

electronic business XML (ebXML) Requirements Specification Version 1.0

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Abstract

This *ebXML Requirements Specification* represents the work of the ebXML *Requirements Project Team*. It defines ebXML and the ebXML effort, articulates business requirements for ebXML, and defines specific requirements that will be addressed by the various ebXML project teams in preparing their deliverables.

Status of this document

This document has been reviewed by ebXML members and other interested parties and has been approved by the ebXML work Group. It is a stable document and may be used as reference material or cited as a normative reference from another document.

This document has been produced as part of the ebXML Requirements effort. The goal of the *Requirements Team* are discussed on the team's web page - http://www.ebxml.org/project_teams/requirements.htm

A list of current ebXML Technical Specifications and other technical documents can be found at <http://www.ebxml.org/specindex.htm>.

Public discussion on ebXML requirements takes place on the mailing list ebXML-Requirements@lists.oasis-open.org.

Please report errors in this document to the editor mcrawfor@lmi.org or ebXML-Requirements@lists.oasis-open.org.

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1 Introduction

Electronic Business Extensible Markup Language (ebXML) is an international initiative established by the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) and the Organization for the Advancement of Structured Information Standards (OASIS) with a mandate to undertake a 15-18 month program of work. As identified in the ebXML Terms of Reference, the purpose of the ebXML initiative is to research and identify the technical basis upon which the global implementation of XML can be standardized. The goal is to provide an XML-based open technical framework to enable XML to be utilized in a consistent and uniform manner for the exchange of Electronic Business (EB) data in application to application, application to human, and human to application environments—thus *creating a single global market*.^{TM 1}

ebXML is based on international standards and is itself intended to become an international standard. A key aspect for the success of the ebXML initiative is adherence to the use of the W3C suite of XML and related Web technical specifications to the maximum extent practical. Although these specifications may not provide the optimal technical solution, acceptance of ebXML by the business community and technical community is tied to XML. However, certain key elements of the ebXML technical framework will require adopting alternative technologies and technical specifications—such as those of the Internet Engineering Task Force (IETF), International Organization for Standardization (ISO), Institute of Electrical and Electronics Engineers (IEEE), International Electrotechnical Commission (IEC), UN/CEFACT, OASIS, and the Object Management Group (OMG).

[NOTE - ebXML operates under the procedures identified in the ebXML Terms of Reference]

1.1 Documentation Conventions

This ebXML Requirements Specification document was produced using Microsoft Word saved as MS-DOS text with line breaks. The following highlighting is used for non-normative commentary in this document:

[Issue -]: A recorded issue.

[Ed. Note -]: Notes from the editors to themselves or the Working Group.

[NOTE -]: General comments directed to all readers.

¹ "*creating a single global market*" is a trademark of the ebXML Working Group

1.2 ebXML Vision and Scope

1.2.1 ebXML Vision

The ebXML vision is to deliver:

"A single set of internationally agreed upon technical specifications that consist of common XML semantics and related document structures to facilitate global trade."

This single set of ebXML technical specifications will create a *Single Global Electronic Market*.TM To create this single global electronic market, this single set of ebXML technical specifications:

- ◆ is fully compliant with W3C XML technical specifications holding a recommended status
- ◆ provides for interoperability within and between ebXML compliant trading partner applications
- ◆ maximizes interoperability and efficiency while providing a transition path from accredited electronic data interchange (EDI) standards and developing XML business standards
- ◆ Will be submitted to an appropriate internationally recognized standards body for accreditation as an international standard

1.2.2 ebXML Scope

The ebXML initiative is targeted at every sector of the business community, from international conglomerate to small and medium sized enterprises engaged in business-to-business and business-to-consumer trade. With that audience in mind, the ebXML initiative is committed to developing and delivering specifications that will be used by all trading partners interested in maximizing XML interoperability within and across trading partner communities.

1.3 ebXML Requirements Specification Purpose and Scope

The *ebXML Requirements Specification* purpose and scope are defined in the following sub-sections.

1.3.1 ebXML Requirements Specification Purpose

This *Requirements Specification* has two primary purposes. The first of these is to provide clearly articulated requirements from representatives of international business and accredited standards organizations to assist the ebXML project team members in

developing their deliverables in a consistent manner. This specification is also intended to convey to interested parties the purpose, scope, and vision of ebXML.

1.3.2 ebXML Requirements Specification Scope

This *ebXML Requirements Specification* applies to the work underway within the current ebXML project teams. Each project team has provided input to this document to ensure consensus with its contents. In addition to the *Requirements Project Team*, project teams currently chartered by the ebXML steering committee are:

- ◆ Business Process
- ◆ Technical Architecture
- ◆ Core Components
- ◆ Transport/Routing and Packaging
- ◆ Registry and Repository
- ◆ Technical Coordination and Support
- ◆ Marketing, Awareness and Education

1.4 References

ebXML Invitation - http://www.ebXML.org/documents/199909/ebXML_invitation.htm

ebXML Terms of Reference (TOR) - http://www.ebXML.org/documents/199909/terms_of_reference.htm

Recommendations for ebXML Kickoff Meeting - UN/CEFACT/TMWG/N104 - <http://www.ebxml.org/documents/contributions/tm104.pdf>

Technical Reports and Publications, World Wide Web Consortium, <http://www.w3.org/TR>

eCo Framework Specification, CommerceNet, <http://eco.commerce.net/what/index.cfm>

Draft Registry and Repository Technical Specification, OASIS, <http://www.oasis-open.org/html/rrpublic.htm>

United Nations Layout Key for Trade Documents, Recommendation No. 1, second edition, adopted by the Working Party on Facilitation of International Trade Procedures, Geneva, March 1981 Source: ECE/TRADE/137

Authentication of Trade Documents by Means Other Than Signature, Recommendation No. 14, second edition, adopted by the Working Party on Facilitation of International Trade Procedures, Geneva, March 1979 Source: TRADEWP.4/INF.63

Information technology -- Specification and standardization of data elements ISO/IEC [ISO 11179]

SIMAC Future Vision Statement - UN/CEFACT Ad Hoc Working Group on Simple-EDI and Forms and Web Based EDI (SIMAC) - document TRADE/CEFACT/1999/CRP.12, <http://www.unece.org/trade/untdid/download/99cp12.pdf>

1.5 General ebXML Principles

General ebXML principles to be followed in developing ebXML deliverables are to create technical specifications that:

- ◆ Enable simple, easy and ubiquitous electronic business through use of XML
- ◆ Use XML technical specifications to the maximum extent practicable
- ◆ Provide a global cross-industry open/interoperable standard for business-to-business and business-to-consumer trade
- ◆ Coalesce the structure and content components of divergent XML initiatives into a single useable XML business standard
- ◆ Provide impetus so that common resources currently engaged in short-term solutions shall be marshaled to reach a common long-term solution goal
- ◆ Support vertical and horizontal segments of industry and business participants
- ◆ Avoid proprietary solutions that impose financial or software requirements constraints on ebXML users to buy, install or programmatically support any ebXML unique software products in the conduct of business information exchange
- ◆ Strive to minimize costs of doing business electronically
- ◆ Provide multi-lingual support
- ◆ Accommodate national and international trade requirements
- ◆ Provide a migration path from accredited EDI and developing XML business standards
- ◆ Apply when possible the simplification principles of SIMAC Business Requirements

2 Business Requirements

This section describes the business requirements for business to be conducted electronically. The business requirements identified in this section are oriented toward using XML for electronic business, but most of the requirements are applicable to implementation with other technologies as well.

The scope of the ebXML business requirements is to meet the needs for the business side of both business to business (B2B) and business to consumer (B2C) activities. Consumer requirements of the B2C model are beyond the scope of the ebXML technical specifications. Application-to-application (A2A) exchanges within an enterprise may also be able to use the ebXML technical specifications, however ebXML A2A solutions will not be developed at the expense of simplified B2B and B2C solutions.

[NOTE - for ease of reading, the term business is to be interpreted as interchangeable with for-profit, non-profit, not-for profit, and government entities.]

[NOTE - For the purposes of this document, Application-to-Application is defined as the computer to computer exchange of business information without human intervention both within and across enterprise boundaries.]

The business requirements to be addressed by the ebXML initiative are divided into nine core areas - General Business, Electronic Business, Globalization, Openness , Usability/Interoperability, Security, Legal, Digital Signature, and Organizational. Each of these requirements is identified in the following sections.

2.1 General Business Requirements

Business has a real need to use new technology with minimized investment to gain competitive advantage. The advent of the Internet and World Wide Web has proven to offer such benefits. However, realizing these benefits requires a functionally neutral standard method of moving data. Specifically, business needs a solution that provides:

- ◆ A single, consistent, simple approach to using XML for electronic business processes in both the B2B and B2C environments
- ◆ A process and recommendation for ebXML compliance
- ◆ Support for both vertical (e.g. industry, functional, organizational) and horizontal (e.g. cross-industry, multi-functional, organizationally neutral) solutions regardless of the sophistication of the user
- ◆ Support for a range of implementations from basic, low cost solutions appropriate for Small or Medium Enterprise (SME) deployment, to comprehensive, complex implementations using all optional features appropriate to large enterprises

- ◆ A range of usage from using core features in ad hoc, informal exchanges to highly formal, structured exchanges
- ◆ A single consistent modeling language and methodology
- ◆ Support for current business models and practices as well as new ones developed through business process modeling
- ◆ A superset business process metamodel that supports individually developed business process models
- ◆ Design rules for developing ebXML compliant XML documents that are based on approved W3C schema specifications
- ◆ Syntactically neutral core components
- ◆ XML syntax based core schema's and tags to support individual trading partner business processes that -
 - ↗ eliminate duplication of effort
 - ↗ provide support for XML metadata
 - ↗ clearly identify core, mandatory features, and optional features
 - ↗ provide a mechanism for full specification of semantic meaning
- ◆ Fully interoperable transport, routing, and packaging solutions
- ◆ Security solutions that meet business confidentiality requirements
- ◆ A single recognized international standards organization to oversee continued ebXML work
- ◆ An open development process with no barriers to entry
- ◆ Open, readily accessible, perpetually free technical specifications and standards
- ◆ A solution that minimizes costs for development, maintenance, and use

[NOTE - Business looks to XML as a means of gaining competitive advantage through leveraging new technology. Minimizing the cost of doing business electronically is a key element in achieving a competitive advantage. The cost of doing business electronically can be grouped into acquisition, development, deployment and customization, integration with business applications, and operations and support. It is expected that using XML for electronic business will be less costly than traditional forms of EDI and other existing electronic commerce technologies in each of these areas. This expected cost reduction is a driving force for considering XML over traditional EDI technologies.]

2.2 Conducting Electronic Business using ebXML

Business applications must be able to exchange structured business documents (encoded in XML) with a corresponding application of another enterprise to support a business process. This exchange may either be completely without human intervention, as is the case with traditional EDI, with some level of human intervention to correct missing or erroneous data. Business applications may also need to exchange structured business documents with intermediaries such as portals and brokers. Because a majority of businesses do not have sophisticated IT architectures, business applications will need to exchange structured business documents with trading partners who will be limited to viewing and manually processing both inbound and outbound transactions. Business applications also require information exchange mechanisms that provide for the exchange of pure XML payloads but may also support plug and play, shrink wrapped, syntactically neutral solutions.

Additionally, business applications may also need to:

- ◆ Be able to generate XML encoded business documents that can be used in traditional computer to computer exchanges as well as being displayed using an associated style sheet keyed to a specific presentation format; such as the appropriate U.N. Layout Key for Trade Documents or a trading partner specified format
- ◆ Enable data entry of business documents using a specified presentation format; such as the appropriate U.N. Layout Key for Trade Documents or a trading partner specified format. The data entry shall result in an ebXML compliant encoded document representing the business information.

2.3 Globalization

Global solutions are critical in today's ever expanding marketplace. The underlying purpose of ebXML is to facilitate international trade. To achieve "*a single global market*" that such facilitation implies, it is critical to simplify existing exchange standards methodologies and harmonize divergent approaches. This simplification and harmonization can be achieved through developing a business metamodel in conjunction with syntax neutral core components. Both of these deliverables shall accommodate divergent national and multi-national process requirements, and should support forward and backward compatibility with the developing ebXML technical framework.

To simplify development efforts, all work shall use English. To support globalization, all ebXML technical specifications will be translatable into other natural languages. Translation into other natural languages is the responsibility of the intended user, although such translations should be supported in the ebXML repository. Regardless of language, and in keeping with the requirements of XML 1.0, all work will shall be compliant with Unicode and ISO/IEC 10646 for characters, Internet RFC 1766 for language identification tags, ISO 639 for language name codes, and ISO 3166 for country name codes.

2.4 Openness

Openness is a critical aspect of ebXML. Business requires the ability to easily access ebXML technical specifications without regard to "membership", or payment of access and/or use fees. ebXML technical specifications shall be completely open to all potential users so as to eliminate the barriers for entry. Openness requires several key components to ensure viability. Chief among these is an open, easily accessible registry and repository for the ebXML technical specifications.

2.4.1 Registry and Repository

A registry is required to allow process owners to submit, classify, register and update mapping templates, business process specifications, and data interchange specifications. This registry should have an interface that supports access by humans as well as computer applications. This registry should support an agreed upon security protocol.

A repository is required for storage and retrieval of various items that support performing business electronically. There are two distinct sets of business requirements on the repository: a set dealing with managing the workflow of developing standard components that are stored in the repository, and a set dealing with application usage of the repository. Additionally, the repository should support the information needs of the ebXML work group and project teams, as well as ebXML technical specification users with respect to glossaries and products.

[NOTE - A registry is a mechanism whereby relevant documents and metadata about them can be registered such that a pointer to their location, and all their metadata, can be retrieved as the result of a query. A repository is a location or a set of distributed locations where documents pointed at by the registry reside and from which they can be retrieved by conventional (http / ftp) means, perhaps with additional authentication/permission layers.]

The ebXML Registry and Repository will support the concept of a network of registries and repositories that can intercommunicate via the interfaces specified by the *ebXML Registry and Repository Project Team*. A registry can be established by an industry group or standards organization and can intercommunicate with any number of repositories. In addition, context with a repository can reference content within another repository. The concept of a single repository is not scalable, nor does it promote the idea of a global web.

If ebXML is to exist beyond its initial 18-month timeframe, then ebXML should maintain responsibility for ebXML technical specifications, ebXML work group deliverables, and ebXML glossaries in an ebXML-supported repository. However, if the decision is made that ebXML will not exist after the initial set of deliverables, or that ebXML will not maintain or support its own repository, then ebXML must determine if repository oversight responsibilities for ebXML technical specifications should transition to UN/CEFACT, OASIS, XML.ORG, BizTalk, or some other existing XML business standards organization.

2.5 Usability/Interoperability

Usability and interoperability of the ebXML technical framework are critical business requirements. Components of usability and interoperability are architecture; transport, routing, and packaging; extensibility; and leveraging existing technology. Each of these is addressed in the following sub-sections.

2.5.1 Architecture

This is a primary requirement of the ebXML initiative. To maximize interoperability, the ebXML architecture will support

- ◆ Common Business Processes - Both entities involved in the exchange of data must be engaged in executing the same transaction in the context of a business process
- ◆ Common Semantics – Common meaning, as distinct from words, expression, or presentation
- ◆ Common Vocabulary - A direct correspondence between words and meaning
- ◆ Common Character Encoding

[NOTE - UNICODE, which is specified in the W3C XML Version 1.0 technical specification, provides this.]

- ◆ Common Expression - Common set of XML element names, attributes and common usage of those attributes, common approach to document structure
- ◆ Common Security Implementations
- ◆ Common Data Transfer Protocol
- ◆ Common Network Layer

[NOTE - As with other non-functional requirements, some aspects of achieving interoperability may conflict with other non-functional requirements. Where a requirement is not met, software can usually be developed to provide a bridge. However, such bridges may increase costs of development, implementation, or both, and conflict with cost minimization. In other cases, achieving interoperability enhances other requirements. For example, maximizing interoperability helps to achieve platform independence.]

2.5.2 Transport, Routing, & Packaging

Any exchange of business information requires fully described transport, routing, and packaging methodologies. These descriptions should be based on a program language definition independent of the service interface required for systems to control the messaging system for the purpose of sending and receiving messages. These descriptions should identify the behavior of the messaging system required to:

- ◆ Realize reliable secure sending and receiving of messages over any network capable of carrying XML
- ◆ Support syntax neutral definition of the information that needs to be held in the supporting messaging policy repository
- ◆ Detail the format and structure of the wrapper, header, and any other data within the message - to include signatures and encryption
- ◆ Query ebXML servers for the services they support

2.5.3 Extensibility

Businesses seek solutions that provide for a certain level of customization beyond core standards. This extensibility is necessary to ensure internally unique business process requirements can be addressed beyond the scope of standards used for information exchanges between businesses. One example of this requirement is customization beyond core standards to support exchanges within an enterprise. Another is customization to support application/database to human exchanges. ebXML must ensure extensibility is facilitated while ensuring conformance with core standards.

2.5.4 Leveraging Existing Technology

Leveraging existing technology encompasses both the ability to inter-operate with existing technology as well as the ability to migrate to the new technology. Each of these is discussed in the following sub-sections.

2.5.4.1 Compatibility with existing Technology and EB standards and practices

Businesses already have in place extensive EDI architectures and business solutions based on accredited EDI standards; and customized sub-sets in the form of implementation conventions based on those standards. Additionally, many businesses are implementing XML solutions that are based on the technical specifications issued by the World Wide Web Consortium (W3C) and the XML-based business standards of various competing XML groups—such as RosettaNet, BizTalk, XML.ORG, the Open Applications Group (OAG). Although the ebXML solution will facilitate a single global market, and although its technical framework will provide a single set of technical specifications, businesses will still require the ability to inter-operate their existing EDI and XML solutions with solutions built on the ebXML framework.

As part of compatibility, businesses require a technical framework that reuses common elements regardless of syntax. To ensure a syntax neutral solution, ebXML must identify and define those items considered common across XML business data exchanges. Common items are semantic units at any level that stay consistent across contexts, and therefore are reusable both within and between business exchange messages. Business process models will help define common items and provide their context. This context

will in turn define the precise use of common items in messages exchanged among parties. ebXML should describe these items in terms that are independent of implementation syntax. This syntax neutral approach will enable their reuse for not only XML documents, but other syntax-based transactions as well. The ebXML technical framework should adopt—or if needed, develop—a methodology to consistently build or derive core components, including methods to encourage reuse and provide for extensions. ebXML should identify element names that can apply across business processes and contexts yet still allow for translation into leading spoken languages. All ebXML work will generate the content of core components independent of implementation syntax, but with references to data structures in XML messages and EDI transactions. The ebXML solution will identify attributes that describe the context of the components also in terms independent of syntax.

2.5.4.2 Migration from existing EDI and XML solutions

Businesses seek maximum interoperability between their applications and trading partner applications. This can be achieved by a single way of doing business electronically, i.e., a single standard for using XML for electronic business. However, many businesses also have a considerable investment in existing standards based EDI and emerging XML business approaches. These businesses require a mechanism and migration path for accommodating legacy EDI solutions based on accredited standards and XML solutions already in progress or implemented. Although migration from existing EDI and XML solutions is a key element of ebXML, the ebXML solution will ensure maximizing interoperability takes precedence in developing the ebXML technical specifications.

[NOTE - It is beyond the current scope of the ebXML initiative to develop specific migration and transformation methods to include mapping services, communication channels, and architecture support from traditional EDI architectures.]

2.6 Security

Aspects of security may be required at both a session layer (i.e., for the duration of a network session in which data is exchanged) or be applied to a single, stand-alone document instance. In addition, application of security to a particular exchange or document instance must be determined by the business needs, and allow unrestricted and unsecured interchanges as the default. All, some, or no security features may be required in any particular exchange of business information. Additionally, the following requirements must be addressed:

- ◆ Confidentiality - Only sender and receiver can interpret document contents
- ◆ Authentication of sender - Assurance of the sender's identity
- ◆ Authentication of receiver - Assurance of the receiver's identity
- ◆ Integrity - Assurance that the message contents have not been altered
- ◆ Non-repudiation of Origin - The sender can not deny having sent the message

- ◆ Non-repudiation of Receipt - The receiver can not deny having received the message
- ◆ Archiving - It must be possible to reconstruct the semantic intent of a document several years after the creation of the document

[NOTE - The archiving, Authentication and Non-Repudiation of Origin and Receipt may be performed by a trusted third party through which the Parties to a transaction agree to channel transaction messages in order to provide independent historical proof that the transaction took place at a specific time and on specific terms.]

[NOTE - This time period is subject to the archiving and record retention requirements of particular situations. In general, businesses might require archiving and retrieval of up to 30 years after document creation.]

2.7 Legal

Beyond the security requirements identified in section 2.6, the following additional legal requirements exist:

- ◆ Comply with the requirements of UN/CEFACT recommendation 14 - *Authentication of Trade Documents by Means Other Than Signature*
- ◆ Provide versioning support to facilitate reconstructing the semantic meaning of transactions in accordance with the underlying transaction format used
- ◆ Ensure full audit capability is supported
- ◆ Ensure all transmitted data is well defined by a minimal set of metadata
- ◆ Ensure a mechanism provides for identifying completeness of a transaction

2.8 Digital Signatures

Digital signatures, or electronic signatures, have security and legal implications that directly impact on electronic business requirements. As more and more government bodies define digital signatures, and enact legislation that adopts such techniques as having the same force of law as traditional signatures, new technology solutions must accommodate these business requirements. The following definition is taken from California Civil Code (adding s. 1633) (1999 CA SB 1124) -

"Digital signature," for the purposes of this section, means an electronic identifier, created by a computer, that is intended by the party using it to have the same force and effect as the use of a manual signature. The use of a digital signature shall have the same force or effect as a manual signature if it embodies all of the following attributes:

- (1) It is unique to the person using it.*
- (2) It is capable of verification.*
- (3) It is under the sole control of the person using it.*
- (4) It is linked to data in a manner that if the data is changed, the digital signature is invalidated."*

The ebXML technical framework must support electronic transactions that provide for digital signatures at an appropriate level within the transaction to meet requirements of both the sender and receiver in keeping with the forgoing definition and attributes.

2.9 Management

If ebXML is to be successful in both the short and long term, and if the ebXML technical framework is to be adopted by the international business community, then management issues associated with both organizational structure and participation must be addressed. The following sub-sections identify the business requirements for each of these areas.

2.9.1 Organizational Structure

The ebXML initiative is an eighteen-month effort to develop a technical framework. To ensure efficiency of operation and success in achieving the ebXML vision, sufficient organizational controls must be put in-place as quickly as possible. Further, there exists the possibility that ebXML will become more than a short term initiative. As such, long term requirements for managing ebXML must be defined and addressed in the near term to ensure a smooth transition from short to long term management. Further, if such a long-term organization becomes reality, processes must be adopted for recasting ebXML as an internationally accredited standards body.

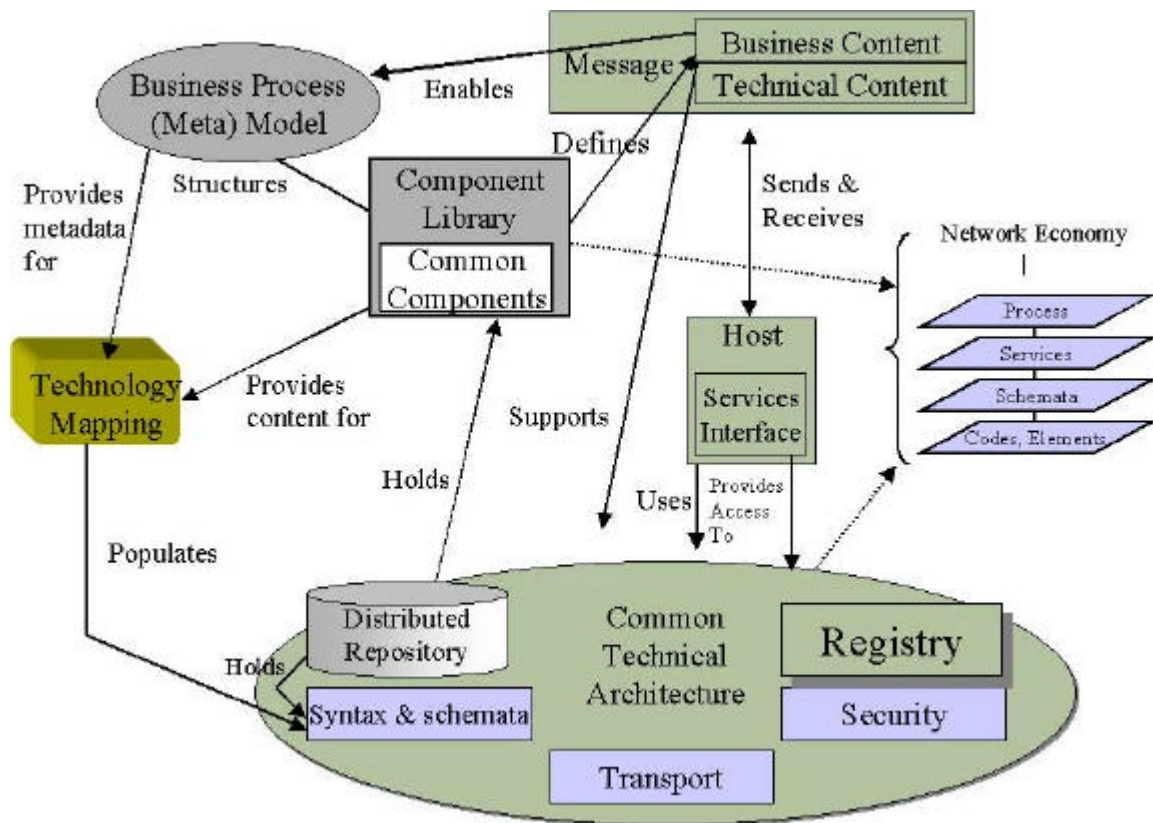
2.9.2 Participation

The ebXML initiative relies heavily on technical expert participation. This participation must be free of organizational requirements that restrict or otherwise inhibit participation of anyone. Further, participation should be limited to the individual and not at the organizational level. This will ensure each technical expert is given an equal footing in the organization, management, and work effort of ebXML.

3 ebXML Technical Framework Requirements

This section identifies specific requirements for achieving the ebXML technical framework through the work of each of the ebXML project teams. These requirements have been developed in close coordination with those project teams to ensure consensus on their content. These high level requirements are closely aligned with the business requirements in section two of this document and are consistent with the vision, purpose, scope and guiding principles contained in section one. These high level requirements are carefully designed to provide a road map for the respective project teams as they drill down to more detailed requirements in preparation for developing their ebXML deliverables. As each of these deliverables becomes a reality, they will contribute to the developing ebXML technical specifications as part of building the ebXML technical framework as illustrated in Figure 3-1.

Figure 3-1 ebXML Technical Framework



3.1 General Requirements

The following general requirements, in conjunction with the business requirements stated in section two, apply to each project team. Deliverables for each of the project teams must -

- ◆ Be developed in compliance with the purpose, scope, and guiding principles identified in Section 1
- ◆ Meet the business needs articulated in section two
- ◆ Be fully compliant with approved ebXML technical specifications
- ◆ Clearly identify core, mandatory features, and optional features
- ◆ Clearly define compliance requirements
- ◆ Support the requirements of each project team as identified in the following sub-sections.

3.2 Requirements

The *Requirements Project Team's* initial task was to produce this *ebXML Requirements Specification*. In addition, the *Requirements Project Team* will:

- ◆ Develop follow-on requirements documents in support of the ebXML Executive Committee and ebXML Steering Committee that meet the requirements contained in section 4 of this document
- ◆ Review, evaluate, and assimilate follow-on requirements submitted by external organizations for consideration by ebXML
- ◆ Provide assistance as required to the *Technical Coordination and Support Project Team* on ebXML requirements issues

3.3 Business Process

The *Business Process Project Team* detailed requirements and deliverables will:

- ◆ Provide a technical specification for business process definition (BPDS), enabling an organization to express its business processes so that they are understandable by other organizations, thereby enabling integration of business processes (See for example eCo strategic framework- services and interactions)
- ◆ Provide an explicitly specified process metamodel that is not merely implied by instantiations or derivations
 - ↗ the metamodel shall provide set of rules to define the business processes—rules, semantics and syntax
- ◆ Provide a BPDS that is usable -
 - ↗ globally

- ↗ cross-industry
- ↗ by small, medium, and large organizations
- ↗ by for-profit and government and/or non-profit organizations
- ◆ Provide a BPDS that enables an organization to express its business processes to such an extent that other organizations can discover -
 - ↗ the kind of organization the process belongs to
 - ↗ the business processes belonging to an organization
 - ↗ the interaction points in the organization's business process in order to determine whether and how to engage in business
 - ↗ the kinds of information exchanges required to conduct a particular interaction in the business process
 - ↗ company interactions and services and categorize them
- ◆ Provide for BPDS compatibility by -
 - allowing for forward migration from existing frameworks to the degree possible
 - ↗ carrying forward accumulated best of breed experience such as—OAG, RosettaNet, HL7—into the ebXML "superset"
 - enabling mapability between content provider defined processes
 - enabling organizations or industry verticals to be able to compare business processes
- ◆ Provide for BPDS re-usability/extensibility by -
 - ↗ allowing a company to 're-use' and extend standard, template, or actual business processes as starting points for definition of specific business processes
 - ↗ encouraging industry verticals to base their model on the high level framework
 - ↗ supporting re-usable data components
 - ↗ supporting re-usable process components
- ◆ Enable business processes to be accessible and readable by -
 - ↗ making BPDS-based processes machine readable
 - ↗ expressing processes defined under BPDS in parsable, navigable XML

- ↗ making processes defined under BPDS visually (diagrammatically) viewable
- ↗ Identifying at least one industry standard based tool or technique, through which BPDS compliant processes can be defined through diagrammatic drawing

- ◆ Provide a process to create and maintain a -

[NOTE - this process will be developed in coordination with the *Core Components Project Team's* developing process for identifying core components.]

- ↗ glossary of terms related to business process methodology vocabulary such as—functional, non-functional, vertical, message, segment, data type—using TMWG Unified Modeling Methodology document Annex 1 as a starting point
- ↗ glossary of terms specific to each business process to be modeled
- ↗ glossary of XML tags
- ↗ library of documents based on identified services and interactions
- ↗ web site for ready access to glossaries
- ◆ Be developed in conjunction with the *Registry and Repository Project Team* to incorporate technical specifications, models, and required glossaries into the ebXML repository

3.4 **Technical Architecture**

The *Technical Architecture Project Team* detailed requirements and deliverables will:

-

- ◆ Provide a view for integration of business processes among ad-hoc or established independent business partners by electronic means
- ◆ Reduce the need for collaborative business partners to have individual and expensive prior agreement on how to integrate business processes
- ◆ Provide a high-level business-centric view of distributed e-business processes
- ◆ Specify the roles, interactions, and interfaces among the various ebXML specification components such as—the business process metamodel; core components; registry and repository; and message transport, routing, and packaging
- ◆ Allow for both business processes and enabling technologies to evolve independently while retaining long-term investments in both
- ◆ Integrate with new and legacy systems throughout the enterprise

- ◆ Leverage existing technologies and standards
- ◆ In coordination with BP process specification and core components identification, provide for naming conventions for technical and business content in the technical architecture
- ◆ Provide design guidelines for ebXML compliant messages

3.5 Core Components

The *Core Components Project Team* detailed requirements and deliverables will:

- ◆ Be developed in conjunction with the *Business Process Project Team*
- ◆ Identify a methodology for describing core components within the framework of the Business Process metamodel
- ◆ Define core component content and structure
- ◆ Support reuse and extensibility
- ◆ Provide methodology and examples for XML and EDI instantiation
- ◆ Enable creation of XML business standards

The *Core Components Project Team* will develop core components that will:

- ◆ Be syntax independent

[NOTE - Core components will not be specifically aligned with any existing syntax based semantics such as ANSI ASC X12 or UN/EDIFACT]

- ◆ Be defined to ensure separation of common core components versus new extensions
- ◆ Incorporate where appropriate ISO/IEC 11179 rules
- ◆ Use semantics solutions that accommodate currently defined accredited EDI semantics where they add value
- ◆ Use a single consistent set of terminology
- ◆ Support context sensitive core components

3.6 *Transport/Routing and Packaging*

The *Transport/Routing and Packaging Project Team* detailed requirements and deliverables will:

- ◆ Specify how to envelope business documents in regard to -
 - ↗ related messages in a collection
 - ↗ physical and/or logical addressing of destination for messages
- ◆ Specify exchange at the application level
- ◆ Provide for flexible transaction boundaries
- ◆ Provide for reliable messaging and error handling
- ◆ Identify messaging routing
- ◆ Meet security requirements
- ◆ Provide for audit trails
- ◆ Define and meet acceptable levels of quality of service
- ◆ Support platform independent interoperability
- ◆ Support restart and recovery

[NOTE - for additional technical details, see the developing Transport, Routing, and Packaging requirements specification.]

3.7 Registry and Repository

The *Registry and Repository Project Team* detailed requirements and deliverables will:

- ◆ Develop detailed blueprints for an ebXML repository that
 - ↗ uses open management processes
 - ↗ has open and perpetually free access
 - ↗ has interfaces with other existing and planned XML business standards repositories
 - ↗ Supports technical specification and submission, development, and support
 - ↗ Supports required and desired systems services
 - ↗ Identifies the long-term strategy for ensuring the continued availability of the repository

3.7.1 Technical Specification Submission, Development, and Support

The registry and repository specifications will address

- ◆ Technical specification storage and retrieval for development and runtime views
- ◆ Support for mapping templates—enabling a migration path from existing standards to future ebXML standards
- ◆ Storage—the ability to store objects their original form, not limited to -
 - ↗ transaction definition, e.g., purchase Item
 - ↗ document definition, e.g., purchase order
 - ↗ classification schemes
 - ↗ ontology sub-trees
 - ↗ trading partner profile instances
 - ↗ code lists
 - ↗ related data, example instances of document definitions, executable code, style sheets
 - ↗ relationships between objects, e.g., storage of semantically equivalent objects
 - ↗ business models
- ◆ A flexible workflow to allow an existing specification to progress through varying sequences of classifications, e.g., progressing a company standard into an industry group and finally into an ebXML technical specification
- ◆ A method for defining what context data is being used in the business process, which may reside within the original package submission
- ◆ Change management facilities
- ◆ Enable hooks into a variety of modeling and development tools
- ◆ Support a role-based security model
- ◆ Support for work request submissions to store associated supporting materials in any electronic format, e.g., PowerPoint documents, audio files, images
- ◆ Indexing of data elements across all the specifications and vertical domains in the repository

3.7.2 System Services

System services consist of required and desired services. The registry and repository specifications will address both types

3.7.2.1 Required Services

Required services include -

- ◆ Query services—the ability to send a request and retrieve results from a physical storage mechanism, e.g., exact or similar matches and navigation
- ◆ Workflow services—the ability to assign, route, sign-off, and define rules to support the workflow
- ◆ Logging services—the ability the store transactional and query events and metrics
- ◆ Repository Interface Discovery service—the ability to expose (sub)set of ebXML interfaces implemented by a repository
- ◆ Quality Assurance Service—the ability to validate content based on its classification

3.7.2.2 Desired Services

Desired services include -

- ◆ Transformation services—the ability to transform objects into another form. (e.g., IDEF-1X to XMI, XMI to XML Schema)
- ◆ ebXML information services
 - ↗ archives of previous ebXML technical specifications
 - ↗ online access requirements of the other ebXML project teams as defined by their requirements and deliverables

3.8 Technical Coordination and Support

The *Technical Coordination and Support Project Team* detailed requirements and deliverables will:

- ◆ Report on technical consistency of draft ebXML technical specifications
- ◆ Provide for ebXML glossary
- ◆ Research both internal and external XML initiatives and technologies in support of executive committee and project team requirements

3.9 Marketing, Awareness and Education

The true measure of success for ebXML will be in its adoption by the business community. To help facilitate that adoption, the *Marketing, Awareness and Education Project Team* deliverables will

- ◆ Create an ebXML awareness and education program
- ◆ Define general ebXML web site content
- ◆ Define ebXML web site look and feel
- ◆ Define allowable content of ebXML Project Team public pages
- ◆ Define and execute ebXML marketing communications

4 ebXML Organizational and Procedural Requirements

The ebXML executive committee must put in place organizational and procedural processes as soon as possible. These organizational and procedural processes are critical to enable the various ebXML project teams to make sound decisions in developing their requirements and deliverables. These organizational and procedural processes must:

- ◆ Facilitate the efforts of the *Requirements* and *Technical Coordination and Support Project Teams*
- ◆ Support each of the functional project teams to meet their requirements

In developing these organizational and procedural processes, the executive committee will

- ◆ Follow the purpose, scope, and guiding principles identified in Section 1
- ◆ Meet the business needs articulated in section two
- ◆ Facilitate the general requirements in section 3.1
- ◆ Support the requirements of each project team as identified in section 3

These organizational and procedural processes must provide for

- ◆ An open and consensus driven ebXML management process
- ◆ An open, timely, and consensus driven ebXML products development process that
 - ↗ is responsive to business needs
 - ↗ has sufficient controls to prevent creation of equivalent components
- ◆ An open, timely, and consensus-driven ebXML technical specifications approval process that is responsive to business needs

Additionally, the Executive and Steering Committees, in conjunction with the full ebXML Work Group must determine:

- ◆ The requirements for short and long term ebXML relationships with UN/CEFACT, W3C, ANSI, ISO and other standards bodies
- ◆ The requirements for short and long term ebXML relationships with OASIS, BizTalk, , RosettaNet, OAG, and other XML business standards bodies

- ◆ The appropriateness of moving ebXML technical specifications to recognized international standards under the cognizance of an international standards body
- ◆ The single body that is responsible for long term maintenance of the ebXML technical specifications, repository, and supporting mechanisms - OASIS, UN/CEFACT, or ebXML
- ◆ the process for long term maintenance of the ebXML technical specifications
- ◆ ebXML funding methodology
- ◆ the need for and definition of measures of success

5 ebXML Project Team Deliverables

This section identifies the major specifications that will be delivered by each of the ebXML project teams. It also describes in general terms the expected nature of the various ebXML project team deliverables to guide each team in developing those deliverables and ensure a single consistent approach.

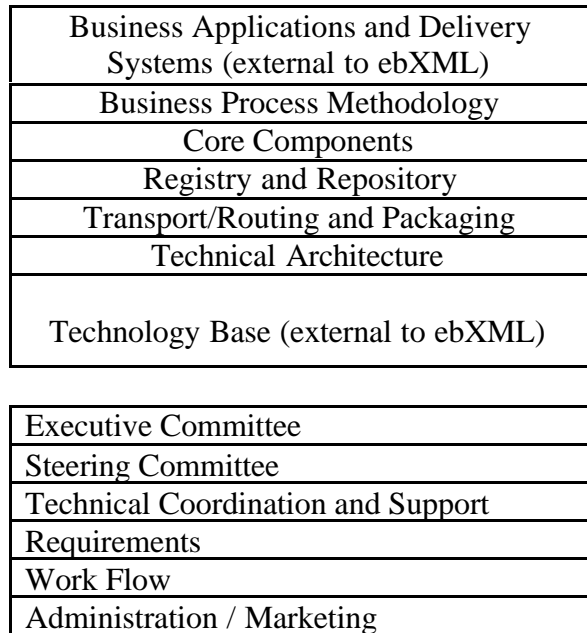
5.1 Major ebXML Technical Specifications

The major ebXML technical specifications to be delivered consist of the:

- ◆ Technical Architecture Specification - contains an overview of the technical infrastructure that comprises ebXML and itemize the design rules and guidelines
- ◆ Repository and Registry Specification - includes functional specification and technical design, interfaces, services
- ◆ Transport, Routing and Packaging Specification - addresses transport of ebXML messages, the means of security employed, and the physical construction of the messaging used within the scope of the ebXML system. Specific deliverables will include -
 - ↗ message structure specification
 - ↗ message header specification
 - ↗ a textual API example
 - ↗ choreographic of messages
 - ↗ security specification
- ◆ Business Process Modeling Specification - the business process metamodel and the recommended methodology for using it
- ◆ Core Components Specification - The set of ebXML core components and the prescribed methodology for deriving them

To assist in visualizing the above Figure 5-1 is a conceptual model of overall ebXML stack interactions.

Figure 5-1. ebXML Stack Interactions



5.2 High Level Deliverables Descriptions

The following high level deliverables descriptions are intended to facilitate the efforts of the *Technical Coordination and Support Project Team* in ensuring consistency in the output of the various functional project teams. These high-level deliverables descriptions are identified in Figure 5-2.

Figure 5-2. ebXML Project Team Deliverable Content

FOCUS AREA	WHAT IT DOES	HOW IT'S USED
Project Team Business Requirement What is the contribution of your group to ebXML?	Picture Model of Your Project Team Deliverables	Business Method - How your deliverables will be used

To ensure consistency across all deliverables, each project team will use the format of this document. Further, each project team will submit, for Steering Committee approval, a list of all proposed deliverables. That list, once approved by the Steering Committee, will be included as part of this document.

Appendix A. Acknowledgements

This appendix is informative.

This specification was written with the participation of the members of the ebXML Technical Requirements Project Team:

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