UN/CEFACT

United Nations Centre for Trade Facilitation and Electronic Business

Core Component Discovery and Analysis

JCC has undertaken work to move forward the ebXML CC technical reports to UN/CEFACT technical specification status pending UN/CEFACT concurrence.

This document reflects enhancements identified by JCC.

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1 Status of this Document

This document contains information to guide in the interpretation or implementation of electronic business concepts.

Distribution of this document is unlimited.

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

30 **2   Table of Contents**

62

63 # 3 Introduction

64

65 This document is dependent upon tools and developments available at the time of its
66 writing. It is expected that there will be rapid development of new applications and tools
67 that will facilitate the discovery and analysis of components and processes used in the
68 interchange of business information.

69

70 The instructions in this document may clarify for teaching and learning purposes how to
71 determine those business information processes and Core Components that will comprise
72 a compliant electronic information exchange.

73

74 ## 3.1 Summary of Contents of Document

75 This document lays out a detailed methodology for discovery and analysis of Core
76 Components. This methodology is based on identified Business Processes and supports
77 standardising such analysis. It describes the importance of cross-domain analysis of the
78 resulting definitions in order to promote interoperability and includes examples
79 illustrating multiple possible approaches.

80

81 ## 3.2 Audience

82 The target audience for this document includes business people as well as information
83 technology specialists supplying the content of, and applications that will employ, Core
84 Components.

85

86 ## 3.3 Related Documents

87 These include following documents:

88

89 *Note: This chapter has to be updated after the incorporation of the former ebXML*
90 *Core Components Technical Reports into the unique UN/CEFACT Core*
91 *Components Technical Specification*

92

93 # 4 Definitions

94

99

100 ## 4.1 Core Components

101

102 *A Core Component is a building block for the creation of a semantically*
103 *correct and meaningful information exchange 'parcel'. It contains only the*
104 *information pieces necessary to describe a specific concept (to be defined in*
105 *a glossary).*

106

107

108 There are three categories of Core Components: Basic Core Component,
109 Core Component Type and Aggregate Component.
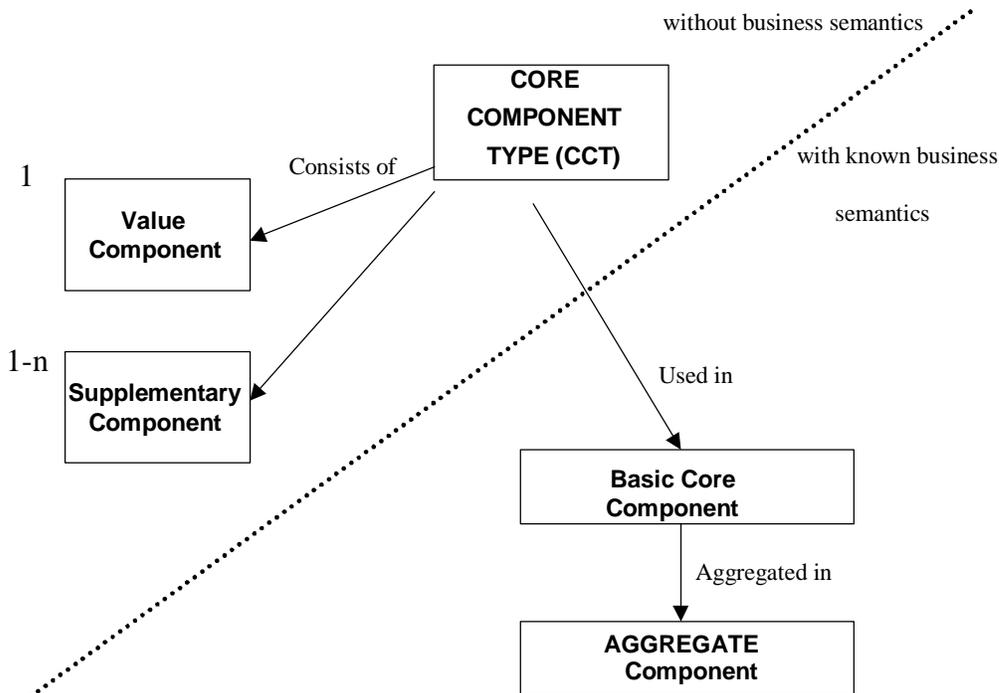
110
111

112   *4.1.1   Basic Core Component (BCC)*
113   This is the Core Component that represents a singular business concept with
114   a unique business semantic definition. It may be constructed by using a Core
115   Component Type. It may be used to create Aggregated Information Entities
116
117   *4.1.2   Core Component Type (CCT)*
118   This is a Core Component that has no business meaning on its own. For
119   example, date on its own has no business meaning, whereas the date of birth,
120   the contact date, the delivery date express business meaning.
121   Core Component Types consist of one component that carries the actual
122   content (Content Component) plus others that give extra definition to the
123   content (supplementary component(s)). For example, if the content
124   component carries "12" this has no meaning on its own. But "12
125   Kilometres" or "12 Euro" do have meaning.
126
127
128
129   *4.1.3   Aggregate Core Component.*
130   This is an information entity that contains two or more Core Components or
131   Aggregate Core Components that together form a single business concept
132   (e.g. postal address). Each Aggregate Core Component has its own unique
133   business semantic definition.
134   Examples: account details party details,
135   An Aggregate Component must contain at least one Basic Core Component.
136   (Do not aggregate aggregates only – in this case reuse existing aggregates
137   one following the other. Aggregating Aggregate Core Components only
138   means to have information of entities tied without adding additional
139   informational value.)
140

141   ## 4.2 Business Process

142

143   *To de done Mike Adcock*
144

145   ## 4.3 Context

146

147   ***The addition of a semantic layer that describes the business use of an***
148   ***otherwise neutral set of Core Components.***

149 # 5 Discovery and Analysis

150 ## *5.1 Introduction*

151 Discovery and Analysis consists of finding Core Components of Business Processes
152 together with their context, either by research and analysis of business requirements or
153 searching a repository.

154 ## *5.2 Definitions specific for Discovery and Analysis*

155
156   The following definitions apply to the:
157   ➢ Documentation of the business process and data requirements.
158   ➢ Determination of which business processes and/or their Core Components
159   exist in a repository.
160   ➢ Identification of business processes and/or their Core Components not yet
161   included in a Repository.
162
163   - Context: When a business process is taking place, the context in which it is taking
164   place can be specified by a set of contextual categories and their associated
165   values. Context is used in two distinctive ways in the Discovery and Analysis
166   process:
167   o In the determination of exact business data requirements.
168   o To provide a basis for harmonisation of cross domain requirements.
169
170   - Discovery: the process of searching, identifying and documenting the business
171   data requirements for exchanging information between partners within a given
172   context.
173   o Discovery may include the harvesting of existing information.
174   o It includes documenting both the common data requirements and the
175   context(s) in which they are used.
176
177   - Analysis: the process of detailed examination of the discovered business data
178   requirements:
179   o In order to ensure that they are semantically correct.
180   o Provide a solution that is harmonized across industries.
181   o Encourage reuse in order to maximize interoperability.
182
183   - Approval
184   Note: The Approval Process has to be defined according to the rules of eBTWB
185   -
186

Core Component Discovery and Analysis

187   ## 5.3 Discovery and Analysis Process
188   These activities are initially performed by business specialists or teams to discover work
189   already done. A harmonisation analysis team will preparethe submission for updates to
190   the repository.
191
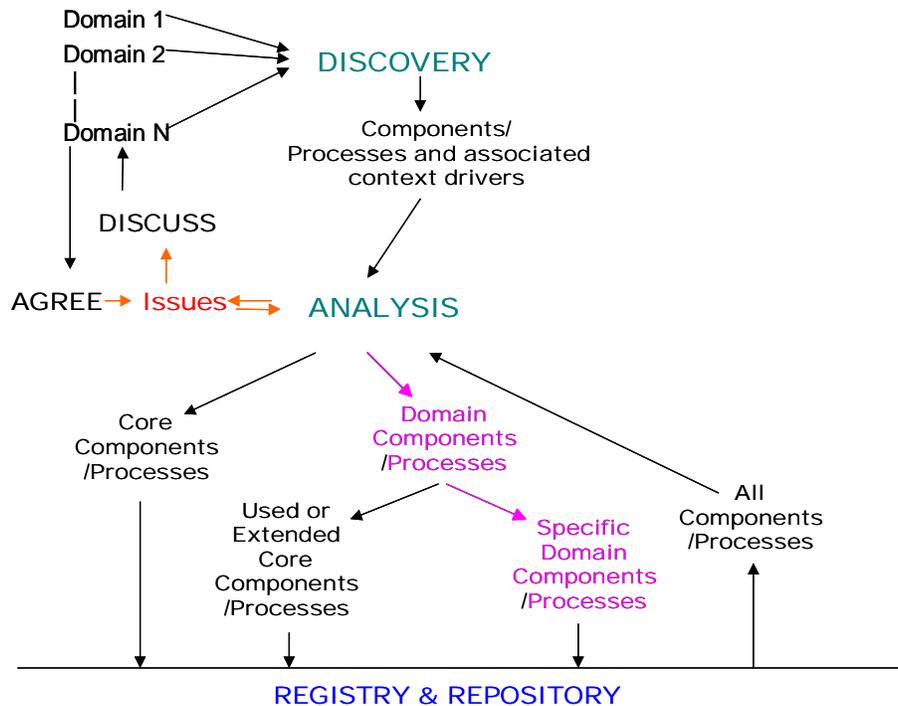
192   Figure: Discovery and Analysis Diagram (replace by new version)
193
194   *5.3.1   CC Documentation*
195   The documentation activity assists business specialists to express their electronic business
196   information requirements in the format defined by UN/CEFACT.
197   It includes the collation of
198   •   business process,
199   •   information requirements and
200   •   the context within which these requirements exist.
201
202   *5.3.2   CC Harmonisation*
203   The harmonisation work will be performed by a harmonisation team which shall
204   include specialists of every Domain Team. They need to provide the broad knowledge
205   on different domains' business processes and their relevant requirements.
206   The result of the harmonisation analysis work is:
207   •   semantically concise based on the electronic business requirements
208   •   cross-domain inter-operable
209   •   syntactically neutral
210

211 *5.3.3 Prerequisites:*
212 • A set of UN/CEFACT recognised business harmonisation procedures for the
213   resolution of conflicts exists.
214 • A set of UN/CEFACT recognised rules for the definition of Core Components
215   exists.
216 • A UN/CEFACT procedure exists for the addition or modification of repository
217   information.
218

219 **5.4 Discovering Existing or New Business Processes and Core**
220 **Components**

221 Search within an UN/CEFACT compliant repository for similar business processes and
222 components.
223
224 Assumptions:
225
226 • A repository of UN/CEFACT compliant business process models (in UMM)
227   is in place.
228 • A repository of UN/CEFACT compliant Core Components is in place.
229
230 The following flowcharts illustrate the different decision paths to take depending on
231 whether or not the discovery activity identifies existing or new business processes and
232 Core Components.
233
234

234 *5.4.1   Business Process Discovery Activity*

235
236 BP Discovery
237
238 BP
239 Documentation
240 Reviewed
241
242
243
244 Same BP in Catalog?   No   Similar in   No   Complete BP
245   Catalog?   documentation to
246   be added to the
247 Yes   repository
248   Yes
249   Different   No   Document the   Submit to
250   context?   variances that   next level
251   need to be
252   Yes   resolved
253
254   Document the new
255   context that needs
256   to be added
257
258
259 CC Discovery
260
261 Legend: BP Business Process
262   CC Core Component
263

263   *5.4.2   Core Component Discovery Activity*
264

294   Legend: BP Business Process
295   CC Core Component
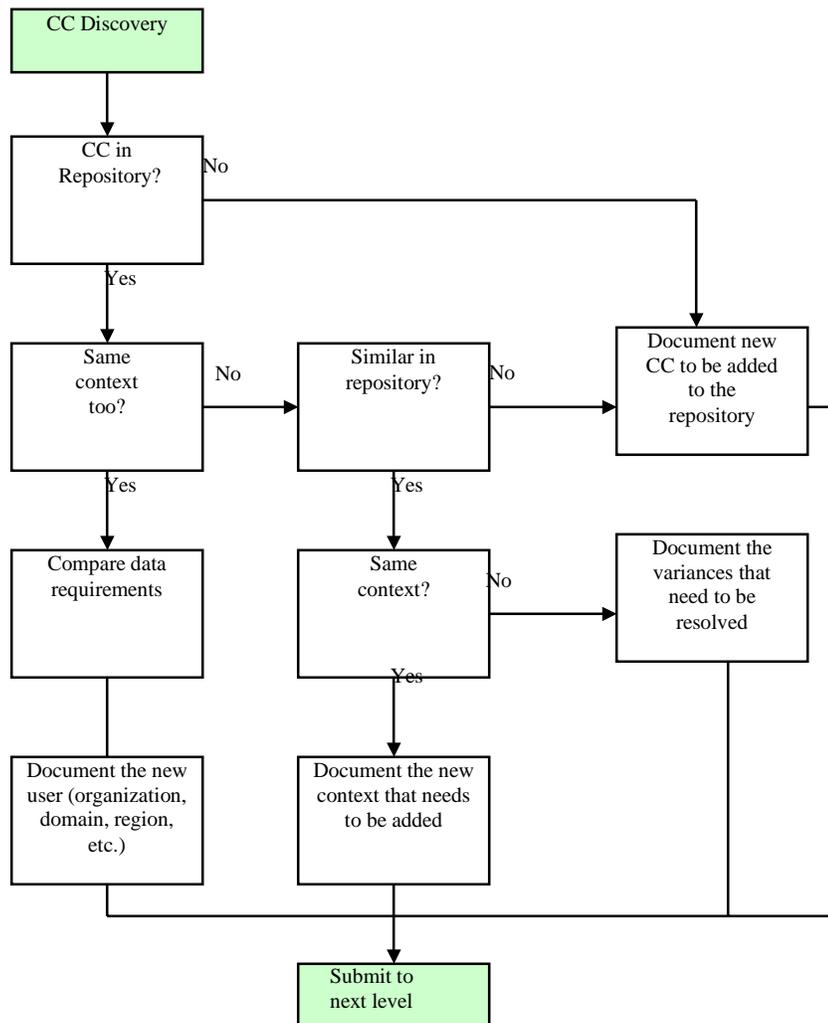
5.5 Harmonisation Analysis Activity

297   The harmonisation team will accept requests for the addition of new, or updates to
298   existing, repository information. The purpose of harmonisation is to ensure consistency of
299   business process models and Core Components across domains. Requests may be for
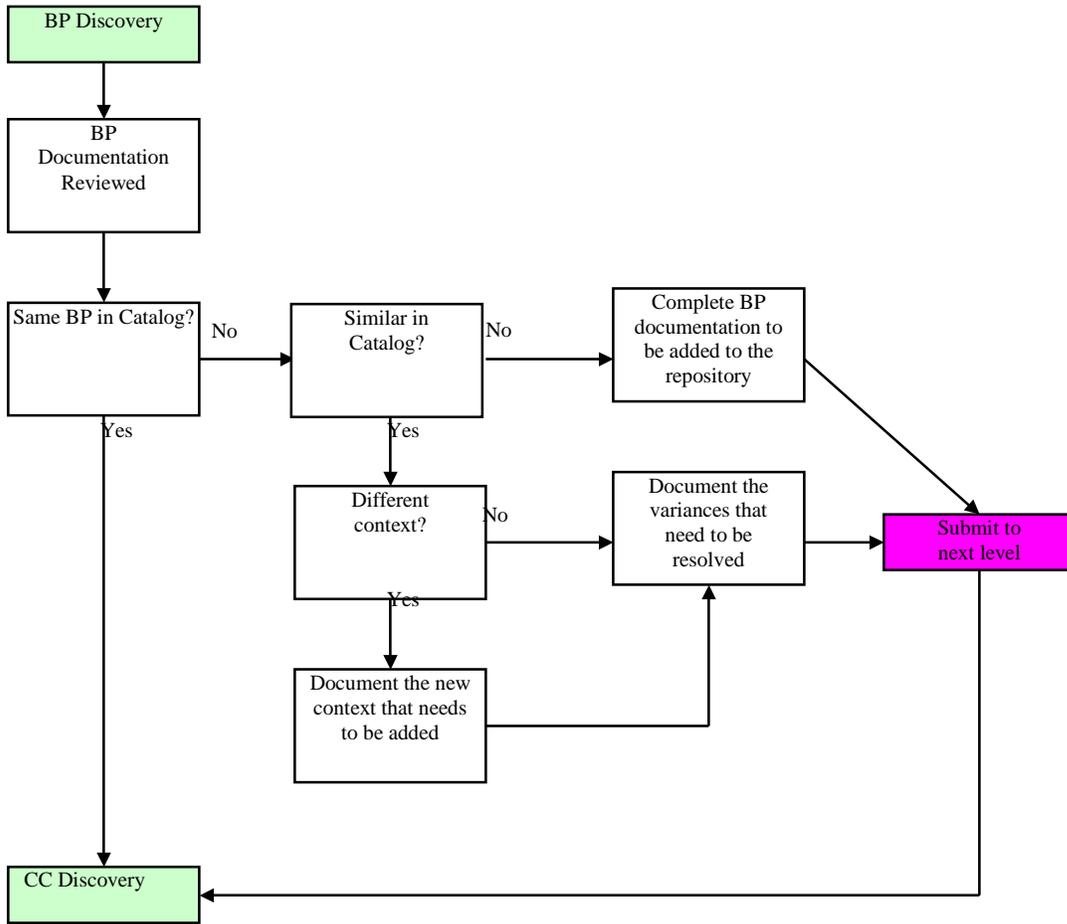300   business processes, Core Components, or both. The following flowcharts illustrate the
301   decision paths to take depending on whether or not the discovery activity identifies
302   existing or new business processes and Core Components.
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303
304 *5.5.1 Business Process Harmonisation Activity*
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From Domain

Examine Business Process Discovery submission

Negotiate

Domain Discovery Team(s)

Harmonisation Team

Agree? No → Rationale for document rejection

Yes

New Business Process? Yes → Document new Business Process and BP user

No

Existing BP, re-used? Yes → Document new Business Process user

No

Existing BP, extended? Yes → Document variant re-use of BP and BP user

No

Existing BP, new context? Yes → Confirm new context for Business Process

No

Any changes? Yes → To Technical Assessment Process

No

346 Legend: BP Business Process
347   CC Core Component
348

349   *5.5.2   Core Component Harmonisation Activity*
350
351   From Domain CC Discovery
352
353
354   Examine Core Component Discovery submission   Negotiate   Domain Discovery Team(s)
355
356   Harmonisation Team
357
358   Agree?   No   Document rationale for rejection
359
360
361
362   Yes
363
364   New Component?   Yes   Document new Core Component and CC user
365
366
367   No
368
369   Existing Component, re-used?   Yes   Document new Core Component user
370
371
372
373   No
374   Existing Component, extended?   Yes   Document variant re-use of CC and CC user
375
376
377
378   No
379
380   Existing Component, new context?   Yes   Confirm new context for Core Component
381
382
383   No
384
385   Any changes?   Yes   To Technical Assessment Process
386
387
388   No
389
390
391
392   Legend: BP Business Process
393   CC Core Component
394
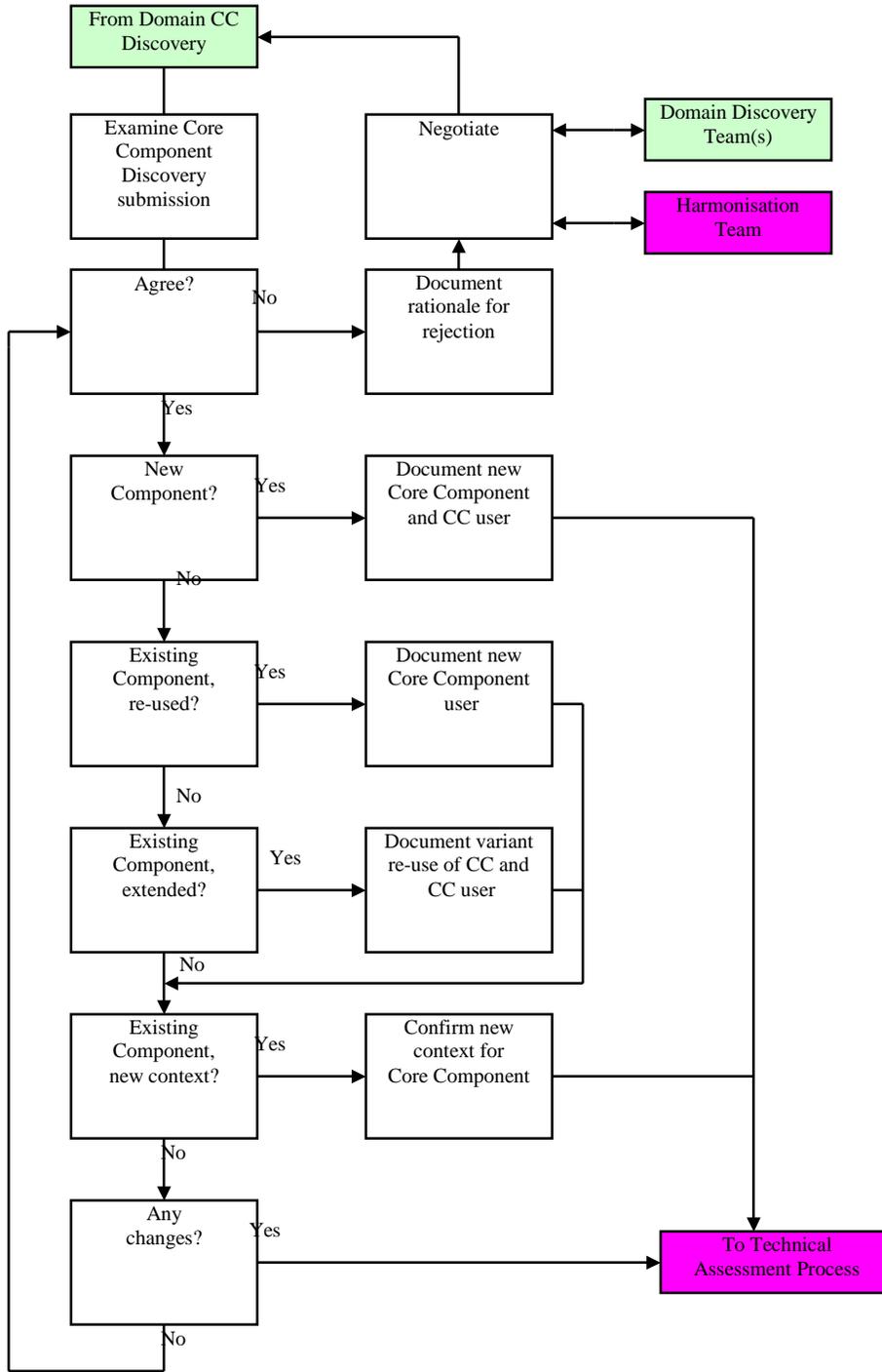
5.6 Rules for constructing and validating Core Components

Rule 1:   Each Core Component Type, Basic or Aggregate Information Entity must have its own business semantic definition. The definition shall be developed first and the Dictionary Entry Name shall be extracted from it. Remarks can be used to further clarify the definition, to provide examples and/or to reference a recognised standard.

Rule 2:   Within an aggregate, all embedded entities shall be related to the concept of the aggregate .

Rule 3:   There shall be no semantic overlap between the Core Components embedded within the same aggregate.

Rule 4:   The representation of the information in a Core Component of the Core Component Type "Code" should use a standard issued by a recognised standards body, whenever a standard exists. If international standards are not used a business driven justification shall be provided.

Rule 5:   An aggregate information entity must contain at least one Basic Core Component.

Rule 6:   For the purpose of exchanging information a practical compromise on the level of detail of a Basic Core Component is required. This compromise shall be based on the Business Need. There is no need to always have absolute detail, which decomposes a piece of information down to its lowest level.

424 **6 Disclaimer**

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

429 **7   Contact Information**

430
431   Note: Contact Information will be provided with the final document
432

433 **Appendix A**

434 *Discovery Example – Manufacturing Business Process*
435
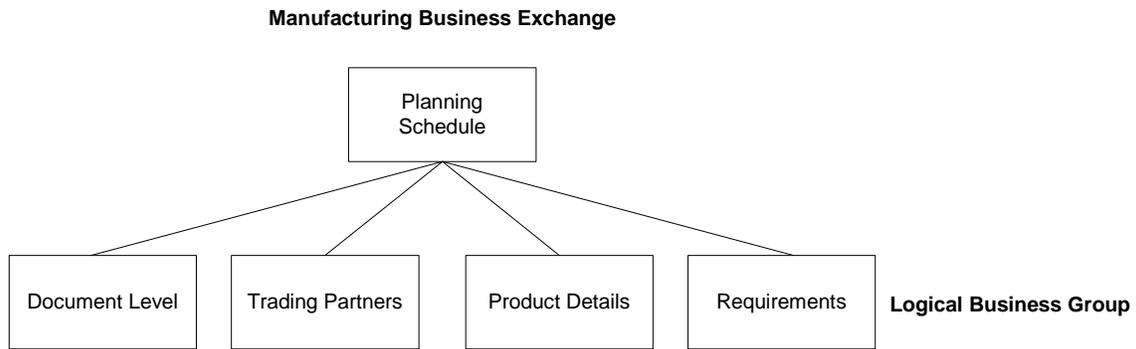436 1. Step 1.Concisely describe the business process/exchange.
437   Describe the business process at a level of detail sufficient to identify the business
438   information that is required.
439   e.g. "A manufacturer wants to send a supplier his requirements for a certain product."
440   Then describe the business process to a level of detail that will identify the business
441   information required.
442
443 2. Step 2. Break the business exchange into logical groupings (families) and name each
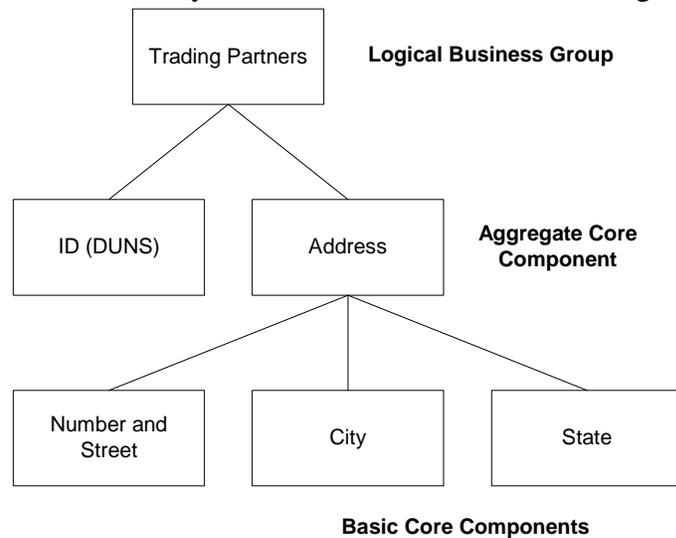444   group
445
446

Manufacturing Business Exchange

```
                          +------------+
                          |  Planning  |
                          |  Schedule  |
                          +------------+
                          /    |    |    \
            +----------+ +----------+ +----------+ +----------+
            | Document | |  Trading | |  Product | |          |
            |  Level   | | Partners | |  Details | |Requirements|  Logical Business Group
            +----------+ +----------+ +----------+ +----------+
```

447
448
449 3. Step 3.   Take each family and break it down into smaller logical units

```
                     +----------------+
                     | Trading Partners |   Logical Business Group
                     +----------------+
                          /        \
            +----------+            +----------+
            | ID (DUNS)|            | Address  |   Aggregate Core
            +----------+            +----------+     Component
                                    /    |    \
                        +----------+ +--------+ +--------+
                        |Number and| |  City  | | State  |
                        |  Street  | |        | |        |
                        +----------+ +--------+ +--------+
```

Basic Core Components

450
451

452 4. Step 4.   Write down each detail item. Those items that can logically be further
453   broken down are Aggregate Core Components.
454   e.g. Address would need to be broken down further as it contains several Core
455   Components.
456

457 5. Step 5.   Continue the breaking down process until all the business entities have
458   been identified down to the lowest business required levels.
459

460 6. Step 6.   Document the, Basic Core Components, Aggregate Core Componentsand
461   Core Component Types in the CC Discovery Form.
462

463 7. Step 7   Once the Core Components for the specific business process have been
464   documented, the Core Component Repository shall be reviewed to determine if these
465   Core Components are already included.
466

467   Step 7a   If included, then the two Core Components (the one on the CC Discovery
468   Form and the one already in the Repository) shall be compared to
469   determine if the one in the Repository meets the business requirements.
470   This review shall also include all the information for each of the Basic
471   Core Components listed for an aggregate.
472   Step 7b   If the Core Components in the Repository does not meet the business
473   needs, then comments on the problem shall be documented. This leads to
474   the request of a new Core Component (see Step 8).
475

476 8. Step 8   If a Core Component is missing, then a request shall be prepared including
477   the following information:
478   • Core Component Type used (if applicable);
479   • data type (if applicable);
480   • category type;
481   • definition;
482   • proposed dictionary entry name according to the naming conventions
483   • remarks,
484   • synonyms,
485   • indication of the requesting domain group.
486

487 9. Step 9   If a required aggregate is missing, then a request shall be prepared
488   including the proposed name and definition plus a list of its embedded Core
489   Components. In the cases where the embedded Core Components themselves are also
490   newly identified then the appropriate level of information on each of these shall also
491   be provided.
492