Reference Model and Learning transaction” provides informative information on the key modelling constructs introduced in ISO/IEC 29187-1.

<sup>6)</sup> See further below, Annex E (informative) titled “Use and adaptation of the Open-edi Reference Model”.

The Learning Operational View addresses the aspects of the context and semantic aspects of personal information in a learning transaction including data management and interchange aspects. The LET-OV also can be referred to as the operational and user requirements view.

The LET-FSV addresses the ICT infrastructure and support services meeting the mechanical needs of the Learning Operational View. Its purpose is to support the demands on the supporting ICT infrastructure of the Learning Operational View. It focuses on ICT aspects of:

- a) functional capabilities;
- b) service interfaces;
- c) protocols and APIs.

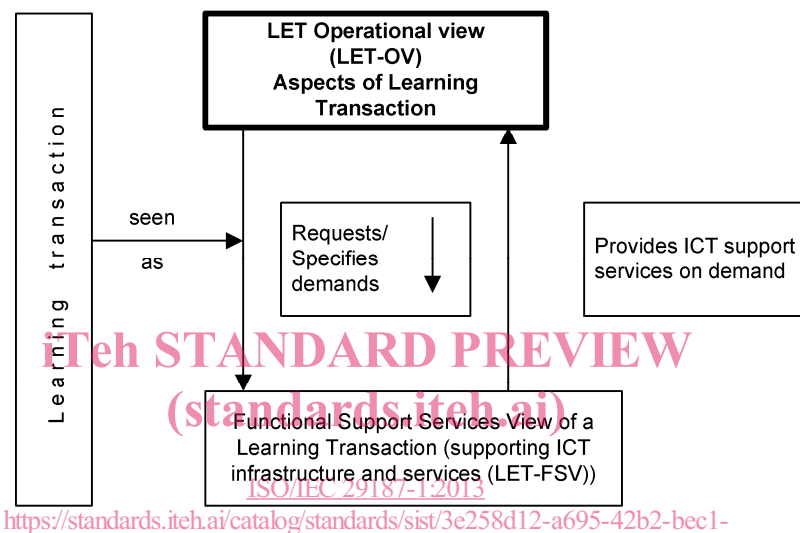


Figure 1 — Learning Transaction - Privacy Protection – Framework and Reference Model

#### 0.4 Use of "jurisdictional domain", jurisdiction, country<sup>7)</sup>

Multiple different definitions are currently in use for "jurisdiction". Some have legal status and others do not. Further, it is a common practice to equate "jurisdiction" with "country". Yet, at the time, it is also a common practice to refer to "provinces", "states", "länder", "cantons", "territories", "municipalities", etc., as jurisdictions. In addition, several UN member states can combine to form a "jurisdiction", (e.g., the European Union, NAFTA, etc.).

In this standard:

- a) the use of "jurisdictional domain" represents its use as a defined term; and,
- b) the use of "jurisdiction(s)" and/or country(ies) represents their use in generic contexts.

Most often in this document "jurisdictional domain" is used as it represents the primary source of external constraints pertaining to "privacy protection" rights of individuals. It also reflects the fact that in UN member states which are "federated" in nature, that it is the "province", "state", "länder", "territory", in that UN member state which is often responsible for LET-related activities and thus is the responsible jurisdictional domain.

<sup>7)</sup> For more detailed information on this and related matters pertaining to "jurisdictional domain", see ISO/IEC 15944-5:2008 (E) *Information Technology - Business Operational View - Part 5: Identification and referencing of requirements of jurisdictional domains as sources of external constraints*. This is a freely available ISO/IEC standard.

This standard incorporates the common aspects of such laws and regulations as pertaining to privacy protection, applicable at the time of publication only. The concept of “privacy protection” also integrates these various set of legal and regulatory requirements and does so from a public policy requirements perspective. {See below Clause 7}

It has to be born in mind that the delivery of “privacy protection” requires action both at the LET operational level (LET-OV) and technology level of functional service (FSV). Where human beings interact with recorded information once it has passed through an Open-edi transaction, they may have the potential to compromise technical controls (FSV) that may have been applied. It is essential that LET models take account of the need to establish overarching operational processes that address issues that have not been, and/or cannot be resolved by the technical FSV controls applied so as to provide the overall privacy demands of regulation that must be applied to personal data, their use, proscribed dissemination and so on. In this regard, the interplay of the LET-OV and FSV views of all organizations must be taken into account.

### 0.5 Use of “Person”, “individual”, “organization”, “public administration” and “person” in the context of a learning transaction

It is important to differentiate an “individual” from the other two sub-types of Person, namely that of an “organization” and a “public administration”. There are several reasons why this is necessary. These include:

- a) the fact that in UN conventions, Charters, treaties, etc., as well as in the laws and regulations of jurisdictional domains, the word “person” is often used without explicitly specifying whether here “person” applies only to a human being, a natural person, i.e., as an “individual,” but also other types of persons recognized in law, i.e., legal persons such as organizations and public administrations<sup>8)</sup>

For example, the human right of “freedom of expression” which is stated in the UN Charter as written and was intended to be a right of human beings (natural persons) only. However, in some well as the Constitution (and/or Charter of Human Rights) and of most jurisdictional domains was jurisdictional domains, corporations have been allowed to claim the right of “freedom of expression” since they are also “Persons” i.e., “legal persons”, with the result that “freedom of expression” rights are applied to “advertising”.

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- b) the need to ensure that public policy requirements of jurisdictional domains {see further Clause 6 below} which are created and intended for human beings continue to pertain to human beings only, i.e., “individual”;
- c) for the first 20-30 years, the use of ICT was restricted to organizations and public administrations. The advent of the Internet and the World-Wide Web (WWW) has resulted in “individuals” becoming full participants in the use of ICT.

Consequently, many, if not most of the ISO/IEC JTC1 standards, as well as other ICT based standards of ISO, IEC and ITU (and others) do not distinguish whether or not the real end user is: (a) another IT system; or, (b) a Person, i.e., an entity able to make a commitment; and then whether that entity making a commitment is doing so on behalf of itself, i.e., as an “individual”, or on behalf of an organization, i.e., as an organization Person.

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<sup>8)</sup> The “UN Convention on the Rights of Persons with Disabilities” does not explicitly state or define what a “Person” is. From its purpose and context, one deduces that these are “natural persons” and not “legal persons”, (e.g., not organizations or public administrations). In an ICT environment (or the virtual world) one needs to be very explicit here.

To address these and related requirements, the additional concept and term of “Person” was introduced and defined<sup>9)</sup> in such a way that it is capable of having the potential legal and regulatory constraints applied to it, i.e., as “external constraints”. In the context of this standard, these include:

- a) external constraints of a public policy nature in general and of a “privacy protection” nature in particular as legal rights of an individual; and,
- b) external constraints of a public policy nature in general and of a privacy protection nature in particular, which apply to organizations or public administrations as legal obligations to be complied with when providing goods and services to any individual.

In summary, there are three broad categories of a Person as a player in any process involving the making of a decision; and/or the making of a “commitment” 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 learning transactions, i.e., the making of a commitment of whatever nature, namely “buyer”, “seller”, and “regulator”.

The reader of this standard should understand that:

- a) the use of Person with a capital “P” represents Person as a defined term, i.e., as the entity that carries the legal responsibility for making commitment(s);
- b) “individual”, “organization” and “public administration” are defined terms representing the three common sub-types of “Person”; and,
- c) the words “person(s)” and/or “party(ies)” are used in their generic contexts independent of roles of “Person” (as defined in the ISO/IEC 14662:2010 and ISO/IEC 15944-1 standards). A “party” to any decision making process, a commitment making process (including any kind of learning transaction) has the properties and behaviours of a “Person”.

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## 0.6 Importance of definitions and terms<sup>10)</sup>

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 in Clause 3.

<sup>9)</sup> See further Clause 6.2 “Rules Governing the Person component” in ISO/IEC 15944-1:2010 (3rd ed.) titled “Information technology – Business operational view – Part 1: Operational Aspects of Open-edi for implementation”. [The multipart ISO/IEC 15944 eBusiness standard, as well as the ISO/IEC 14662 Open-edi Reference Model standard, are “publicly available” ISO standards, see <http://standards.iso.org/ittf/PubliclyAvailableStandards/index.html>.

<sup>10)</sup> See further, the document titled “Importance of Definitions for Concepts”, (2008-05-20) SC36/WG7 N0129.

A primary objective of the ISO/IEC 29187-1 standard on LET privacy protection is the need:

- 1) to have clear, unambiguous and explicitly stated definitions for the concepts introduced or used;
- 2) to appreciate and understand that one needs to be careful in the choice of the “label” i.e., term, to be associated with a concept; and,
- 3) to understand that (1) and (2) are essential to privacy protection and the creation and provision of human interface equivalents (HIEs) of the semantics of the content of what is intended to be communicated. This is required to support the “informed consent” privacy protection requirement.

If one looks at any UN convention, treaty, covenant, any law or regulation of a jurisdictional domain, an international standard, etc., one will find that their first two chapters, clauses, articles or sections are: (1) “purpose” or “scope”, and, (2) “definitions”. From an academic and scientific LET perspective, the introduction of a new concept, its definition, what it “is” (or meant to be understood as), how and where it fits or is to be used, etc., is the focus of many papers, presentations, etc.

Definitions of concepts form the foundation of research and even more so in a multidisciplinary network context. As such, it is important that definitions be explicit, unambiguous, and precise with respect to the semantics conveyed.

This is important because the “definition” and associated label, i.e., “term”, of a concept not only:

- 1) serves as the basis for a “common understanding” of all parties involved; but also,
- 2) serves as the basis for (a) any other (non-involved) individual to be able to understand the meaning and use of a concept as per its definition; and, (b) a common bridge between ICT-based and ICT-neutral approaches.

At times, in order to ensure that the concept being defined is not confused with other related concepts, i.e., via word, label, or term, used to denote the concept, it is necessary to introduce, i.e., invent or “coin”, a new term as the label for that concept. The key purpose here is not to have multiple different meanings associated with a single label or term.

### 0.7 Standard based on rules and guidelines

This standard is intended to be used within and outside of the ISO, IEC, and ITU communities by diverse sets of users having different perspectives and needs.

ISO states that a new standard is a:

*“documented agreement containing technical specifications or other precise criteria to be used consistently as rules, guidelines, or definitions of characteristics to ensure that materials, products, processes and services are fit for their purpose”.*

This standard focuses on “other precise criteria to be used consistently as rules, guidelines or definitions of characteristics, to ensure that products, processes and services are fit for their purpose”, i.e., from an operational and user perspective by individuals and in compliance with applicable external constraints.

This means that this standard is based on rules which are predefined and mutually agreed to. {See further Clause 5+ below}

### 0.8 Size of document and role of “Part 1 Framework and Reference Model”

While in an ITLET context, this Part 1 of ISO/IEC 29187 may seem to be voluminous, it is noted that there are many ISO/IEC JTC1 (and ISO or IEC) standards which are over 1,000 pages in size. The purpose of this “Part 1 Framework and Reference Model” is exactly that, to provide an overall “Framework and Reference Model” in an ITLET context to identify the requirements and context for implementation of these requirements in subsequent Parts of this multipart standard.

In order that subsequent Parts 2+ of this multipart standard can be as “short” as possible, it is necessary for them to be able to use and reference normative and informative Clauses and Annexes of this Part 1 document.

### 0.9 Use of “identifier” (in a learning transaction)

Unambiguous identification of the two primary parties to a learning transaction, i.e., the individual learner and the LET provider (as well as associated agents or third parties) is a primary LET privacy protection requirement. Clauses 8 and 11 below addresses the issues pertaining to the establishment and management of use of identities of parties to a learning transaction, that of the parties to a learning transaction (including the use of various personae (or names) identities, etc.

However, “unambiguous” is a key issue in learning transactions because states of unambiguity and uncertainty are not permitted in the context of LET privacy requirements and even more so with respect to LET transactions which involve EDI. A key assumption of Open-edi Reference Model which applies to any commitment made among autonomous parties is that the resulting transaction shall have a unique identifier.

### 0.10 Use of “privacy protection” in the context of a commitment exchange and learning transaction

To be able to address privacy protection requirements, one needs to do this in the context of a commitment exchange among an individual learner and a LET provider involving identified purpose and informed consent. Such a set of activities is modelled as a learning transaction, i.e., a set of activities or processes which is initiated either by an individual learner or a LET provider to accomplish and explicitly shared goal and terminated upon recognition of one of the agreed conclusions by all the involved Persons although some of the recognition may be implicit, (e.g., a student drops out of a class or a study programme).

### 0.11 Organization and description of document

The ISO/IEC 29187-1 Framework and Reference Model standard identifies basic common LET privacy protection requirements, as external constraints of jurisdictional domains, on the modelling of learning transactions.

Clauses 0.1 – 0.n provide key concepts and common content for this multipart standard. (These are based on the ISO/IEC 14662:2010 Open-edi Reference Model as well as the multipart ISO/IEC 15944 standard).

Clause 1 Scope, which follows, not only provides the overall scope of this multipart standard, including that of “Part 1: Framework and Reference Model” but this states its exclusions as well as relevant aspects not yet addressed in this 1<sup>st</sup> edition of the Framework and Reference Model.

Clause 2 provides the Normative References used in this document. It is noted that a key principle in the development of ISO/IEC 29187-1 (as well as subsequent Parts) is to maximize use of existing international ISO, ISO/IEC, JTC1, IEC, and ITU-T standards, as well as applicable referenced specifications.

The principle of maximizes re-use of applicable international standards also applies to subsequent Clause 3 “Definitions” and Clause 4 “Symbols and abbreviations”.

Clause 5 provides the key elements applicable to not only this Part 1 but all other subsequent Parts of this multipart standard. Clause 5 identifies the fundamental principles governing privacy protection requirements on learning transactions involving individual learners.

The purpose of Clause 6 is to place the Clause 5 privacy protection requirements identified as “Fundamental Principles” in Clause 5) in the context of the use of the “collaboration space” modelling construct” in support of privacy protection requirements. The focus of Clause 6 is to place LET privacy protection requirements in a “collaboration space” context. The purpose here is recognition and support of the fact that the “identifying purpose” and “informed consent” LET privacy protection requirements. {See further below Clauses 5.3.3 and 5.3.4} Clause 6 introduces the concept of “learning collaboration space” and does so in the context of a “learning transaction”.