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**Information technology — Specification and  
standardization of data elements —**

**Part 6:**

Registration of data elements

*Technologies de l'information — Spécifications et normalisation des  
éléments de données —*

*Partie 6: Enregistrement des éléments de données*

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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 and 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. 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.

International Standard ISO/IEC 11179-6 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 14, *Data element principles*.

ISO/IEC 11179 consists of the following parts, under the general title *Information technology* - *Specification and standardization of data elements*:

- *Part 1: Framework for the specification and standardization of data elements*
- *Part 2: Classification of concepts for identification of domains*
- *Part 3: Basic attributes of data elements*
- *Part 4: Rules and guidelines for the formulation of data definitions*
- *Part 5: Naming and identification principles for data elements*
- *Part 6: Registration of data elements*

Annex A forms an integral part of this part of ISO/IEC 11179. Annexes B and C are for information only.

## Introduction

This part of ISO/IEC 11179 describes the procedure by which data elements required in various application areas are registered and assigned an internationally unique identifier. The uniqueness of a registered data element is determined by a combination of the Registration Authority Identifier (RAI), the unique identifier assigned to a data element within a Registration Authority (RA), and the version under which a data element registration is submitted or updated. The registered data elements are included in registers of data elements, maintained by an RA, to which the data elements logically and functionally belong. Organizations wishing to become RA may do so in accordance with the procedure prescribed in Clause 5.

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# Information technology — Specification and standardization of data elements —

## Part 6:

### Registration of data elements

## 1 Scope

For each data element to be registered, this part of ISO/IEC 11179 defines the type of information that shall be specified, the conditions that shall be met, and the procedure(s) that shall be followed. This part of ISO/IEC 11179 does NOT specify the register's system design, file organization techniques, storage media, programming languages, etc. to be used in its implementation. The procedure prescribed herein, however, may be extended to register other shared objects, such as object classes, data element concepts, and permissible data element values.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 11179. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 11179 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 2382-1:1993, *Information technology - Vocabulary - Part 1: Fundamental terms.*

ISO 2382-4:1987, *Information processing systems - Vocabulary - Part 04: Organization of data.*

ISO/IEC 6523-1: \_\_\_\_\_<sup>1</sup>, *Information technology - Structure for the identification of organizations and organization parts - Part 1: Identification of organization identification schemes.*

ISO/IEC 6523-2: \_\_\_\_\_<sup>1</sup>, *Information technology - Structure for the identification of organizations and organization parts - Part 2: Registration of organization identification schemes.*

ISO/IEC 7826-1:1994, *Information technology - General structure for the interchange of code values - Part 1: Identification of coding schemes.*

ISO/IEC 11179-3:1994, *Information technology - Specification and standardization of data elements - Part 3: Basic attributes of data elements.*

<sup>1</sup> To be published. (Revision of ISO 6523:1984)

ISO/IEC 11179-4:1995, *Information technology - Specification and standardization of data elements - Part 4: Rules and guidelines for the formulation of data definitions.*

ISO/IEC 11179-5:1995, *Information technology - Specification and standardization of data elements - Part 5: Naming and identification principles for data elements.*

ISO/IEC JTC 1 Directives, *Procedures for the technical work of ISO/IEC JTC 1 on Information Technology*, third edition, 1995.

### 3 Definitions

For the purposes of this part of ISO/IEC 11179, the definitions given in ISO/IEC 7826-1 and the following definitions apply.

**3.1 administrative status:** A designation of the position in the processing life-cycle of a registration authority for handling registration requests.

**3.2 data:** A representation of facts, concepts, or instructions in a formalized manner, suitable for communication, interpretation, or processing by humans or automatic means. (Ref. ISO/IEC 2382-1).

**3.3 data element:** A unit of data for which the definition, identification, representation, and permissible values are specified by means of a set of *attributes*.

**3.4 data element concept:** A concept that can be represented in the form of a data element, described independently of any particular representation.

**3.5 data element value:** A value out of a set of permissible values pertaining to a data element.

**3.6 data identifier (DI):** An identifier assigned to a data element within an RA [RE: ISO/IEC 11179-3, 6.1.2].

**3.7 data item:** One occurrence of a data element.

**3.8 international registration data identifier (IRDI):** An internationally unique identifier for a data element as defined in the framework of this part of ISO/IEC 11179.

**3.9 information interchange:** The process of sending and receiving data in such a manner that the information content, or meaning assigned to the data, is not altered during the transmission.

**3.10 register:** A set of files (paper, electronic, or a combination) containing the assigned data elements and the associated information. (Definition adapted after that in Annex E of the ISO/IEC JTC 1 Directives).

**3.11 registration:** The assignment of an unambiguous identifier to a data element in a way that makes the assignment available to interested parties. (Definition adapted after that in Annex E of the ISO/IEC JTC 1 Directives).

**3.12 registration authority identifier (RAI):** An identifier assigned to a Registration Authority [RE: ISO/IEC 11179-3, 6.1.4].

**3.13 registration authority (RA):** Any organization authorized to register data elements.

**3.14 registration status:** A designation of the position in the registration life-cycle of a data element.

**3.15 responsible organization (RO):** The organization or unit within an organization that is responsible for the contents of the mandatory attributes by which the data element is specified.

**3.16 submitting organization (SO):** The organization or unit within an organization that has submitted the data element for addition, change, or cancellation/withdrawal in the data element dictionary.

**3.17 version:** Identification of an issue of a data element specification in a series of evolving data element specifications within a Registration Authority.

**3.18 version identifier (VI):** An identifier assigned to a version under which a data element registration is submitted or updated [RE: ISO/IEC 11179-3, 6.3].

## 4 Identification of data elements

Data elements registered under the provisions of this part of ISO/IEC 11179 are each assigned an International Registration Data Identifier (IRDI). This identifier value uniquely identifies the data element within the framework of this part of ISO/IEC 11179.

### 4.1 Components of International Registration Data Identifier (IRDI)

As discussed in the Introduction of this part of ISO/IEC 11179, the uniqueness of a registered data element is determined by the combination of the values of three identifying attributes, as depicted in Figure 1 and defined in Part 3 of ISO/IEC 11179:

- a) An identifier assigned to a Registration Authority [RE: ISO/IEC 11179-3, 6.1.4] hereafter called Registration Authority Identifier (RAI).
- b) An identifier assigned to a data element within an RA [RE: ISO/IEC 11179-3, 6.1.2] hereafter called Data Identifier (DI).
- c) An Identifier assigned to a version under which a data element registration is submitted or updated [RE: ISO/IEC 11179-3, 6.3] hereafter called Version Identifier (VI).

## NOTES

1. Although the version may not necessarily be required to make a data element unique within a register, the inclusion of the version in the International Data Element Identifier would provide a unique reference point, should a conflict arise.
2. OPI and OPIS are optional per ISO/IEC 6523. ISO/IEC 11179-6 uses the entire structure of ISO/IEC 6523 as an RAI.

#### 4.2 Assignment of values to International Registration Data Identifier (IRDI) components

An IRDI will be assigned to a data element submitted for registration. The assignment shall be performed in accordance with the procedures specified in 6.1. The values of each component of IRDI are assigned as follows.

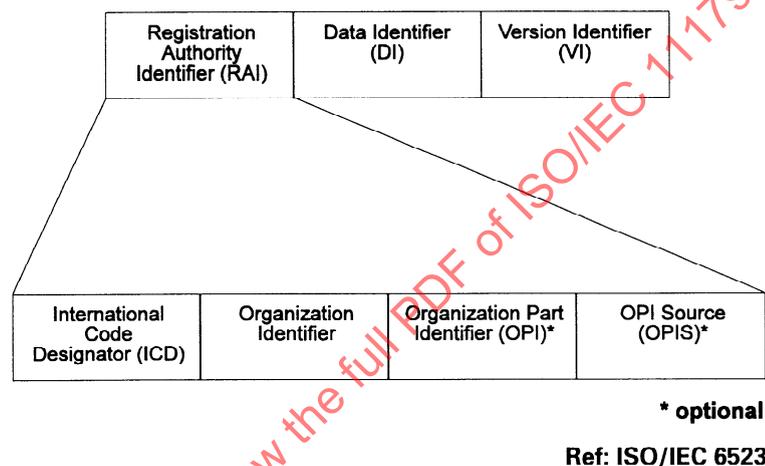


Figure 1: Structure of International Registration Data Identifier (IRDI)

##### 4.2.1 Assignment of Registration Authority Identifier (RAI)

Every organization wishing to become an RA shall possess an internationally recognized organization code, assigned in accordance with the procedure prescribed in ISO/IEC 6523. The entire structure for identification of organizations, as described in Clause 3 of ISO/IEC 6523, shall be the internationally unique RAI for the purpose specified in this part of ISO/IEC 11179.

##### 4.2.2 Assignment of Data Identifier (DI)

Each new data element accepted into the register shall be assigned a new DI. A new DI shall also be assigned to an existing data element when it is modified in such a way as to change the meaning of the data element or the representation form of the potential values of the data element. For example, changes to the mandatory attributes Definition and/or Form of Representation (referenced in Annex A) would require the assignment of a new DI. Editorial

changes to the definition, however, would not cause generation of a new data element, as long as the essential meaning expressed by the definition remains the same. For example, the value of the administrative attributes listed in Annex A may change without causing generation of a new DI.

Based on the requirements of the subject matter included in its register, each RA shall establish and publish, as appropriate, specific guidelines for any additional conditions requiring assignment of a new DI (i.e. generation of a new data element), due to changes in the values of mandatory attributes established for its register.

#### **4.2.3 Assignment of Version Identifier (VI)**

In general, a new VI may be generated when any attribute value (other than one requiring a new DI) changes. Each data element, however, may require a different versioning treatment. For example, a change in Permissible DE Values for an Employee Name may not require a new version, while a change of Permissible DE Values for Account Type will likely require a version change. Each RA shall establish specific guidelines for the subject matters in which it specializes and for which it is responsible.

## **5 Registration participating organizations**

There are three types of Registration Acting Bodies (RAB) in the framework of this part of ISO/IEC 11179: SOs, RAs, and ROs. Each type of RAB shall, respectively, meet the criteria, fulfill the roles, and assume the responsibilities prescribed in the following subclauses of this part of ISO/IEC 11179.

### **5.1 Designation of Registration Acting Bodies (RAB)**

#### **5.1.1 Eligibility of Submitting Organizations (SO)**

All SOs wishing to register data elements according to this part of ISO/IEC 11179 shall be able to do so in accordance with the procedures prescribed in this part of ISO/IEC 11179. Each RA may establish its own criteria for membership eligibility.

#### **5.1.2 Designation of Responsible Organizations (RO)**

ROs are usually designated by a business entity to coordinate the contents of mandatory attributes of related data elements managed by its SOs. In the absence of a designated RO, an SO shall act as an RO.

### 5.1.3 Establishment of Registration Authorities (RA)

While this part of ISO/IEC 11179 provides the procedures for registering data elements, it does not intend to establish organizations to serve as RAs for this part of ISO/IEC 11179. It is envisioned that any organization wishing to become an RA for the purpose of registering data elements may do so.

In order to establish itself as an RA, an organization shall complete the following:

- Secure an RAI in accordance with 4.2.1.
- Prescribe, amend, and interpret the procedures to be followed for the registration of data elements in accordance with this part of ISO/IEC 11179.
- Determine any additional conditions specifically required by its domain of registration.
- Specify the format for each attribute listed in Annex A of this part of ISO/IEC 11179 and for any additional attributes that the RA may deem necessary, and specify the media by which a data element may be submitted for registration. The registration form and accompanying procedure shall be made available to requesting SOs.
- Determine the format and media in which applications shall be submitted. The RA shall also provide SOs with guidance on the submission of applications.
- Establish and publish the rules by which its register shall be made available. The RA shall specify the allowable users, the accessible contents, the frequency of availability, and the language(s)<sup>1</sup>, media, and format in which the information is provided.

## 5.2 Role of Registration Acting Bodies (RAB)

### 5.2.1 Role of Submitting Organizations (SO)

An SO wishing to register a data element shall follow the procedures and requirements prescribed in this part of ISO/IEC 11179 for submission to the appropriate RA.

### 5.2.2 Role of Responsible Organizations (RO)

An RO is the organization, or part thereof, that is responsible for the integrity and accuracy of the attributes values of the data element; e.g. the semantics and permissible values of data elements maintained and controlled by an RA.

The RO, at the RA's request, shall review proposals from Submitting Authorities on relevant attributes, e.g. name, definition, and permissible data element values. The RO shall inform the RA of any essential modifications in the specification of the assigned data elements.

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<sup>1</sup> "Language(s)" here denotes national natural languages, e.g. French, English, Spanish.

### 5.2.3 Role of Registration Authorities (RA)

An RA shall receive and process proposals from SOs for registration of data elements falling within its registration domain. An RA is responsible for maintaining the register of data elements and issuing of IRDIs.

## 5.3 Responsibilities of Registration Acting Bodies (RAB)

### 5.3.1 Responsibilities of Submitting Organizations (SO)

An SO is responsible for the following activities:

- Providing the information specified in Annex A in the form required by the RA.
- Providing any additional information that may reasonably be required by the RA to enable it to perform its responsibilities.
- Ensuring that when a data element has been registered, specification of the attribute values of the data element is not changed without first advising the RA.

### 5.3.2 Responsibilities of Responsible Organizations (RO)

An RO shall:

- At the RA's request, advise on the semantics, name, and permissible value of data elements submitted for registration.
- Notify the RA of any amendments to the data elements assigned to the RO.
- Decide, in case of confusion and/or conflict, on the attribute values of the assigned data elements.

### 5.3.3 Responsibilities of Registration Authorities (RA)

Regarding applications for registering data elements, an RA shall fulfill the following responsibilities:

- Receive and process applications for the registration of data elements, assign IRDI values, and maintain a data element register in accordance with the following provisions.
- Consult the appropriate ROs when requests affect the mandatory attributes of the data elements being registered.
- Handle all aspects of the registration process in accordance with good business practice and, in particular, take all reasonable precautions to safeguard the register. Specifically, the responsibilities of an RA are as follows:

- Receive applications for the registration of data elements from its SOs.
- Review and facilitate the progression of the applications through the registration cycle.
- Assign appropriate Registration Status.
- Notify SOs of its decisions according to the procedure specified in this part of ISO/IEC 11179.

## **6 Procedures for the registration of data elements**

### **6.1 Registration procedures for the registration of new data elements**

Applications to an RA for the registration of data elements shall be made by its SOs, after having consulted, as appropriate, with their corresponding ROs.

The RA shall decide whether an application is acceptable. If the proposal is acceptable, the RA shall mark the Registration Status as "Recorded."

If the application is acceptable, the RA shall assign an IRDI value in accordance with 4.2. The RA shall then add the IRDI and the information provided in the application to the register of data elements. The SO and, as appropriate, its RO shall be sent a copy of the entry and requested to check the entry and advise the RA immediately if any errors are detected. After verification by the RA, the RO, and the SO, the Registration Status of the acceptable proposal shall be marked as "Certified" or "Standardized," as appropriate, in accordance with 6.3.

If the application is not acceptable, it shall be returned to the SO with a clear statement of the reasons for rejection. If possible, constructive advice shall be given as to the manner in which the application could be rendered acceptable. Reasons for rejection may, for example, include the omission of essential information.

### **6.2 Registration procedures for amendments**

Requests for changes to the register of data elements will normally be notified to the RA by the original SO. If requests for change are received from any other source, the RA shall refer the request to the original SO and, as appropriate, to the RO, for confirmation before taking any further action.

The RA shall update the register of data elements. The SO and, as appropriate, the RO, shall be sent a copy of the entry and requested to check the entry and advise the RA immediately if any errors are detected.

If the request for change is not acceptable, it shall be returned to the SO and, as appropriate, the RO, with a clear statement of the reasons for rejection. If possible, constructive advice shall be given as to how to make the request acceptable. Reasons for rejection may, for example, include the omission of essential information.

Except as specified above, the registration procedures for amendments remain explicitly the same as those for new data elements (RE: 6.1).

### 6.3 Specification of Registration Status

This attribute provides "a designation of the position in the registration life-cycle of a data element." (RE: ISO/IEC 11179-3, 6.5.2.)

The following statuses shall be assigned and recorded by RAs for each data element in the process of implementing the procedures prescribed in 6.1 and 6.2:

**recorded:** The registered data element contains all mandatory attribute values, but the contents may not meet the quality requirements specified in other parts of ISO/IEC 11179.

**certified:** The recorded data element has met the quality requirements specified in this and other parts of ISO/IEC 11179.

**standardized:** The certified data element that is established by the Registration Authority as a data element preferred for use in data interchange and in new or updated applications. The "standardized" data element may be unique within the registry, or it may be the preferred data element among similar data elements.

**retired:** A recorded, certified, or standardized data element is no longer used after having been marked as "phased out" for a period of time as prescribed by the appropriate RA.

The RA shall establish further detailed criteria required within its domain to achieve each status level.

### 6.4 Specification of Administrative Status

This is a designation of the position in the processing life-cycle of an RA for handling registration requests. The values of this attribute are assigned by an RA with the permissible values, such as Received, Draft, Rejected, Submitted for Certification, etc., to facilitate the management of its register. It is the responsibility of the RA to refine, publish, and implement this administrative feature.

## 7 Registers of data elements

Each RA shall maintain a register for data elements that fall under its purview.

### 7.1 Contents

The register shall contain, at minimum, the information contained in normative Annex A, Data Element Register, for each data element registered.

### 7.2 Language(s)

The language(s) to be used for the register shall be determined by the procedure prescribed by the appropriate RA.

### 7.3 Availability of the register of data elements

The availability of the contents of the register shall be governed in accordance with the procedure prescribed by the appropriate RA.

### 7.4 Copyright of the register of data elements

Since the RAs are self-governing bodies operating voluntarily under the procedures specified by this part of ISO/IEC 11179, the copyright of the registers shall belong to the founding RAs.

## **Annex A** (normative)

### **Data Element Registers**

Each entry in the data element registers shall contain values for the following attributes:

#### **A.1 Basic attributes of data elements.**

These are the basic attributes specified in Part 3 of ISO/IEC 11179 and listed in Table A-1.

#### **A.2 Administrative attributes.**

The attributes, listed in Table A-2, are the minimum set of additional attributes required for the maintenance of a data element register, in accordance with Annex E, Registration Definitions and Guidelines for Procedure Standards, of ISO/IEC Directives, Procedures for the Technical Work of ISO/IEC JTC 1 on Information Technology.

#### **A.3 Additional attributes.**

These attributes may be added to satisfy technical requirements peculiar to the class(es) of objects maintained by the RA and/or administrative needs of an RA. Such RA shall specify these attributes using the same descriptors as those prescribed in Clause 4, *Descriptors of a Data Element Attribute*, of Part 3 of ISO/IEC 11179. Please see Clause B.1 for further discussion and suggestions.

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**Table A-1: Basic attributes of data elements for data element registers  
(RE: Part 3 of ISO/IEC 11179)**

Attribute category	Name of data element	RE: ISO/IEC 11179-3	Obligation	Responsibility		
				SO	RO	RA
Identifying	Name	(6.1.1)	M	P	R	R
	Identifier	(6.1.2)	M*			A
	Version	(6.1.3)	M*			A
	Registration authority	(6.1.4)	M*	P		R
	Synonymous name	(6.1.5)	O	P		R
	Context	(6.1.6)	M*	P		R
Definitional	Definition	(6.2.1)	M	P	R	R
Relational	Classification scheme	(6.3.1)	O	P		R
	Keyword(s)	(6.3.2)	O	P		R
	Related data reference	(6.3.3)	O	P		R
	Type of relationship	(6.3.4)	C	P		R
Representational	Representation category	(6.4.1)	M	P		R
	Form of representation	(6.4.2)	M	P		R
	Data type of data element values	(6.4.3)	M	P		R
	Maximum size of data element values	(6.4.4)	M	P		R
	Minimum size of data element values	(6.4.5)	M	P		R
	Layout of representation	(6.4.6)	C	P		R
	Permissible data element values	(6.4.7)	M	P	R	R
Administrative	Responsible organization	(6.5.1)	M*	P		R
	Registration status	(6.5.2)	M*			A
	Submitting organization	(6.5.3)	M*	P		R
	Comments	(6.5.4)	O	P		R

RA— Registration Authority      O— Optional  
 CO— Responsible Organization    M— Mandatory  
 SO— Submitting Organization    P— Provide  
 A— Assign                            R— Review  
 C— Conditional

\* For the purpose of registering data elements, the obligations of the attributes marked with an asterisk (\*) are changed to mandatory status. Because a register may be shared by multiple organizations, the values of these attributes must be present to permit appropriate update and retrieval.

**Table A-2: Administrative attributes for data element registers**

Name of data element	Obligation	Responsibility	
		SO	RA
Administrative status	M		A
Address of submitting organization (SO)	M	P	R
Name of SO's contact person	M	P	R
Title of SO's contact person	O	P	R
Postal address of SO's contact person	M	P	R
Electronic mail address of SO's contact person	O	P	R
Phone number of SO's contact person	M	P	R
Fax number of SO's contact person	O	P	R
Telex number of SO's contact person	O	P	R
Date of original assignment	M		A
Date of last update	C		A
Address of current owner (CO)	M	P	R
Name of CO's contact person	M	P	R
Title of CO's contact person	O	P	R
Postal address of CO's contact person	M	P	R
Electronic mail address of CO's contact person	O	P	R
Phone number of CO's contact person	M	P	R
Fax number of CO's contact person	O	P	R
Telex number of CO's contact person	O	P	R

RA — Registration Authority  
 CO — Responsible Organization  
 SO — Submitting Organization  
 CO — Current Owner  
 A — Assign  
 C — Conditional  
 O — Optional  
 M — Mandatory  
 P — Provide  
 R — Review

Note: These attributes are required and/or recommended in Annex E of the ISO/IEC JTC 1 Directives.

## **Annex B** (informative)

### **Additional registration-related information**

#### **B.1 Additional attributes**

RAs may require additional attributes to be submitted and/or maintained. These can be grouped into two major categories: Technical and Administrative Attributes.

##### **B.1.1 Technical attributes**

Depending on the classes of object(s) for which an RA is responsible, the list of these attributes required for a particular RA may be expanded to accommodate its needs and those of its members. For example:

- An engineering-oriented RA may capture and maintain additional attributes, such as unit of measure, formula, method/procedure used, etc.
- An information systems data modeler may add attributes, such as usage, steward, owner, quality indicator, etc.

##### **B.1.2 Administrative attributes**

Additional administrative attributes, suggested for RA in Annex E of the ISO/IEC JTC 1 Directives, include, but are not limited to:

- Request for update
- Release authorization
- Justification for registration
- Reasons for action taken
- Applicable technical and/or procedure standards.

RAs may specify other attributes as needed to maintain their registers.

#### **B.2 Permissible DE values and version**

Permissible DE values may be enumerated, axiomatic, or unspecified.

Enumerated Permissible DE values, also called Bounded Domain (e.g. Country Code as defined under ISO 3166), usually do not change without appropriate action(s) taken in accordance with prescribed procedure(s). *Changes to Bounded Domain usually require a new version for the affected data element.*

Axiomatic or unspecified Permissible DE values, also called Unbounded Domain (e.g. possible names of employees), are not defined. *Changes to Unbounded Domain usually do not require a new version to the affected data element.*

Each RA, however, shall establish specific guidelines for the subject matters in which it specializes and for which it is responsible.

### **B.3 Hierarchy of Registration Authorities (RA)**

The number of potential data elements to be registered in the framework of ISO/IEC 11179 is unlimited and diverse. So is the number of potential RAs.

It is envisioned that organizations wishing to share information among themselves may want to establish an RA for that purpose. An RA and its members may subsequently want to share subsets of data elements with other RAs and their members. If two or more RAs believe that they should standardize certain data elements across their areas of interest, they may accomplish this requirement in a couple of ways: Either they will negotiate to complement one another's registers with their already standardized data elements, or they will establish another RA to register data elements that they want to share, but are not available or agreed upon. Under the latter circumstance, the current RAs will become SOs and the newly founded RA will become the RA for shareable data elements. Conceptually, this hierarchy may be repeated.

This part of ISO/IEC 11179 allows as much flexibility as needed for data sharing purposes. The viability of individual RAs depends on other economic and practical benefits to their subscribing communities.

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