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Creating A Single Global Electronic Market

# **Core Component Overview**

**v1.05**

**Core Components Team**

**10 May 2001**

(This document is the non-normative version formatted for printing, July 2001)

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# 1 Status of this Document

This document specifies an ebXML Technical Report for the eBusiness community.

Distribution of this document is unlimited.

The document formatting is based on the Internet Society's Standard RFC format.

This version:

[www.ebxml.org/specs/ccOVER.pdf](http://www.ebxml.org/specs/ccOVER.pdf)

Latest version:

[www.ebxml.org/specs/ccOVER.pdf](http://www.ebxml.org/specs/ccOVER.pdf)

**Note** Previous versions were entitled "Core Component and Business Process Overview."

## 2 ebXML Participants

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### 3 Introduction

Business partners collaborate to do business with each other by linking their operational business processes. Business processes are linked by the exchange of business information, in agreed sequences and within agreed timeframes, between business partners.

The discovery of business processes builds a picture of requirements, identifying the sequence, timing and purpose of each exchange. Detailed examination of the business processes reveals the individual pieces of business information (entities) that need to be exchanged and at what stage.

The discovery activity is conducted within each industry sector by specialists within that sector. When the results of discovery are analysed across the different industries, a pattern of common process and common information component requirements can be detected.

The papers covered by this overview describe the activities of business information discovery and analysis, and describe the concepts of re-using common components to meet specific business needs.

## 4 Background

The objective of the ebXML Core Components Project Team is to define a process, by which information components can be discovered, catalogued in sufficient detail and analysed to identify which components are core components. The creation of such a catalogue will enable interoperability across industries that utilize electronic commerce.

To achieve this goal it is necessary to recognize that:

- Many business processes are fundamental in that they are used in many, if not all, industries. Procurement, Payment, and Shipping are examples of common business processes.
- In many cases, detailed business information requirements, for example those used when identifying a product, are the same, similar or analogous across industries.
- Within the progression of a business process, for the same trading partners/trading community, there is again significant commonality in the information requirements. What is considered product, how it is identified and described, etc., remains consistent across the duration of that business process.

## 5 Overview

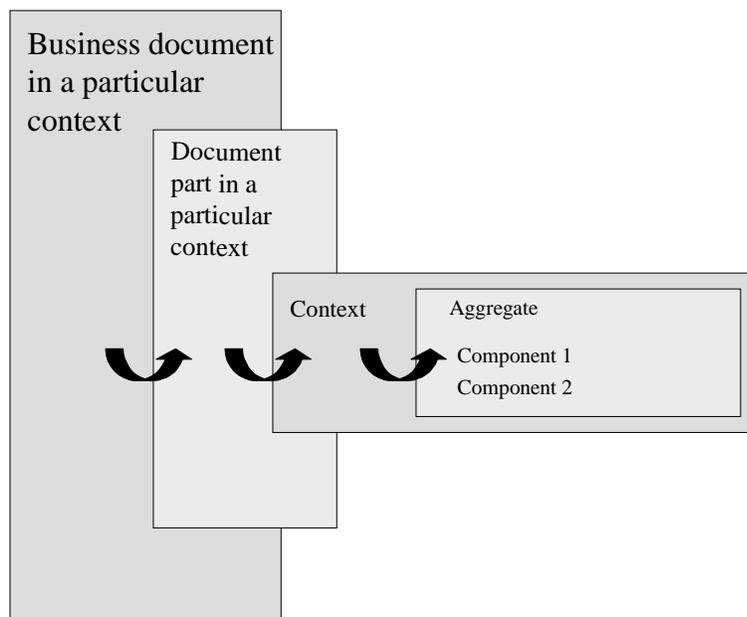
The business process determines characteristics of the business document payload. For example, if the business process is ordering then the order information must specify details about the order itself (payment, delivery, references to external business agreements, etc.). There are certain characteristics of the Order Document, which typically do not vary across industries, while other details (such as those required because of product type) will vary dramatically.

Business documents, by their very nature, communicate a semantically complete business thought: *who, what, when, where* and *why*. The *what* in electronic business terms is typically the product. It is widely recognized that products are goods or services. Goods are manufactured, shipped, stored, purchased, inspected, etc., by parties. Services are performed by parties, and may involve goods and/or parties. Parties can be either organizations or individuals, and can be associated with other parties, and products. And these products have events associated with them, inspections, transportation, building, sale, etc.

Within ebXML this problem is addressed in the Core Component architecture by a combination of structured information and the use of context. This structure uses a series of layers, designed to take into account commonality across industry business process. Further the structure is designed to support specialization based on the specific use of contexts. Context is the description of the environment within which use will occur. For example, if one was to say that “someone was pounding on my car with a hammer”, the response is very different depending whether it is a repair shop or a neighbourhood youth. Context is what is used to direct interpretation.

## 6 Conceptual Picture of Core Components

This figure illustrates how core components can be constructed into document parts in the context of particular business information requirements. These parts can then be sewn together into business documents.



A component is a ‘building block’ that contains pieces of business information, which go together because they are about a single concept. An example would be *bank account identification*, which consists of *account number* and *account name*.

Core components are components, which appear in many different circumstances of business information and in many different areas of business. A core component is a common or “general” building block that basically can be used across several business sectors. It is therefore context free.

Re-use is the term given to the use of common core components when they are used for a specific business purpose. The purpose is defined by the combination of contexts in which that business purpose exists. Each context specific re-use of a common component is catalogued under a new business information name ‘that uses core component X’.

A domain component is specific to an individual industry area and is only used within that domain. It may be re-used by another domain if it is found to be appropriate and adequate for their use, and it then becomes a core or common component.

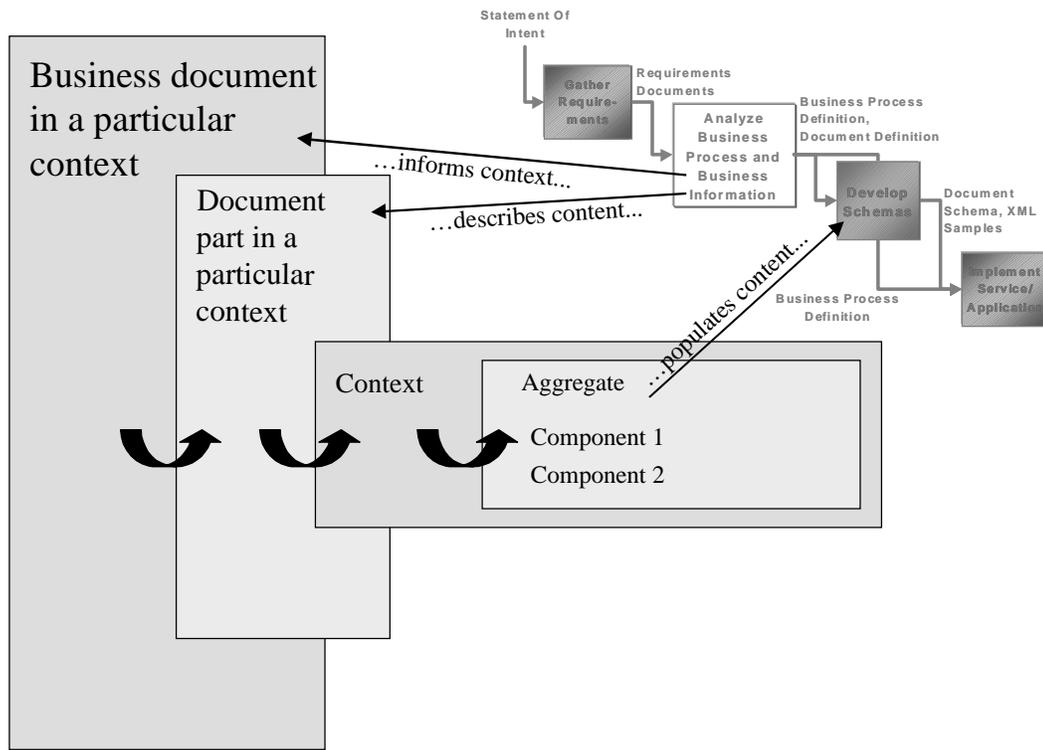
Components can be built together into aggregates.

As described above for components, aggregated components can be common components. These are generic and can be used across several business sectors. They can be re-used for a specific business purpose, defined by a combination of contexts. Each context specific re-use of a common aggregate component is catalogued under a new business informant name 'that uses core component X'.

There are also domain specific aggregated components.

Aggregates and components can be gathered into 'document parts'. These are useful assemblies which can individually satisfy a business process's requirement for information, or which may be 'sewn together' in a structured way to achieve the same. For example, the structured combination may be to satisfy a business process's need for information presented in a particular way for efficiency of processing.

An individual document part and the 'sewn together' parts, come at increasingly domain-specific and context-specific levels. They form documents or partial documents that satisfy a business process or a part of a business process.



This figure illustrates how core components can be built into business documents by explicitly linking components with the ebXML Business Process Worksheets, and the underlying modelling approach. The top right-hand corner of the figure comes from figure 8.4-1 in the Business Process Overview document.

Note that in this instance document parts are pieces of business information required to satisfy a particular business process, from a specific contextual viewpoint.

## 7 Relationship Between Core Component Papers

### 7.1 Summary

Within this paper there are two levels of explanation, one, describing a conceptual picture of the ebXML Core Components architecture and the other providing an overview explaining the relationship between the following documents.

#### 7.1.1 Technical reports

These documents have been approved by the Core Component Project Team and have been accepted by the ebXML Plenary.

##### 7.1.1.1 Guidelines

These documents contain information to guide in the interpretation or implementation of ebXML concepts.

- [ebCCNAM] Naming Convention for Core Components Ver 1.04
- [ebCCD&A] Core Component Discovery and Analysis Ver 1.04
- [ccCTLG] Guide to the Core Component Dictionary Ver 1.04
- [ebCNTXT] Context and Re-Usability of Core Components Ver 1.04
- [ebCCDOC] Document Assembly and Context Rules Ver 1.04

##### 7.1.1.2 Catalogues

These documents contain foundation material based on ebXML Technical Specifications or Reports.

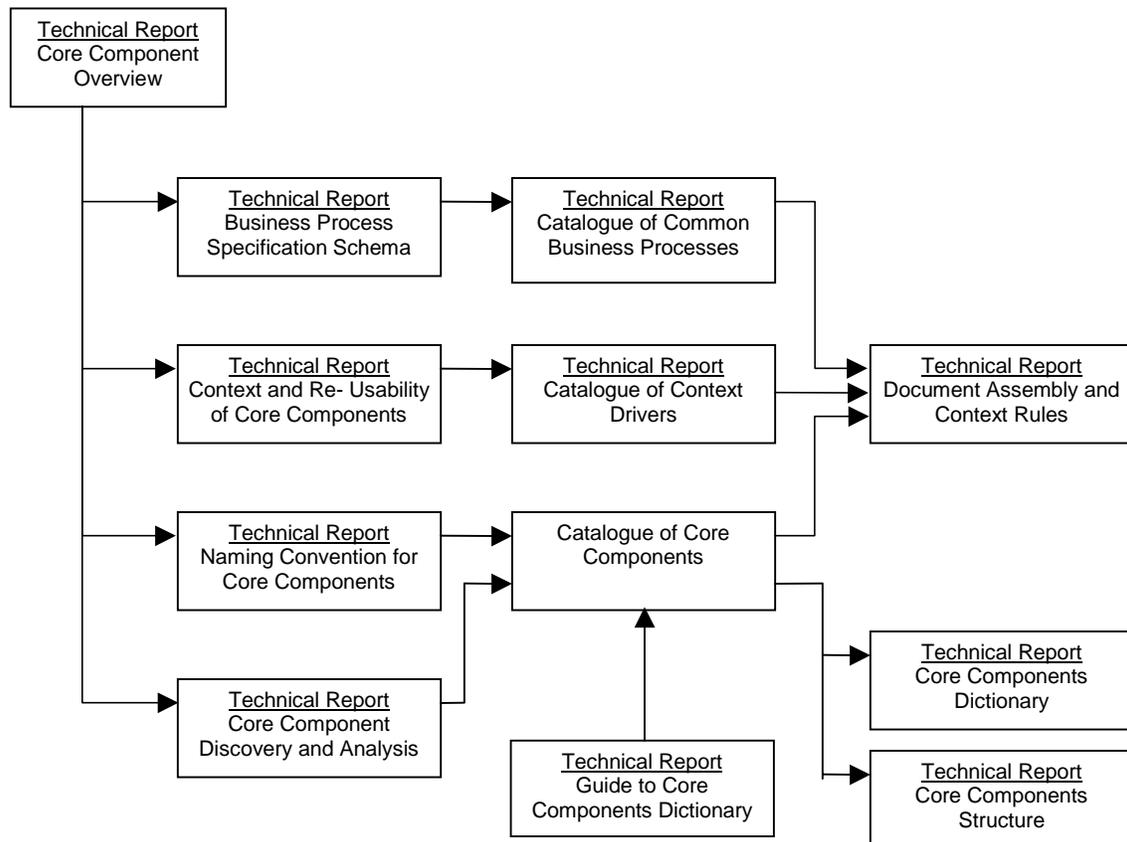
While the contents of the following catalogues represent the cross-domain results of work by the Core Components Project Team they are not recommended for adoption as is. They are examples to illustrate the implementation of the respective Core Components methodologies and will be subject to further analysis and extension and are consequently incomplete.

- [ccSTRUCT] Core Component Structure Ver 1.04

- [ccDICT] Core Component Dictionary Ver 1.04
- [ccDRIV] Catalogue of Context Drivers Ver 1.04

## 7.2 Relationship overview

The diagram that follows illustrates the relationships between the papers listed above.



The “Business Process Specification Schema” is included in the above figure to illustrate the interrelationships between the results of the Core Components and Business Process activities.

The “Context and Re-usability of Core Components” document builds upon the key premises and highlights the concepts/benefits gained through the use of a consistent methodology. Furthermore, it emphasises the re-use of previously defined Components. The “Catalogue of Context Drivers” document is the key to successful identification and re-usability of what has been previously defined. It should be used as reference material to clarify context and re-usability of Core Components.

The “Document Assembly and Context Rules” document is a roadmap to assist the reader in establishing and maintaining deployment of core components.

The “Naming Convention for Core Components” and “Core Component Discovery and Analysis” documents will enable the generation of entries into the “Catalogue of Core Components”. This is not a complete listing of all the entities required to support all business processes. It is presented in this set of papers via two extracts “Core Component Dictionary” and the “Core Component Structure”. These show the result of the work at the present state at the time of publication. Details of the meta data about each information entry in the catalogue is described in the document “Guide to Core Component Structure and Dictionary”.

## **8 Executive Summary of Core Component Papers**

### **8.1 *Naming convention for core components***

This document describes the rules for naming ebXML Core Components and Business Processes. These rules are based on the guidelines and principles described in document ISO 11179 (Guidelines for Structured Naming Conventions).

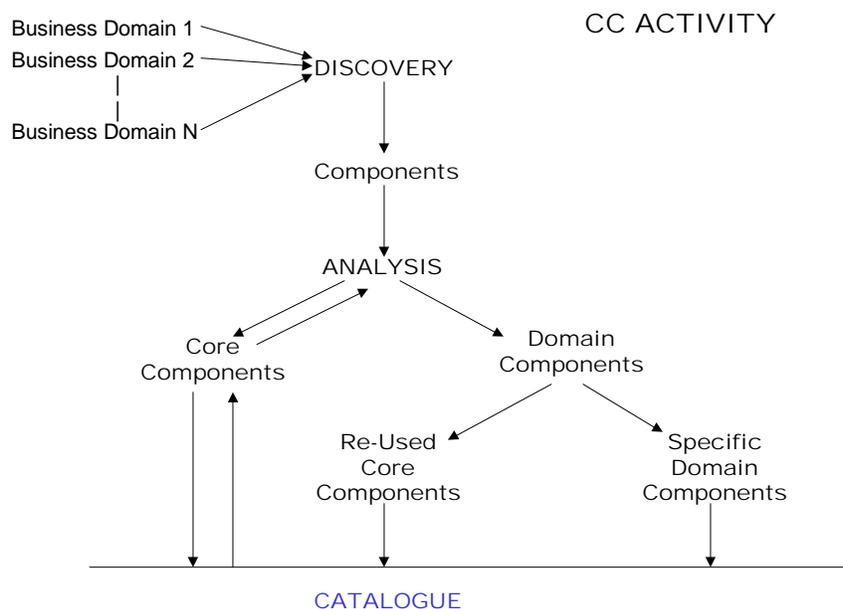
In addition to the naming convention rules that lead to a Dictionary Entry Name, the document also provides rules for creating definitions and establishes the principle of synonyms. This principle covers the instances where a commonly used business term equates to a well-formed Dictionary Entry Name.

### **8.2 *Core component discovery and analysis***

Business information experts in each domain area, using appropriate techniques for extracting, gathering, and recording their “discovered” Core Components conduct the discovery activity. For each Core Component a precise definition is established, together with any additional material pertinent to the specific domain.

To ensure cross-domain harmonization for each “discovered” component, a comprehensive and consistent analysis needs to be conducted by a harmonisation team of domain experts and by a technical assessment team.

The processes by which a catalogue of Core Components is created and maintained are shown in the following diagram:



### 8.3 *Guide to the core component dictionary*

This document describes the information contained in the documents [ccDICT] Core Components Dictionary Ver 1.04 and the [ccSTRUCT] Core Component Structures Ver 1.04 that are a result of the initial analysis of core components that have been submitted by domain groups.

### 8.4 *Context and re-usability of core components*

This document describes the need for, and the application of, context classifications and core components, together with an overview of how they can be used. It gives examples of some of the common problems resulting from a lack of semantic interoperability, and how a context-based system can help solve them. It also proposes some architectural approaches to how the automation of context-driven document assembly could be achieved.

### 8.5 *Document assembly and context rules*

This document describes the building of business document schemas from core components, and the modification of the core components for use in business documents. This process involves the extension and restriction of the core data structures into data structures specific to the business purpose for which they will be used.

Context classifications are employed to identify the specific use of the business data. A formal set of rules for tying specific context drivers to exact modifications of the core components is provided, along with formal rules for referencing and assembling core components prior to modification. XML document type definitions (DTDs) are provided for use in automated processing of these languages.

An XML DTD is also provided to illustrate an output format termed a “semantic interoperability document” that describes semantic relationships among the modified components, before they are bound to a particular syntax for describing the document format (such as a schema).

Sample instances are provided for the Assembly Rules, the Context Rules, and the semantic interoperability document.

## **8.6 Core component structure**

The Core Component Structure document is a view on the catalogue of core components in its current state detailing a selected number of example core components and their attributes. It is expected that in the future live queries against a registry containing a full set of accredited core components will be possible. This document gives a preview of how such a query result might look.

## **8.7 Core component dictionary**

The Core Components Dictionary is divided into sections and each section begins with the information on the applicable category and Core Component Type. Each section contains additional information for the listed core components.

## **8.8 Catalogue of context drivers**

This document provides a catalogue of context drivers. It describes the categories of business context descriptors that have been identified as the most critical for facilitating the maximum re-use of Core Components and Business Process models.

The document contains context definitions, the sources of classification value lists, and a pictorial model of Core Component and Context Descriptor Relationships.

## 9 Disclaimer

The views and specification expressed in this document are those of the authors and are not necessarily those of their employers. The authors and their employers specifically disclaim responsibility for any problems arising from correct or incorrect implementation or use of this design.

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