



Creating A Single Global Electronic Market

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# Core Component Discovery and Analysis

## ebXML Core Components

10 May 2001  
Version 1.04

## 14 **1 Status of this Document**

15 This Technical Report document has been approved by the Core Component Project  
16 Team and has been accepted by the ebXML Plenary.

17

18 This document contains information to guide in the interpretation or implementation of  
19 ebXML concepts.

20

21 Distribution of this document is unlimited.

22

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

24

25 This version:

26 [www.ebxml.org/specs/ebCCD&A.pdf](http://www.ebxml.org/specs/ebCCD&A.pdf)

27

28 Latest version:

29 [www.ebxml.org/specs/ebCCD&A.pdf](http://www.ebxml.org/specs/ebCCD&A.pdf)

30

31

32 **2 ebXML Participants**

33

34 We would like to recognize the following for their significant participation to the  
 35 development of this document.

36

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88

## 89 **4 Introduction**

### 90 **4.1 *Summary of Contents of Document***

91 This document describes how to identify common business processes and how to define  
92 the core components and the influence of context drivers. It also describes the importance  
93 of cross-domain analysis of the resulting definitions in order to promote interoperability  
94 and includes examples illustrating two possible approaches.  
95

### 96 **4.2 *Audience***

97 The target audience for this document includes business people with technical knowledge  
98 as well as technical people with a business interest.  
99

## 100 **5 Design Objectives**

101 The objective is to provide guidance for the discovery and analysis of Core Components  
102 and common Business Processes used in the interchange of business information.

103

104 By describing a systematic approach this document assists users in the discovery,  
105 analysis and documentation of common Business Processes and Core Components,  
106 including the impact of context, that are used in information exchange. It also explains  
107 that the results of these activities should be compared against entries found in public  
108 repositories and that these comparisons will result in either the creation of new or the  
109 updating of existing entries within the repository.

110

### 111 **5.1 Caveats and Assumptions**

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

116

117 The instructions in this document may clarify for teaching and learning purposes how to  
118 determine those business information processes and core components that will comprise  
119 an ebXML compliant interchange.

120

121 The procedure for submission to an ebXML-compliant Repository is not covered in this  
122 document.

## 123 **6 Discovery and Analysis**

124 Discovery and Analysis consists of finding Core Components and Business Processes  
125 together with their context either by means of research and analysis of business  
126 requirements or via searching an ebXML Repository.

127

128 • Context: the addition of a semantic layer that describes the business use of an  
129 otherwise neutral set of components. When a business process is taking place, the  
130 context in which it is taking place can be specified by a set of contextual  
131 categories and their associated values. Context is used in two distinctive ways in  
132 the Discovery and Analysis process:

- 133 ○ In the determination of exact business data requirements.
- 134 ○ To provide a basis for harmonization of cross industry requirements.

135

136 • Discovery: the process of searching for and documenting the business data  
137 requirements for exchanging information between trading partners within a given  
138 context. A domain-specific team typically performs this work.

- 139 ○ Discovery may include the harvesting of existing information.
- 140 ○ It includes documenting both the common data requirements and the  
141 context(s) in which they are used.

142

143 • Analysis: the process of detailed examination of the discovered business data  
144 requirements by a harmonisation analysis team consisting of domain experts:

- 145 ○ In order to ensure that they are semantically correct.
- 146 ○ Provide a solution that is harmonized across industries.
- 147 ○ Encourage reuse in order to maximize interoperability.

148

149 These definitions apply to the:

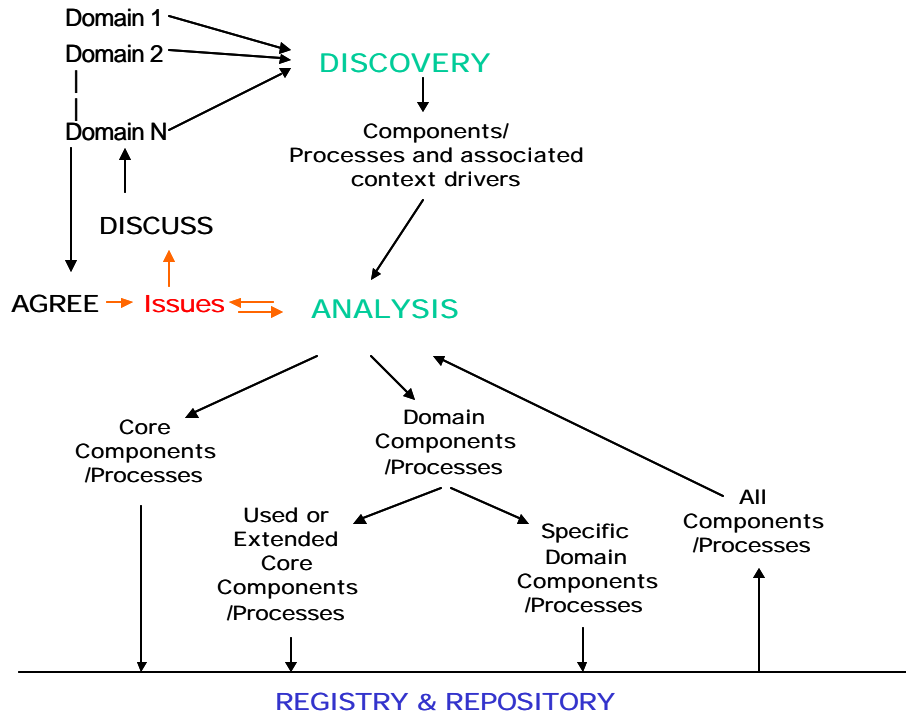
150

- 151 • Documentation of the business and data requirements.
- 152
- 153 • Finding of business processes and their components already existing in an  
154 ebXML-compliant Repository.
- 155
- 156 • Identification of business processes and their components not yet included in an  
157 ebXML-compliant Repository.

158

159 These activities are initially performed by a domain-specific individual or team, to  
160 discover work already done, and then by the harmonization analysis team when preparing  
161 for actual submission for updates to the repository.

162



163 Figure: Discovery and Analysis Diagram

164

165 The documentation activity assists domain experts [finance, transport, travel, materials  
 166 management, etc.] to express their business exchange requirements. It includes the  
 167 collation of business process and information requirements and the context within which  
 168 these requirements exist. For example, the typical order might include a buyer, seller,  
 169 product/quantity details, payment and shipping. However, if the product involves  
 170 hazardous materials, different geographic regions may require different information.

171

172 The role of the harmonization analysis group is to ensure that the information  
 173 requirements identified as a result of the discovery process are met with a semantically  
 174 concise solution, which is structured in a harmonized manner to support the ebXML cross  
 175 industry interoperability goals.

176

177 Assumptions:

178

179 • A set of globally officially recognised business harmonization procedures for the  
 180 resolution of any domain-specific conflicts exists.

181

182 • A set of globally officially recognised rules for the definition of core components  
 183 exists.

184

185 • An internationally authorised domain-neutral analysis process to which requests  
 186 for the addition of new, or updates to existing, repository information can be  
 187 passed for approval is in place.

188



189 **6.1 Discovering Existing or New Business Processes and Core**  
 190 **Components**

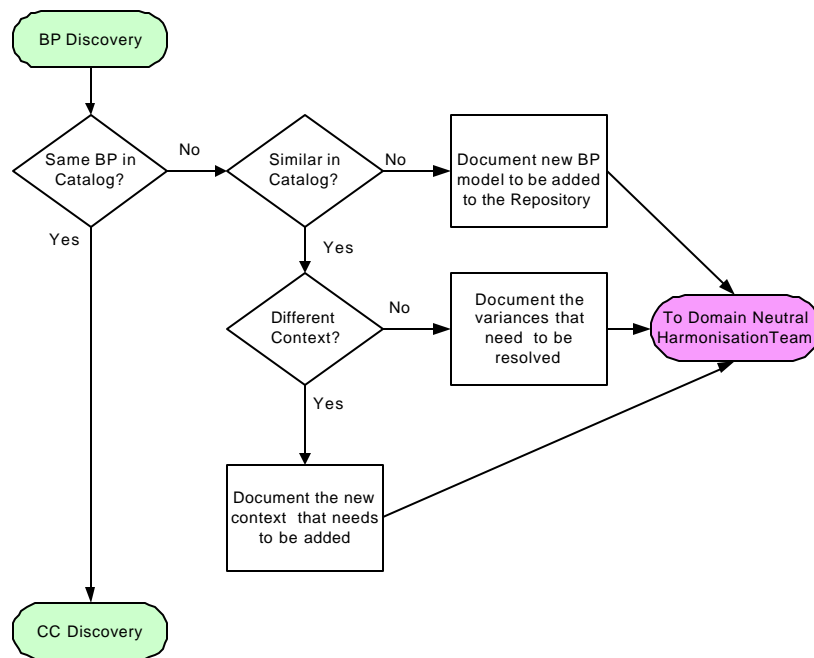
191 Search within an ebXML-compliant Repository for similar business processes and  
 192 components.

193 Assumptions:  
 194

- 196 • An ebXML-compliant Repository of Business Process models (in UMM) is  
 197 in place.
- 198 • An ebXML-compliant Repository of Core Components is in place.

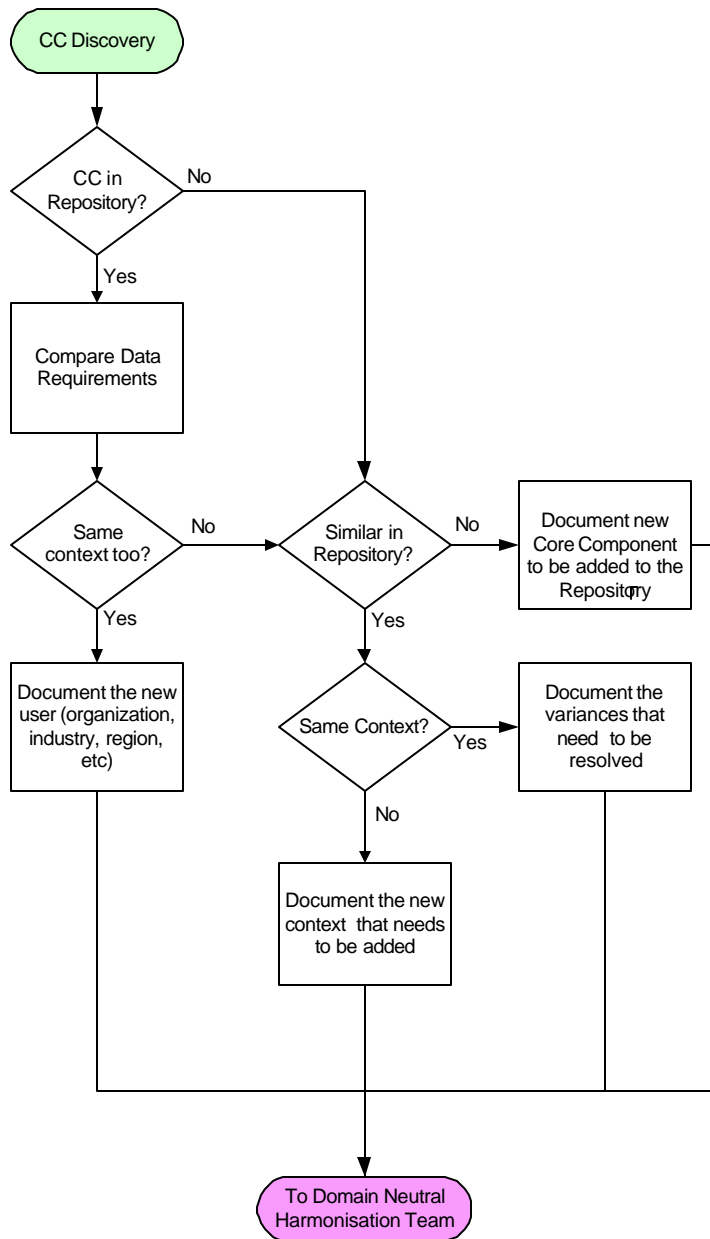
199  
 200 The following flowcharts illustrate the different decision paths to take depending on  
 201 whether or not the discovery activity identifies existing or new business processes and  
 202 core components.

203  
 204 **6.1.1 Domain-specific Business Process Discovery Activity**  
 205



206  
 207 Legend: BP Business Process  
 208 CC Core Component

209 6.1.2 Domain-specific Core Component Discovery Activity



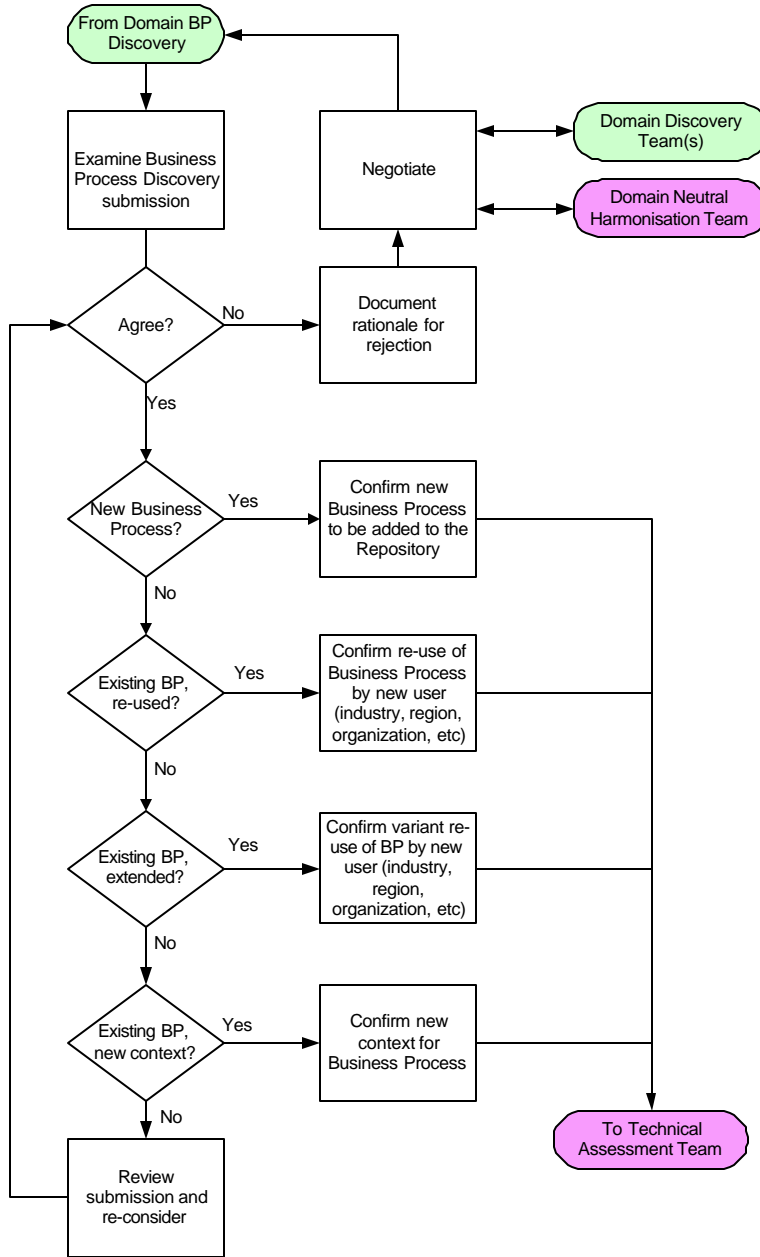
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213  
214

Legend: BP Business Process  
CC Core Component

214 **6.2 Harmonization Analysis Activity**

215 The harmonization team of domain experts will accept requests for the addition of new,  
216 or updates to existing, repository information. The purpose of harmonization is to ensure  
217 consistency of business process models and core components across domain-specific  
218 requests. Requests may be for business processes, or core components, or both. The  
219 following flowcharts illustrate the different decision paths to take depending on whether  
220 or not the discovery activity identifies existing or new business processes and core  
221 components.  
222

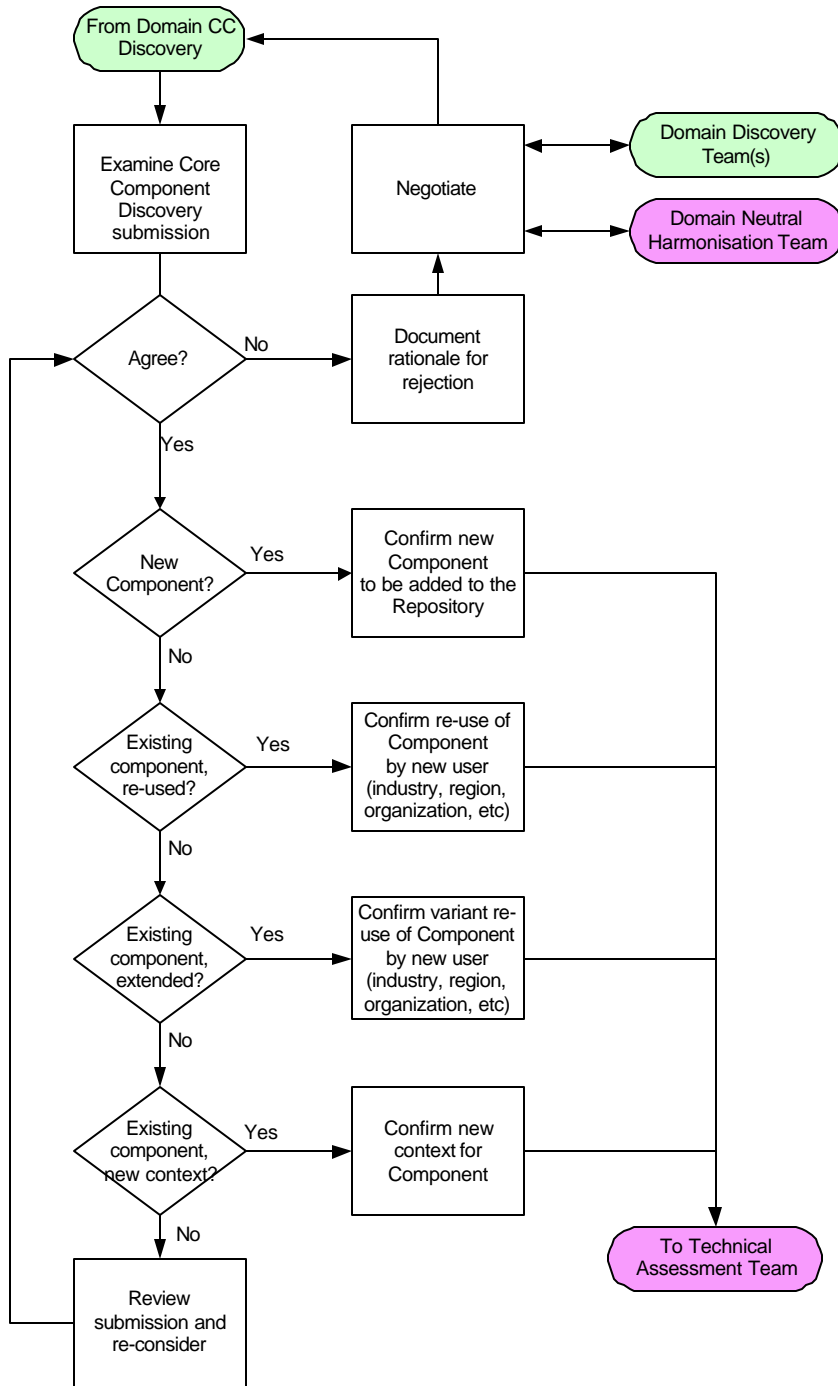
223 6.2.1 Core Component Harmonization Activity



224  
225  
226  
227

Legend: BP Business Process  
CC Core Component

228 6.2.2 Core Component Harmonization Activity



229  
 230 Legend: BP Business Process  
 231 CC Core Component  
 232

**233 7 Disclaimer**

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

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289 PARTICULAR PURPOSE.



290 **Appendix A**

291 ***Discovery Example - Death Registry***

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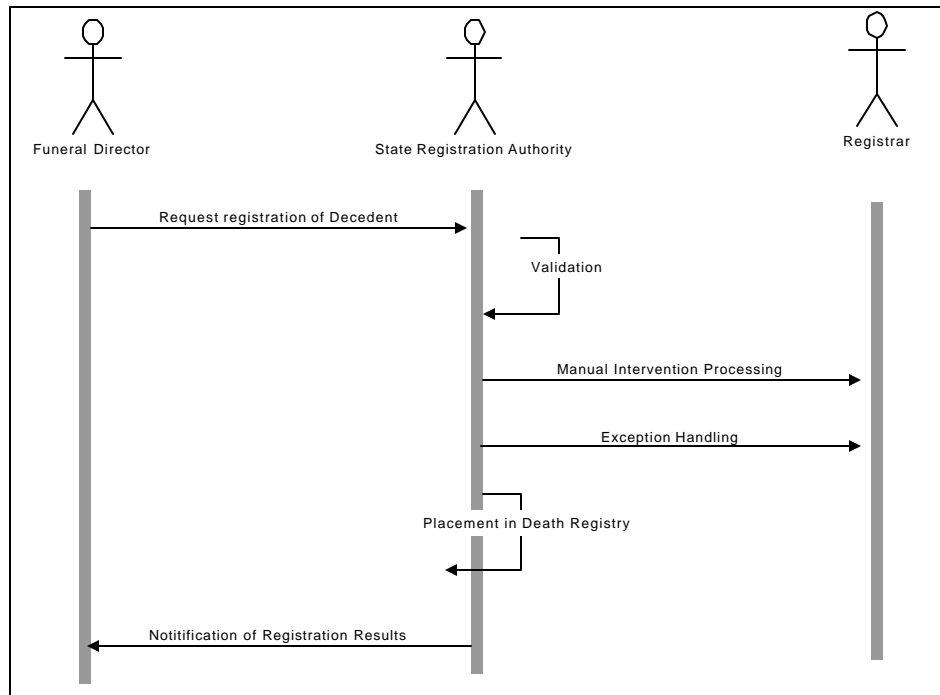
This example is based on a simplified representation of the process and information requirements for the registration of a decedent in a death registry. In the United States, vital statistics are managed at the state level, and state laws dictate details of how this process is carried out and what information is required.

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Basically, this process involves an authorized requester, typically a funeral director, who is licensed to request the registration of a decedent. The authorized requester interacts with the State level registration authority, and supplies detailed information about the decedent. Once all required information about the decedent is collected, a death certificate is issued. Subsequent to this, qualified organizations can inquire about the decedent. These inquiries are of two forms, a confirmation that the decedent is registered or detailed information regarding the circumstances of the death.

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There are two major external beneficiaries of the information collected in this process, the Center for Disease Control, and the Social Security Administration. These outside agencies, and the subsequent inquiry reporting are outside of this analysis process, but maybe useful for future Collaboration analysis.



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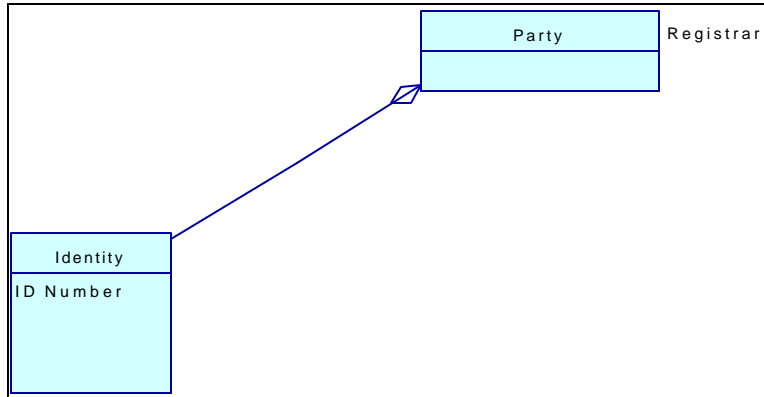
**Figure 1: Activity model for registering a decedent.**

315 **Information Models**

316 In the Registration Request Business Document in this business collaboration, there are  
317 three primary information components: Registrar/State, Requester/Funeral Director, and  
318 the decedent. The first two, the role players, are of such similar information requirements  
319 that they are both shown in Registration. Below are the information models for the  
320 Registrar/State and Funeral Director [Requester].

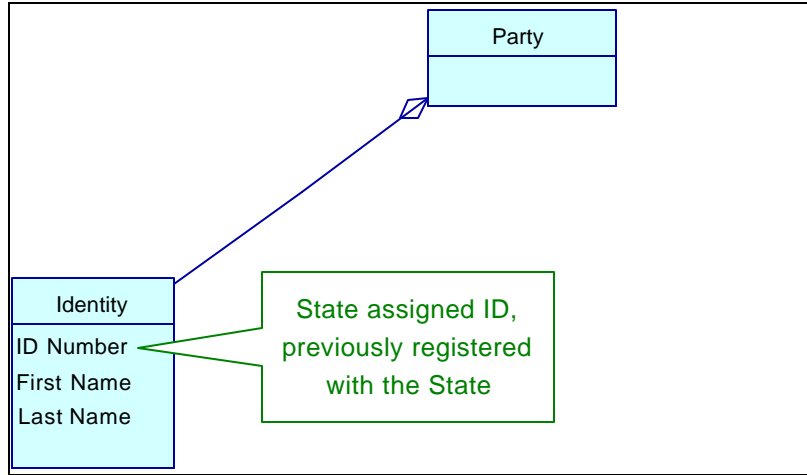
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**The Registrar/State**



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**The Requester/Funeral Director**



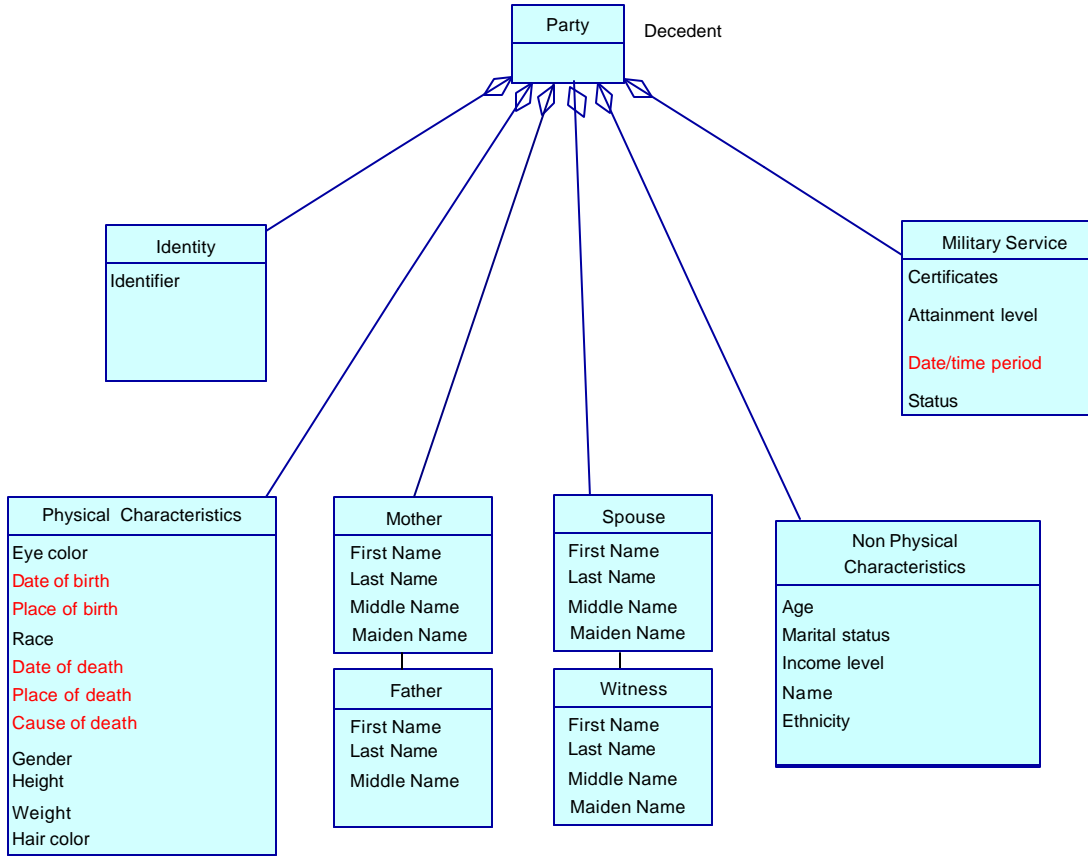
328  
329

330 Below are the information models for the Decedent.

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332  
333

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335

**The Decedent Information Model**



336  
337

338 **Analysis to determine requirements**

339 **Scope**

340 Before proceeding, it is important to identify our overall objectives and which of these  
341 objectives is addressed by each decision.

342

343 **Objectives**

- 344 • Ensure that the information requirements expressed in the model are met with
- 345 semantically concise and explicit solutions
- 346 • Re-use existing components as far as possible to meet cross industry inter-operability
- 347 goals

348

349 **Analysis of Information Models**

350 The analysis involves the information models involving the three parties as shown above.  
351 Two of these information models depict descriptive information about individual parties,  
352 which in these cases persons whereas the other information model describes parties  
353 which are organizations.

354

355 *Logical Business Groups*

356

357 Using natural language as a content guide, shown below are the highest-level  
 358 abstractions, or Logical Business Groups for Core Components.

359

360 These include:

361

- 362 Parties
- 363 Places
- 364 Things/Items
- 365 Events

366

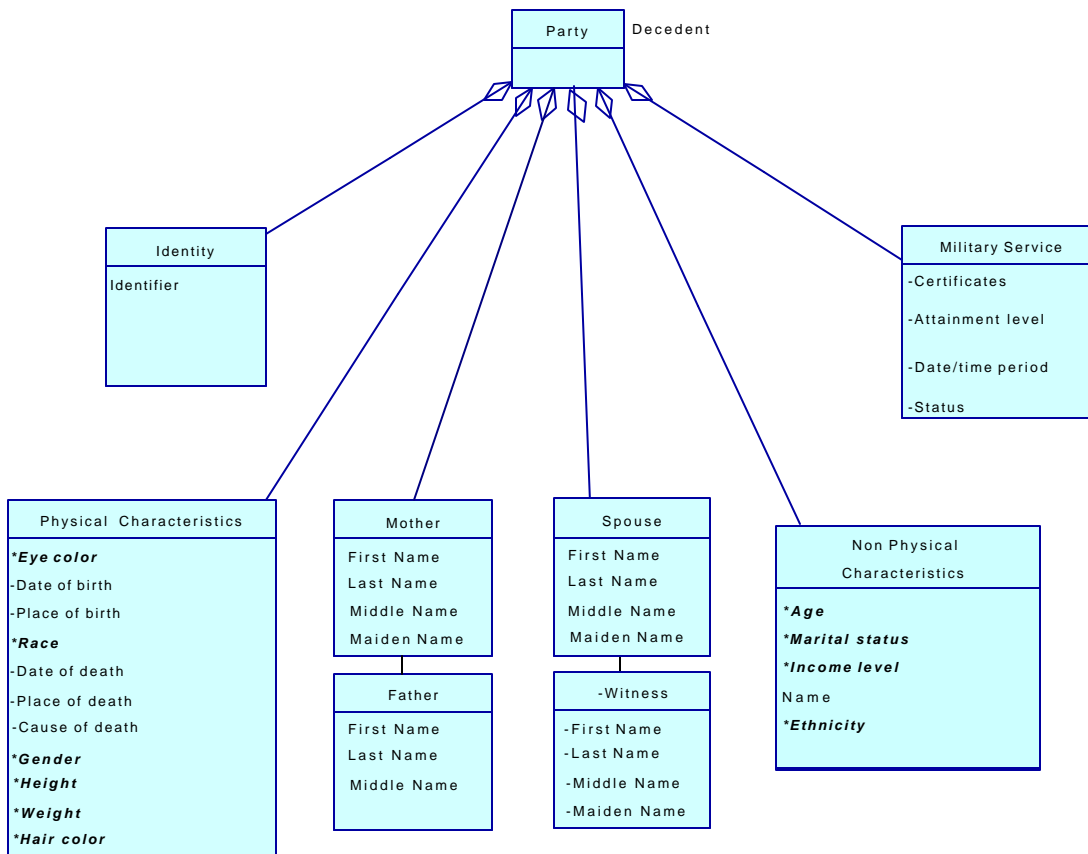
367 And for each of these high level classifications, there could be

368

- 369 Identification
- 370 Characteristics

371

372



373

374

374

375 *Message level grammatical decomposition*

376

377 Step 1, determine all associated party details.

378

379 Step 2, determine the elements which specify the identity. The ID number and the Name,  
380 fall into this category.

381

382 Step 3, locate all details associated with the **events**. Events must have a date/time value  
383 and a type. Typically, there will be a place/location associated with events that happen to  
384 people.

385

386 In this example, the death is an event, which is a focus of this business document. As a  
387 result, the death event is a complex object including parties [witness], locations, and other  
388 events [causal chain]. Therefore, a second level of decomposition is required in order to  
389 fully decompose this event.

390

391 Step 4, the definition of related parties. The mother, father, spouse are all parties  
392 associated with the decedent. These are distinct from the witness, which is a party  
393 associated with the event, the death. It is typical in Business Documents to have other  
394 parties, which are not actors in the business process, such as witnesses, relatives,  
395 contacts, etc. The fundamental question here is whether they are related to the event or  
396 the party (decedent).

397

398 In this example, the mother, father and spouse are literally related to the decedent, by  
399 definition but are not associated to the event or registration event unless they are also the  
400 witness party.

401

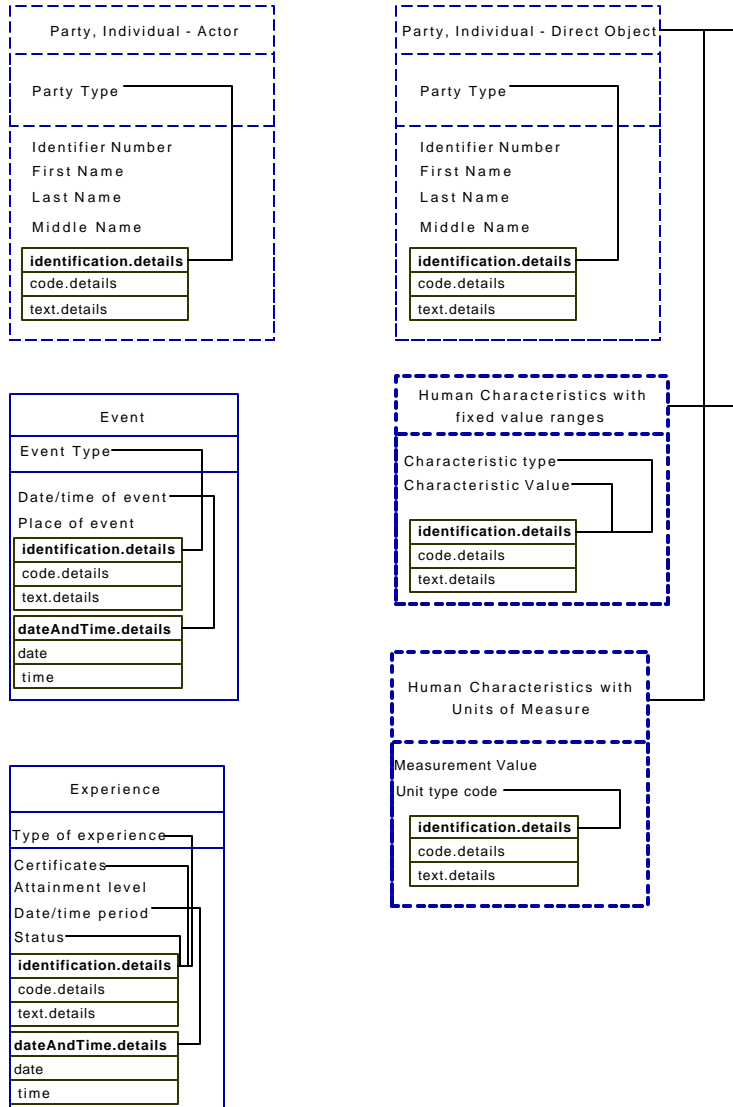
402 Step 5, definition of places/locations. Places answer *where*, and there are three (3)  
403 fundamental types: mailing/delivery, physical (longitude/latitude), and  
404 telecommunication.

405

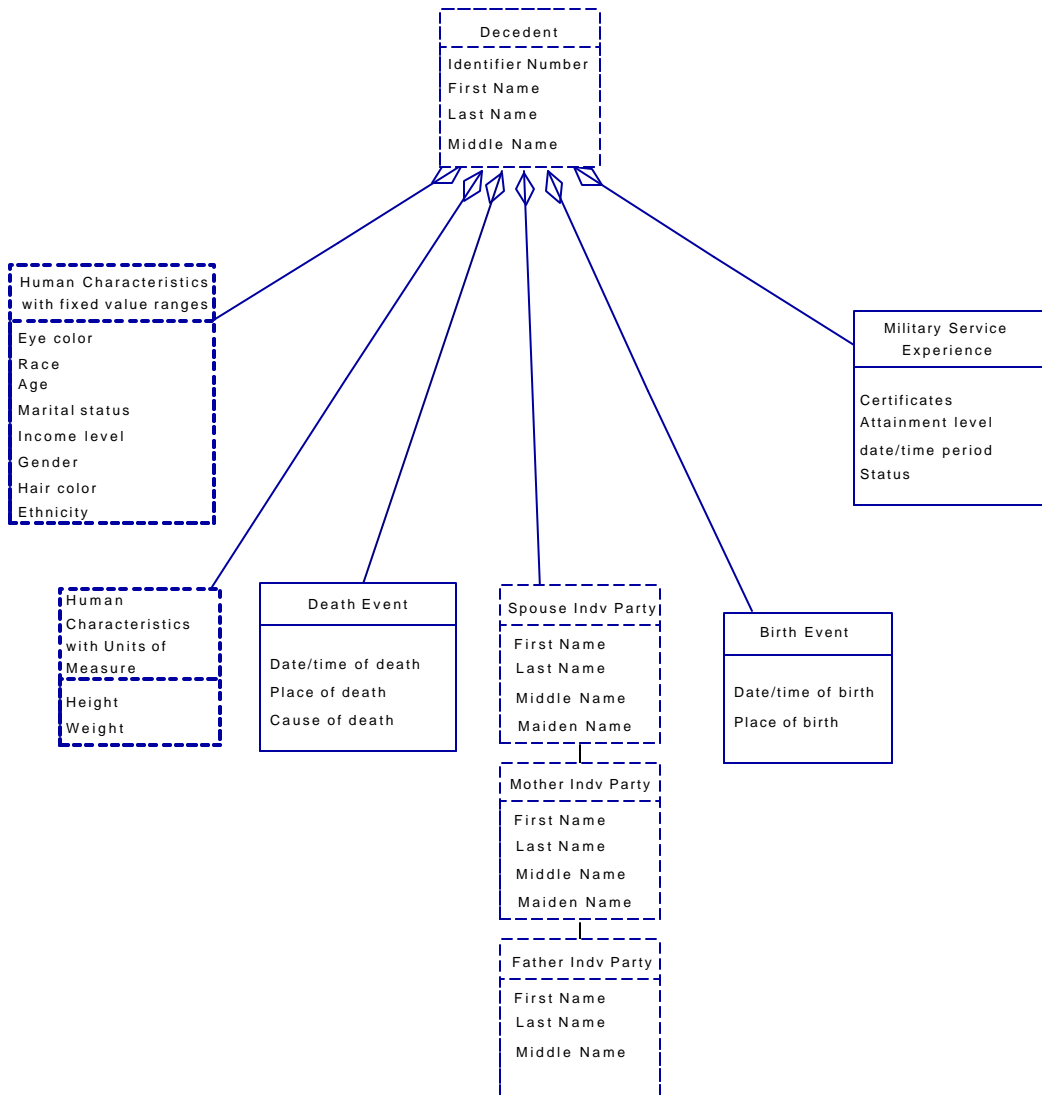
405 **Discovery Results**

406 The resulting core component definitions can be documented in various ways two of  
 407 which are indicated below.

408



409  
410



411  
412

413 **Appendix B**

414 ***Discovery Example – Manufacturing Business Process***

415  
 416 The following steps demonstrate the discovery process using ‘manual’ techniques rather  
 417 than automated tools. Users familiar with the business process and business data  
 418 requirements should perform this activity. Initially, new users may follow these steps in  
 419 order to fully understand the discovery activity. After that, the use of automated tools is  
 420 recommended in order to have more consistent, uniform results.

421  
 422 Step 1. Concisely describe the business process/exchange. Describe the business  
 423 process at a level of detail sufficient to identify the business information that is  
 424 required.

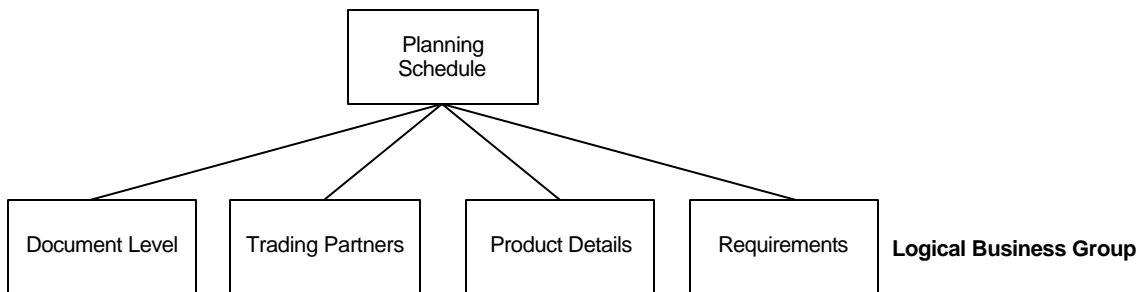
425  
 426 e.g. “A manufacturer wants to send a supplier his requirements for a certain product.”

427  
 428 Then describe the business process to a level of detail that will identify the business  
 429 information required.

430  
 431 Step 2. Break the business exchange into logical groupings of like business information  
 432 (families) e.g.

433  
 434

**Manufacturing Business Exchange**



435



436 Step 3. Name each logical group (family).

437

438 e.g. Document Level  
 439 Trading Partners  
 440 Product Details  
 441 Requirements

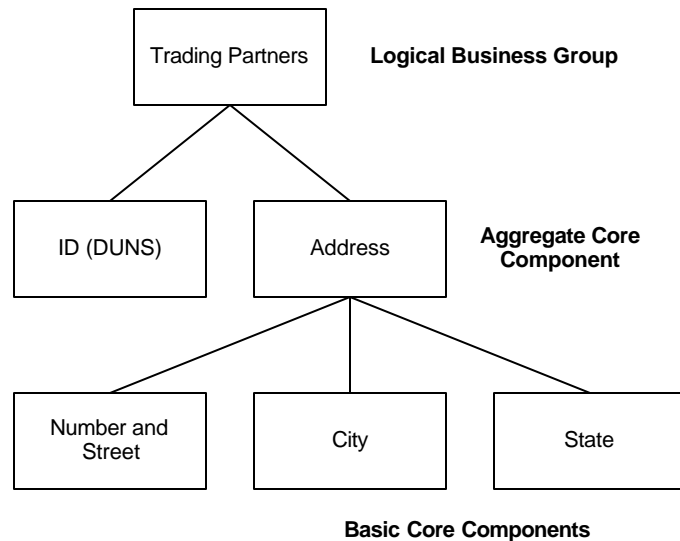
442

443 Step 4. Take each family and break it down into smaller logical units

444

445 e.g.

446



447

448

449 Step 5. Write down each detail item. Those that can logically be further broken down  
 450 are Aggregate Core Components.

451

452 e.g. Address would need to be broken down further as it is an aggregate.

453

454 Step 6. Continue the breaking down process until all the business entities have been  
 455 identified down to the lowest levels.

456

457 Step 7. Document the Core Components, both Basic and Aggregate, in the CC  
 458 Discovery Form.

459

460 Once the aggregate core components for the specific business process have been  
 461 documented, the Core Component Repository should be reviewed to determine if these  
 462 aggregates are already included.

463

- 464 • If included, then the two aggregates should be compared to determine if the  
 465 one in the Repository meets the business requirements. This review should  
 466 include all the information for each of the basic core components listed for the  
 467 aggregate.

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- 494
- If the existing information does not meet the business needs, then a comment(s) as to the problem should be documented.
  - If a basic core component(s) is missing, then a request should be prepared including in each case the following information:
    - core component type (if applicable);
    - data type (if applicable);
    - category type;
    - definition;
    - dictionary entry name – object class,
    - property term and representation type;
    - remarks,
    - synonyms,
    - and domain group.
  - If a required aggregate is missing, then a request should be prepared including the proposed name and definition plus a list of its embedded entities. In the cases where the embedded entities themselves are also newly identified then the appropriate level of information on each of these should also be provided depending on whether they are basic or aggregate core components.
- In determining the names of the aggregates and the basic core components, the ebXML Naming Convention document should be used and the name should always be derived from the definition.