

ISO/IEC JTC 1/SC 32 N 0817

Date: 2002-05-14

REPLACES: --

<p style="text-align: center;">ISO/IEC JTC 1/SC 32</p> <p style="text-align: center;">Data Management and Interchange</p> <p style="text-align: center;">Secretariat: United States of America (ANSI)</p> <p style="text-align: center;">Administered by Pacific Northwest National Laboratory on behalf of ANSI</p>
--

DOCUMENT TYPE	Other Document (Open)
TITLE	OPEN-EDI STANDARDS AND STANDARDIZATION WORK Presentation
SOURCE	WG 1 Jake Knoppers
PROJECT NUMBER	
STATUS	This was presented at the Seoul SC 32 Tutorial by WG 1
REFERENCES	
ACTION ID.	FYI
REQUESTED ACTION	
DUE DATE	
Number of Pages	29
LANGUAGE USED	English
DISTRIBUTION	P & L Members SC Chair WG Conveners and Secretaries

Douglas Mann, Secretariat, ISO/IEC JTC 1/SC 32

Pacific Northwest National Laboratory *, 13600 Angelica Court, Chantilly, VA, 20151-3360,
United States of America

Telephone: +1 202-566-2126; Facsimile: +1 202-566-1639; E-mail: MannD@battelle.org

available from the JTC 1/SC 32 WebSite <http://www.jtc1sc32.org/>

*Pacific Northwest National Laboratory (PNL) administers the ISO/IEC JTC 1/SC 32 Secretariat on behalf of ANSI

PRESENTATION ON ISO/IEC JTC1/SC32 WG1

OPEN-EDI STANDARDS AND STANDARDIZATION WORK

TO

ISO/IEC JTC1/SC32 PLENARY

2002-05-06, Seoul, Korea

Note: This presentation is a variant on that presented to the “INTERNATIONAL FORUM OF STANDARDIZATION FOR METADATA & E-BUSINESS”, **2002 ISO/IEC JTC1/SC32 Open Forum**, *Hosted by KATS (Korean Agency for Technology and Standards, Seoul, Korea, 29-30 April, 2002*

OUTLINE OF PRESENTATION

- 1. Key Sources of Presentation: Open-edi standards and Programme of Work of JTC1/SC32/WG1**
- 2. Priority of SC32/WG1 Standardization Work & Use of its Standards**
- 3. The focus of Open-edi standards is the “Business Transaction”**
- 4. Standardization Challenge - Bridging and Supporting the Different Frameworks of Real World Requirements on “e-business transactions”**
- 5. What is “business”? What is a “business transaction”?**
- 6. What makes a business transaction unique? “Persons” and “Commitment Exchange”**
- 7. Modelling components of “e-Business transactions” as “business objects”**
- 8. Link with work of SC32 WG2, WG3 & WG4**

1. Key Sources of Presentation: Open-edi standards and Programme of Work of JTC1/SC32/WG1 (1/2)

The key sources for this presentation are the Open-edi standards of JTC1/SC32.

- ISO/IEC 14662:1997 *Information technology – Open-edi Reference Model / Technologies de l'information - Technologies de l'information - Modèle de référence EDI-ouvert* Available free of charge at << <http://www.jtc1.org> >>
- ISO/IEC 15944-1:2002 *Information technology – Business Agreement Semantic Descriptive Techniques Part 1: Business Operational Aspects of Open-edi for Implementation* (completed FDIS ballot stage, IS will be available for free)
- ISO/IEC 15944-2:200n *Information technology – Business Agreement Semantic Descriptive Techniques Part 2: Registration of Scenarios and Their Components as Business Objects* (in Draft CD stage, IS will also be available for free)
- ISO/IEC 15944-2:200n *Information technology – Business Agreement Semantic Descriptive Techniques Part 4: Business Transactions and Scenarios – Accounting and Economic Ontology* (initial Working Draft, IS will also be available for free)

1. Key Sources of Presentation: Open-edi standards (2/2)

The key sources for this presentation are the Open-edi standards of JTC1/SC32.

- ISO/IEC 18033 *Information technology – Identification and Mapping of Categories of Jurisdictional Domains* (in 1st WD stage)
- ISO/IEC 18002 *Information technology – IT-Enablement for Widely Used Coded Domains* (in 1st WD stage) This is a project of SC32/WG2 – Metadata (with close collaboration with SC32/WG1 Open-edi).

The Open-edi standards are the foundation e-business standards. (For other relevant standards see ISO/IEC 15944-1 *Clause 2. Normative References*)

.

2. Priority of SC32/WG1 Standardization Work & Use of Its Standards

Priority of SC32/WG1 standardization work is on that required to support the needs of “e-business transactions”, i.e. electronic commerce, electronic administration (e.g. e-government), etc.

Use of SC32/WG1 standards include:

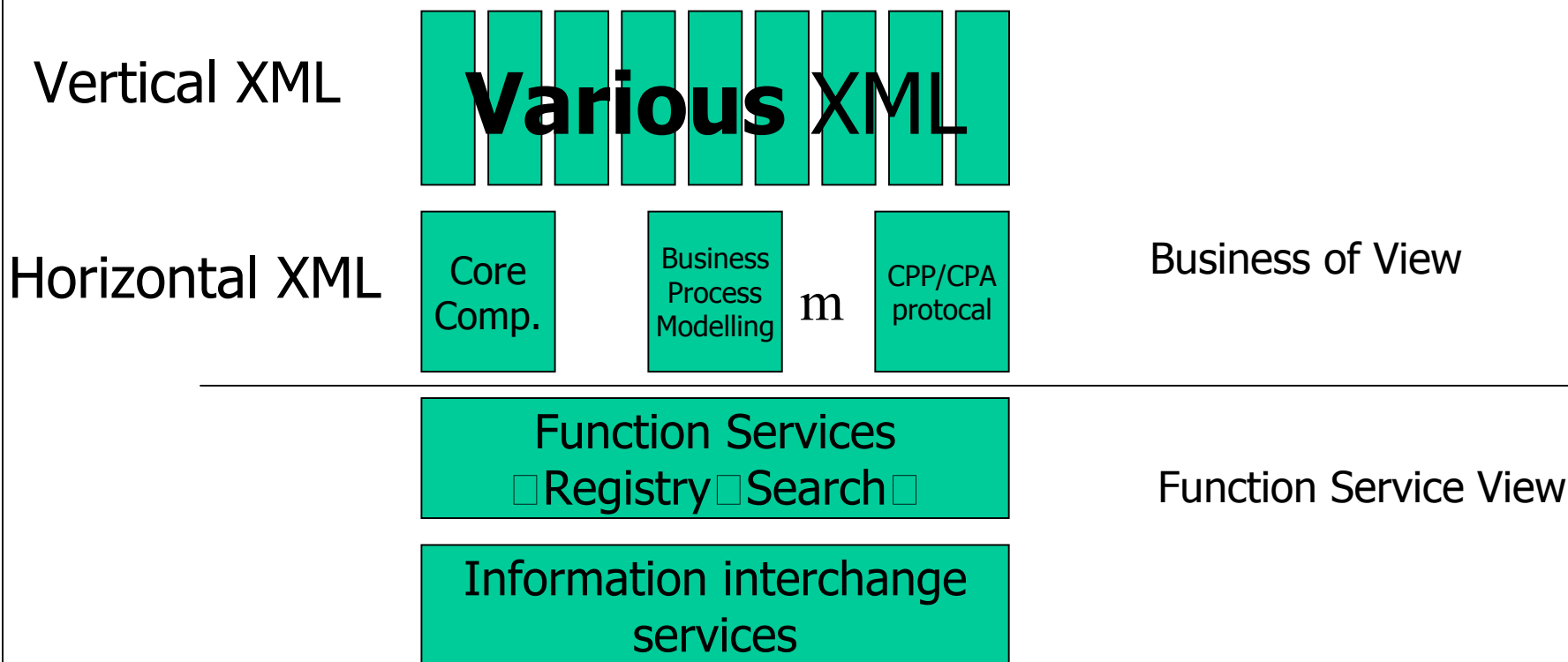
- UN/CEFACT and its Working Groups which use the ISO/IEC 14662 Open-edi Reference Model as its foundation standards and whose specifications for “core components” in turn serve as inputs in ISO/IEC 15944-2+ “business descriptive semantic techniques” work (See Open Forum presentation by Klaus-Dieter Naujok, former ebXML chair, titled “UN/CEFACT Business & Information Process Modelling: Commitment-Oriented Orchestration Layer”)
- ebXML , i.e this joint UN/CEFACT & OASIS work is based on the ISO/IEC 14662 Open-edi Model Reference Model. There is close collaboration with ebXML work. SC32/WG1 members participate in ebXML work. Some are Project Leaders for ebXML projects. Much of the *eb* part of the joint OASIS / UN/CEFACT work is being migrated into ISO/IEC JTC1/SC32/WG1 standards development.

2. Priority of SC32/WG1 Standardization Work & Use of Its Standards (2/2)

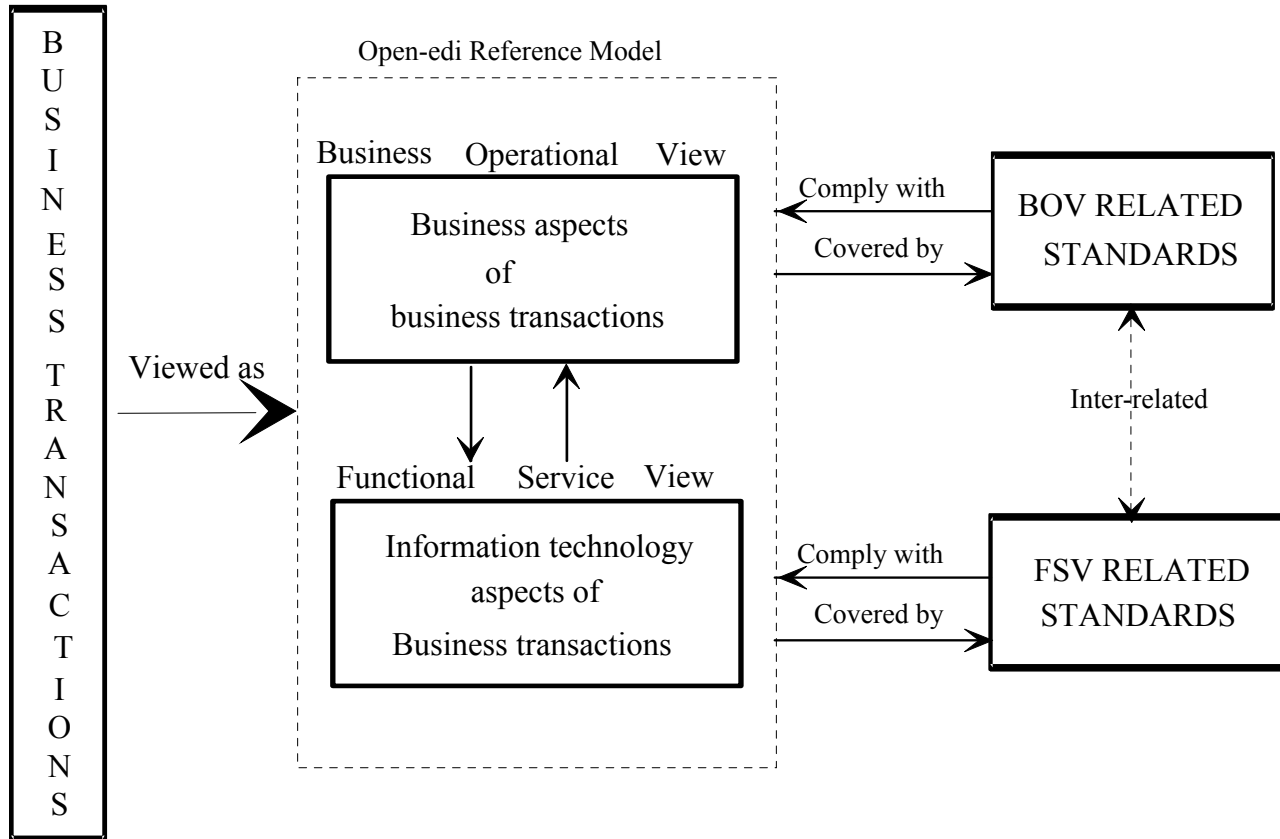
Use of SC32/WG1 standards include:

- Japan (see Open Forum presentation by Hisanao Sugamata, Electronic Promotion Council(ECOM) on “Business Process & Business Information Model Sharing”
- Korea (see Open Forum presentation by Jasmine Jang, Korea Institute for Electronic Commerce (KIEC) titled “e-Business Process using UMM”. Korea uses the REA(Resource-Event- Agent) Ontology developed by William E. McCarthy and Guillo Geerts and which is now forming the basis for development of ISO/IEC 15944-4 *Business Transactions and Scenarios – Accounting and Economic Ontology*. Dr. McCarthy is the Project Editor for Part 4.
- Canada ISO/IEC 15944-1 used in support of the Government OnLine(GOL) initiative as part of “Secure Channel” for e-government
- China Open-edi Framwork in use (See presentation to SC32/WG2 by Wu Zhigang (China IT Standardization Technical Committee, China Electronics Standardization Institute) and Liu Zhiting & Wei Hong (China National Institute of Standardization)

Reference Model for Interchange based on XML

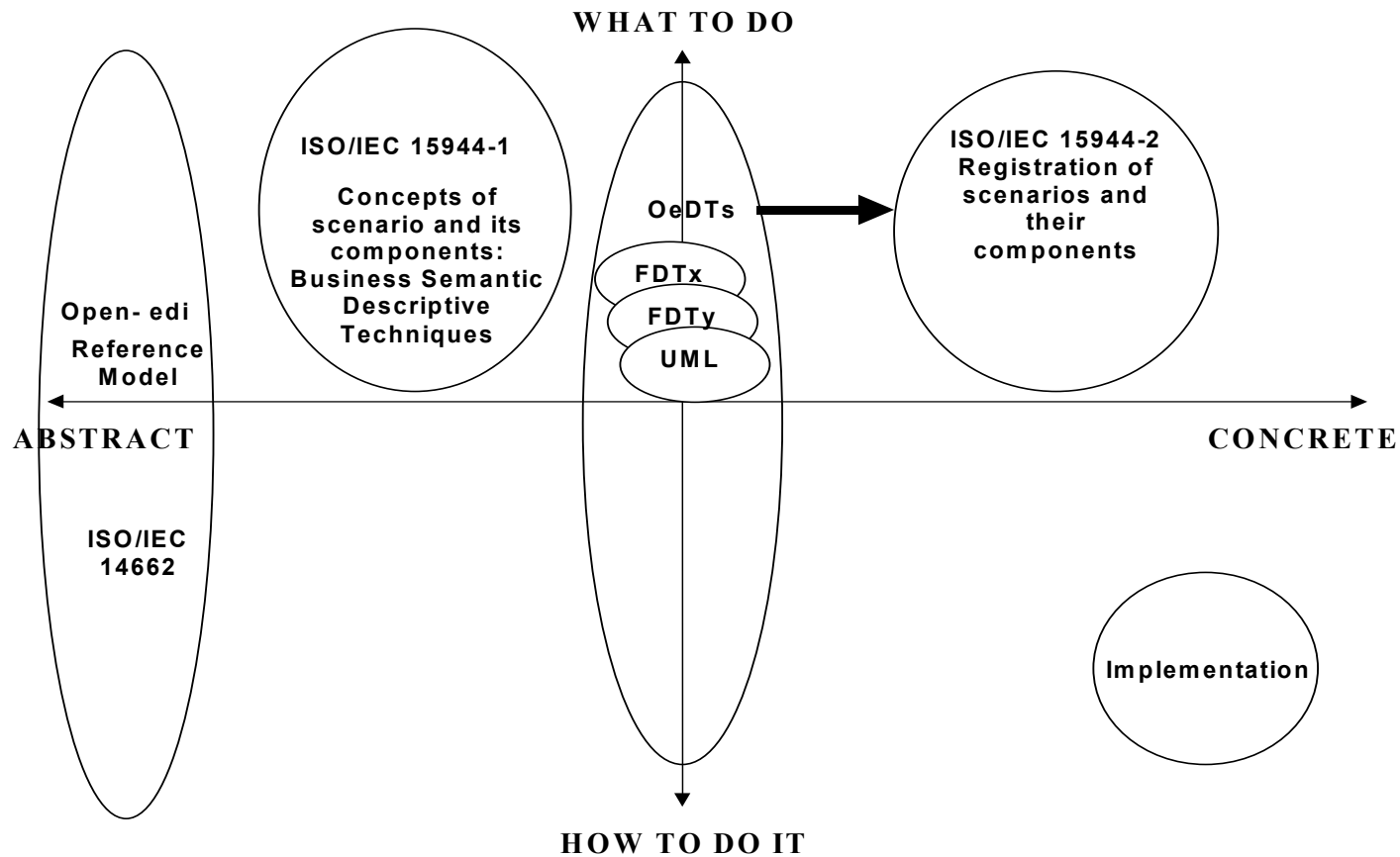


3. The basis of Open-edi is the “Business Transaction” (1/2)



3. Relationship and Interworking of Open-edi Standards (2/3)

(Note: this figure is in process of being updated)



3. The basis of Open-edi is the “Business Transaction” (3/3)

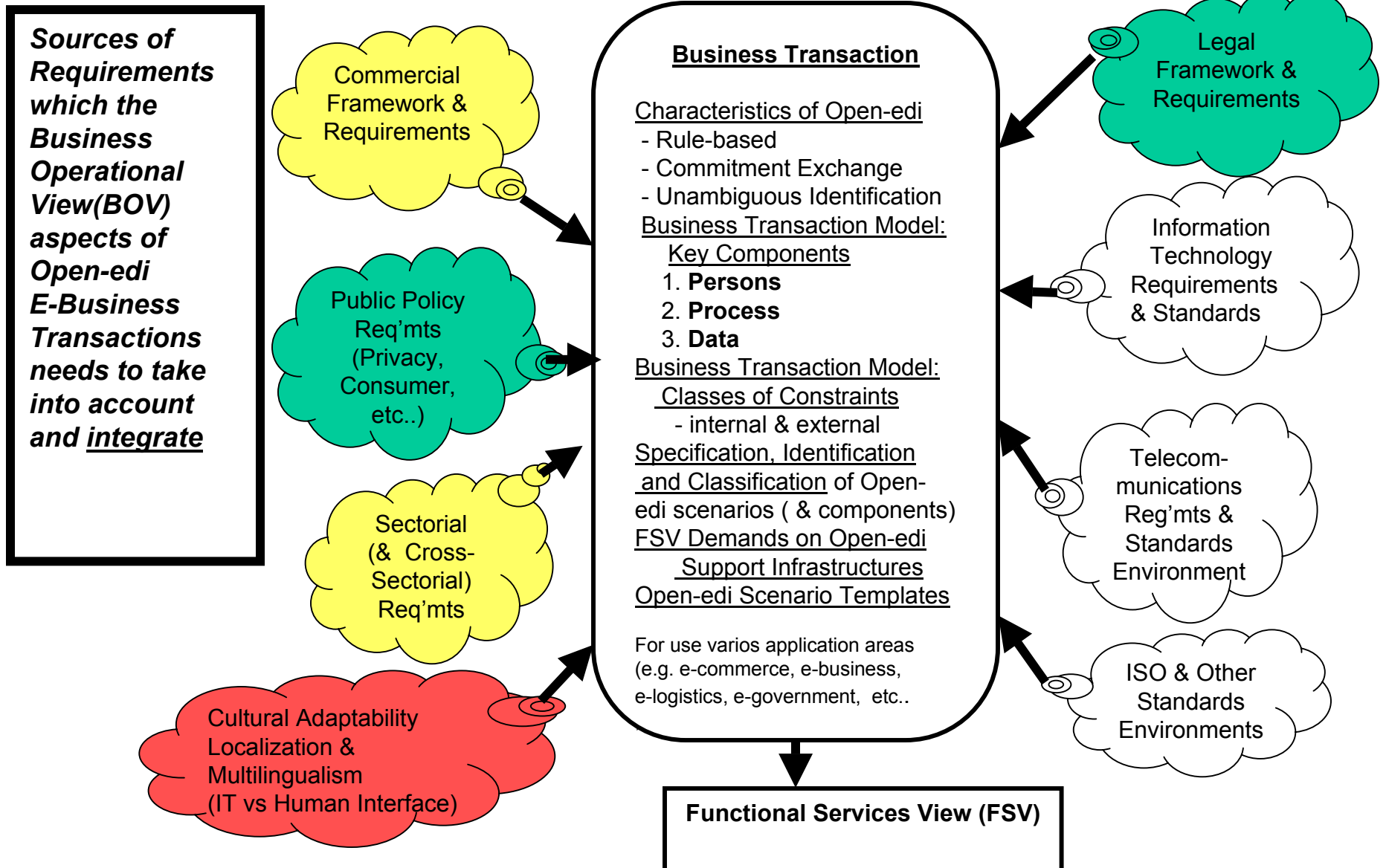
Business Operational View (BOV): a perspective of *business transactions* limited to those aspects regarding the making of business decisions and commitments among *organizations*, which are needed for the description of a *business transaction*

[ISO/IEC 14662:1997 (3.1.3)]

Functional Service View (FSV): a perspective of *business transactions* limited to those information technology interoperability aspects of *IT Systems* needed to support the execution of *Open-edi transactions*

[ISO/IEC 14662:1997 (3.1.7)]

4. Standardization Challenge: Bridging & Supporting Different Frameworks of Real World Req'ments



5. What is “business”? What is a “business transaction”?

business :a series of processes, each having a clearly understood purpose, involving more than one organization, realized through the exchange of information and directed towards some mutually agreed upon goal, extending over a period of time [ISO/IEC 14662:1997 (3.1.2)]

business transaction: a predefined set of activities and/or processes of *organizations* which is initiated by an *organization* to accomplish an explicitly shared business goal and terminated upon recognition of one of the agreed conclusions by all the involved *organizations* although some of the recognition may be implicit [ISO/IEC 14662:1997 (3.1.4)]

process: a series of actions or events taking place in a defined manner leading to the accomplishment of an expected result [ISO/IEC 15944-1 (3.1.51)]

6. Key Elements: What makes a business transaction unique?

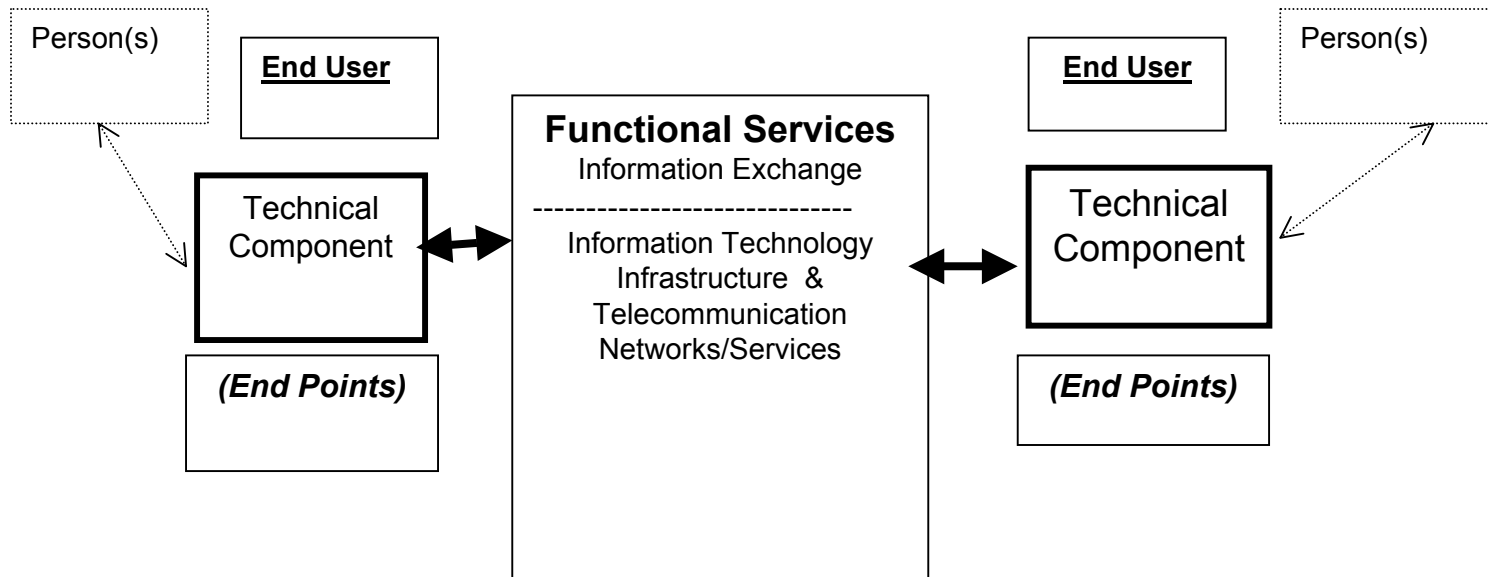
“Persons” and “Commitment exchange” (1/8)

Key element of any (electronic) “business transaction” (“for profit” or “not-for-profit”) is that it involves (1) “commitment” exchange in addition to any information exchange and (2) “Persons” making those commitments

- Current focus to date of IT standards, i.e. those of ISO/IEC JTC1, has been of portability and interoperability of information exchange pertaining to processes and data (including those in the area of identification cards (JTC1/SC17), security services (JTC1/SC27), data management and interchange(JTC1/SC32), metadata, etc.
- Current focus of ISO sectoral application area standards has been on specialized metadata and software engineering in support of sectoral needs (e.g. commerce, industry and administration (ISO TC154), financial services (ISO/TC68), transport information and control systems (ISO TC204), geographic information/geomatics (ISO TC 211), etc.
- A key aspect of “e-commerce, e-business, e-logistics, e-government, etc. is the introduction of “commitment exchange” in support of decision-making (and “contract formation”) of “Persons” identifying themselves and representing themselves in a dematerialized form (e.g. via the Internet).

6. Key Elements : Current Focus of IT standards are Technical Components as End Users

(2/8)



**Figure 4: Illustration of “Technical Components” as End Users
of
Information Exchange(s) in IT Standards**

6. Key Elements: In Business Transactions are “Persons” as End Users Capable of Making Decisions as “Commitments”(3/8)

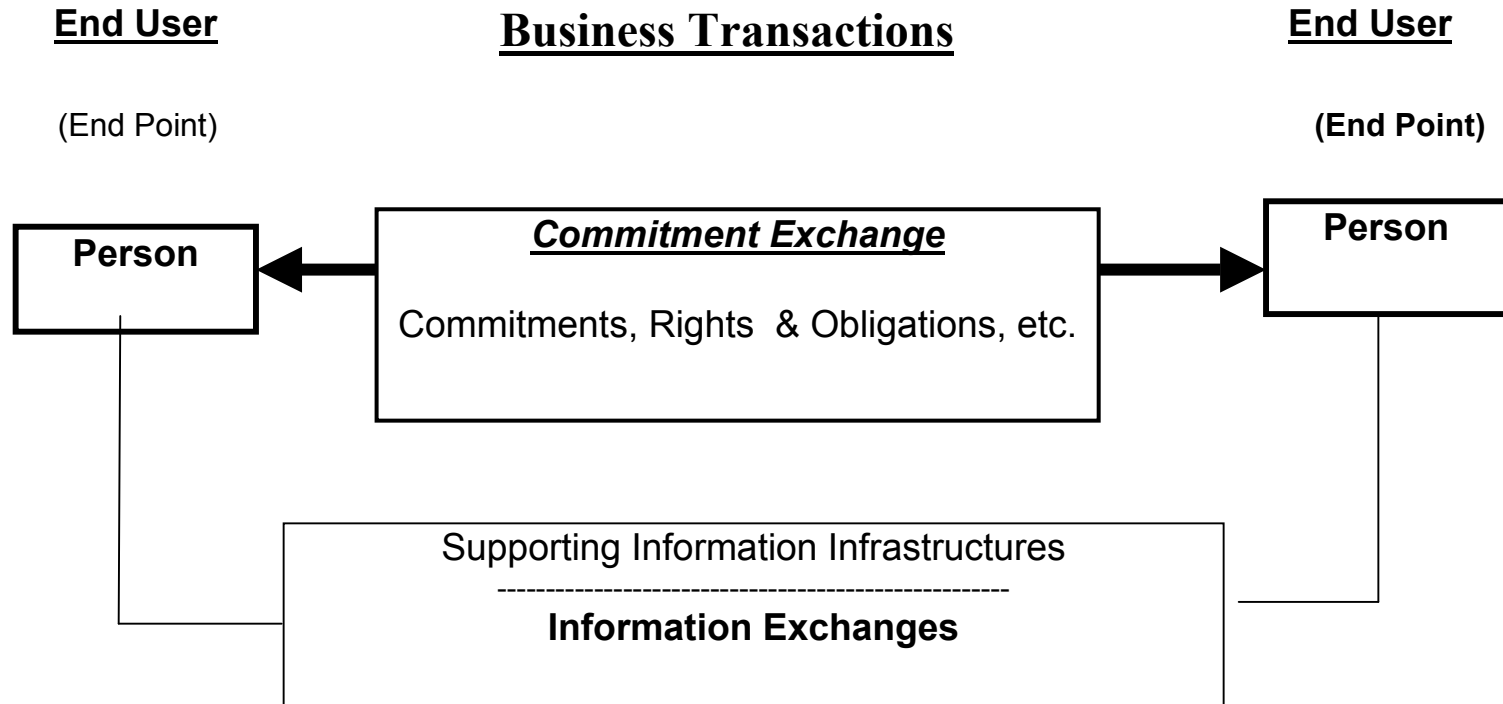


Figure 5: Illustration of “Persons” as End Users in “Commitment Exchange” in Business Transactions Based on Existing Commercial and Legal Frameworks

6. Key elements: e-business transactions integrate “Persons” and “Commitments” (4/7)

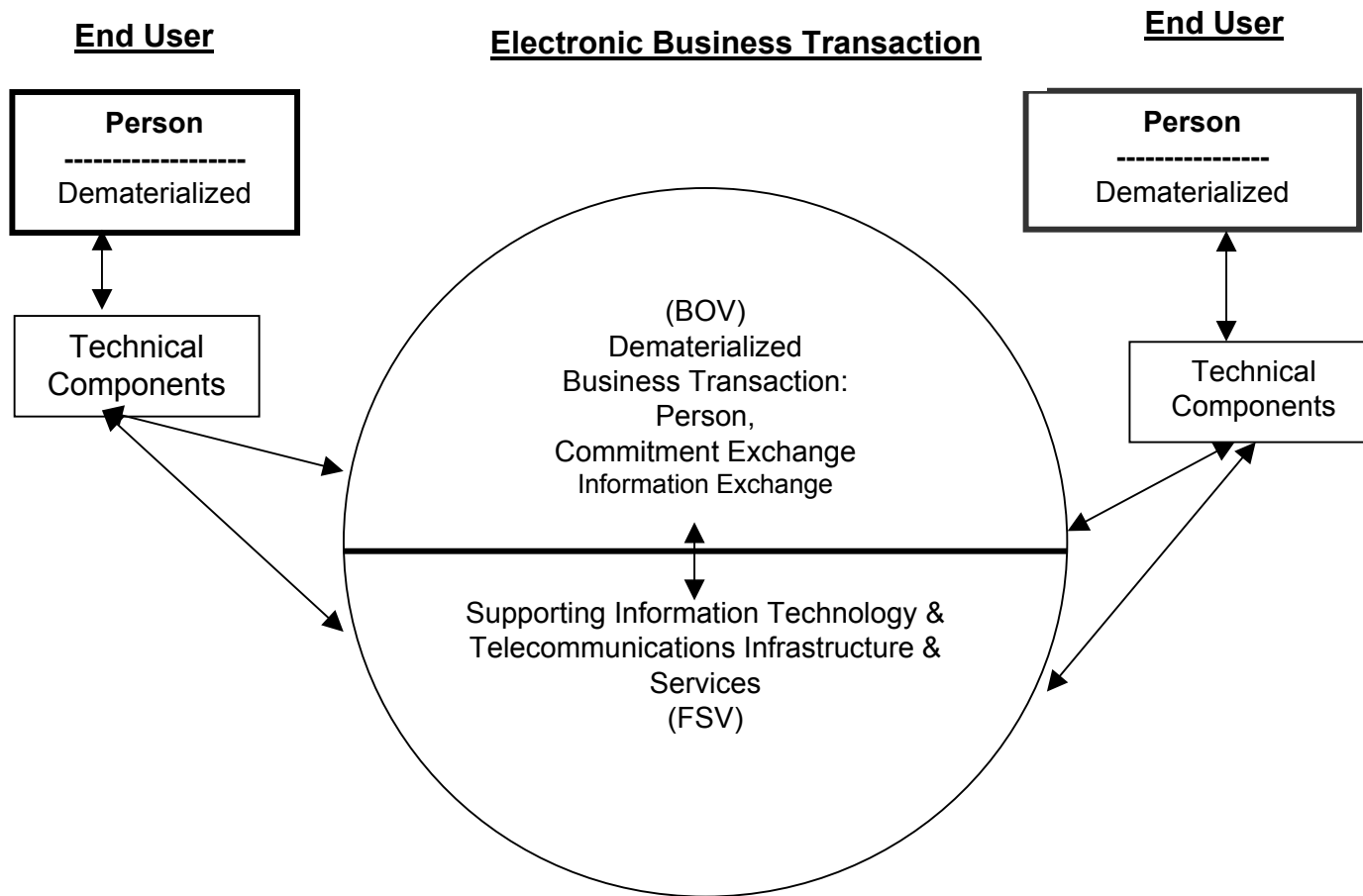


Figure 6: Integrated View - Commercial/Legal and IT Perspectives of Persons as “End Users” in an Electronic Business Transaction through Technical Components

6. Key Elements: Key Elements: What is “commitment”? (5/8)

commitment: the making or accepting of a right, liability or responsibility by a Person that is capable of enforcement in the jurisdiction in which the commitment is made [ISO/IEC 15944-1 (3.1.09)]

In (electronic) business transaction, all commitments are to be stated explicitly and unambiguously and be understood by all Persons involved in a business transaction.

Examples of “commitments”: buying/selling, warranties, terms of payment, notarization, certificates, permits, licenses, identification, registration, authentication, privacy, confidentiality, IPR, professional services, regulatory sectors, etc.

The use of IT requires the capture through formal description techniques (FDTs), such as Unified Modeling Language (UML), of the commitments to be made to be explicitly specified as well as the associated applicable rules and constraints in order to ensure both semantic completeness/unambiguity and interoperability as well as computer processibility.

6. Key Elements: What is a “Person”? (6/7)

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

[ISO/IEC 15944-1:2002 (3.1.4)]

In ISO/IEC 14662 and ISO/IEC 15944-1 “party” is used to refer to Persons in their generic sense independent of roles, or Persons defined as subtypes. A “party to a business transaction” must have the properties and behaviours of a “Person”. Persons are modeled as “role players” or “actors” when modeling a business transaction or a part thereof.

There are three broad categories, i.e. "subtypes, of Persons, as players in Open-edi business transactions; i.e. as "**individual**", as "**organization**", and as "**public administration**". Consequently, business transactions executed through Open-edi can support the following business relationships reflecting these three subtypes of "Person".

individual <-> individual

individual <-> organization (a.k.a. “B2C”)

individual <-> public administration

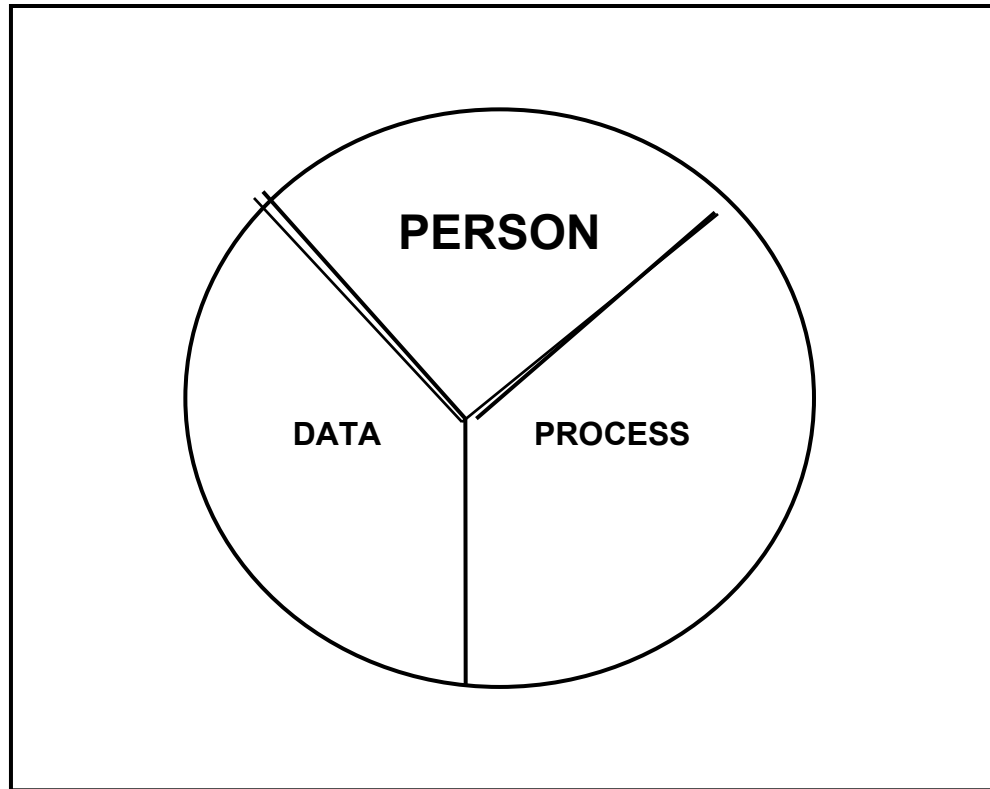
organization <-> organization (a.k.a. “B2B”)

organization <-> public administration (a.k.a. “B2G”)

public administration <-> public administration (a.k.a. “G2G”)

The term “Person” is used to represent these business relationships with a specific focus on including the legal and commercial requirements of "commitment exchange" in the business operational view (BOV) of business transactions.

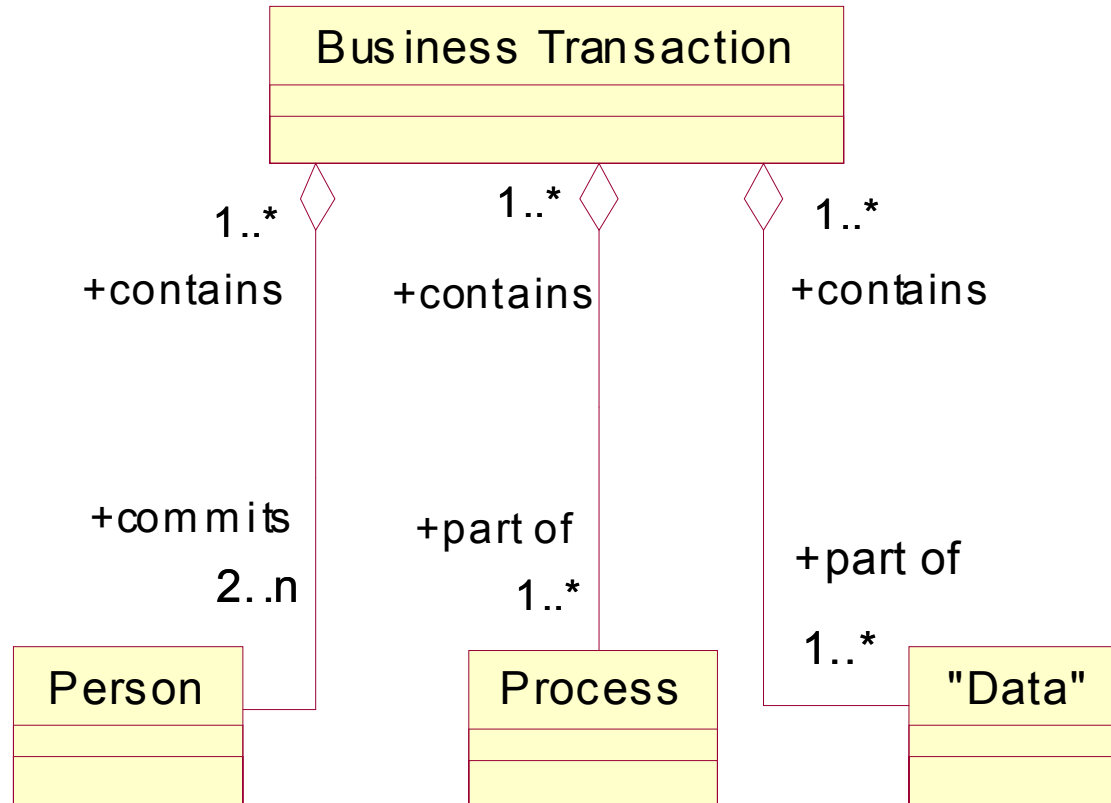
6. Key elements: Business Transaction Model -Fundamental Components (6/8)



**Figure 7: Business Transaction Model - Fundamental Elements
(Graphic Illustration)**

6. Key Elements: Fundamental Components of a Business Transaction

(8.8)



7. Modeling Components of E-Business Transactions as Business Objects

7.1 Focus is on the “WHATs” not the “HOWS”

Open-edi standardization work for “e-business” focuses on the identification, specification, modelling of common elements of business operational views and requirements of business transactions, i.e. as the “WHATs”.

Open-edi standardization work on the Business Operational View part of business transactions is independent of the “HOWs”, i.e. the IT-platform, database language, syntaxes (ASN.1, EDIFACT, HTML, XML, etc.). Technologies change much faster than common business requirements and practices, (e.g. from an “ebXML” perspective the focus is on the “eb” not the XML (or HTML)).

7. Modeling E-Business Transactions as Business Objects

7.2 Key Modeling Constructs: Scenarios and Their components (1/4)

Open-edi scenario: a formal specification of a class of *business transactions* having
` the same business goal [ISO/IEC 14662:1997 (3.1.12)]

A business transaction may be specified as one or more Open-edi-scenarios

Business communities can propose Open-edi scenarios as candidates for standardisation and registration into (an) Open-edi scenario repository(ies). Procedures to be used for introducing new Open-edi scenarios and updating Open-edi scenarios in one or more repositories are specified in a BOV related standard.

Parties will have a need for both generic and specific scenarios. Generic scenarios set out the overall scenario structure for a business transaction; however, these are realised through profiles for specific scenarios which support particular sectorial, legislative and other requirements.

All the specifications included in an Open-edi scenario are made at an abstract level. This is independent of matters such as data representation, coding, encoding. The FDTs to be used for these scenarios shall therefore allow for both hierarchical decomposition and a modular approach. Therefore, BOV related standards shall provide for the possibility of defining Open-edi scenarios with different levels of granularity.

7. Modelling E-Business Transactions as Business Objects

7.2 Key Modelling Constructs: Scenarios and Their Components (2/4)

The components of a scenario are: scenario attributes, roles, information bundles (and semantic components). An Open-edi scenario is specified through roles, information bundles and scenario attributes.

scenario attribute: the formal specification of *information*, relevant to an *Open-edi scenario* as a whole, which is neither specific to *roles* nor to *Information Bundles* [ISO/IEC 14662:1997 (4.1.2.3)]

role: a specification which models an external intended behavior (as allowed within a scenario) of an *Open-edi Party* [ISO/IEC 14662:1997 (4.1.2.1)]

As a (re-useable) business object, a role contains the formal description of this behaviour. A role usually represents a business function and associated commitments, obligations, rights, etc. of a Person as well as associated common business processes. An Open-edi role is the (re-useable) computer interpretable and processable specifications of the same, instantiated by a Person as an Open-edi Party. The behaviour of a role is specified by states, transitions, events, actions and/or internal functions. An Open-edi scenario is composed of two or more roles.

7. Modelling E-Business Transactions as Business Objects

7.2 Key Modelling Constructs: Scenarios and Their Components (2/4)

Information Bundle (IB): the formal description of the semantics of the recorded information to be exchanged by Open-edi Parties playing roles in an Open-edi scenario [ISO/IEC 14662:1997 (4.1.2.2)]

Some Rules Governing IBs as Business Objects [From ISO/IEC 15944-1, Clause 7.5.1]

A formal description of Information Bundle is used to model the semantic aspects of the business information to be exchanged and are constructed using semantic components.

An IB consists of one or more semantic components and/or other IBs.

IBs are the bindings between Semantic Components and Roles in a Scenario

Information Bundles are identified and specified using IB attributes

Any business rules controlling the content and use of an IB shall be identified and the nature and functioning of the rules explicitly stated. The source of such business rules shall also be referenced especially where these involve external constraints.

7. Modelling E-Business Transactions as Business Objects

7.2 Key Modelling Constructs: Scenarios and Their Components (2/4)

Semantic Component (SC): a unit of recorded information unambiguously defined in the context of the business goal of the business transaction [ISO/IEC 14662:1997 (4.1.2.2)]

Some Rules Governing SCs as Business Objects [From ISO/IEC 15944-1, Clause 7.5.5]

A Semantic Component may be atomic or composed of other SCs

A SC can be a single (simple) data element, a composite data element, or a data structure (e.g. a set of data elements which interwork in order to ensure semantic completeness and ensure the required unambiguousness). A Semantic Component shall be specified using SC attributes.

Where the set of permitted values of the semantic component is governed by a code set, the code set utilized shall be identified and referenced (e.g. as a “coded domain”). By using such coded domains, Open-edi parties agree to the business practice(s) and rule set(s) of which the code set referenced forms part. (e.g. INCOTERMS).

Note: Well-defined and identified metadata and data elements (e.g. 11179-3 “administered items”), ebXML Core Components, EAN/UPC product codes, etc. can serve as candidate SCs and IBs

7.3 What is a “business object”?

“an unambiguously identified, specified, referenceable, registerable and re-useable scenario or scenario component of a business transaction” (ISO/IEC 15944-2 draft definition)

Note: As an “object”, a “business object” exists only in the context of a “business transaction”.

ISO/IEC 15944-2 supports the registration of scenarios and scenario components as “objects”. The objective of Part 2 is the identification, specification, registration, referencing and re-use of common “business objects” for use in “business transactions”.

Re-usability of scenarios and scenario components is an achievable objective because (existing) business transactions, whether conducted on a for-profit or not-for-profit basis, already consist of reusable components unambiguously understood among participating parties. The challenge is transforming these into unambiguous business semantics which are computer processable supporting “e-business transactions”.

8. Linkage to SC32 WG2, WG3 and WG4 Work.

• WG3 and WG4

On the whole “Business transactions” including those provided via Web-based services are database-based, i.e. they involve interworking of databases of autonomous parties large and small. Use of WG3 SQL and WG4 SQL/MM standards benefit from widespread use of WG1 standards since use of these will increase a database-based approach to business transactions especially when common business collaborative patterns, i.e. scenarios, scenario attributes, roles, information bundles (& semantic components) are agreed to, identified and registered as re-useable “business objects”.

9. Linkage to SC32 WG2, WG3 and WG4 Work.

WG2

Info Sharing & Exchange

(metadata & data)

metadata semantics

metadata objects

All areas of applications:

scientific, administrative, statistical,

environment, etc.

WG1

Commitment Exchange

(processes, Persons, & data)

business semantics

business objects

All sectors of e-business:

e-commerce, e-government,

e-logistics, etc.

Use of 11179 in support of specifying semantic components(SCs) and information bundles(IBs)