32. Course Review

DE + IA (INFO 243) - 12 May 2008

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Today's Agenda

Self-Graded Final Exam

10 Things to Remember About Document Engineering
"Accelerating RosettaNet"
10 Things to Remember About Document Engineering (#1)

Document Engineering isn't about XML
IT'S ABOUT THE SNAKE
The D-O-C-U-M-E-N-T Checklist [1]

D -- data types and document types (paying special attention to the former when they are used across the latter as the "glue" to connect processes)

O -- organizational transactions and processes (the "business processes", described coarsely like "drop shipment" or precisely like "PIP 3A4")

C -- context (types of products or services, industry, geography, regulatory considerations -- the ebXML "context dimensions" described in section 8.2 of Document Engineering)

U -- user types and special user requirements (these are "people" user types)
The D-O-C-U-M-E-N-T Checklist [2]

M -- models, patterns, or standards that apply or that are needed

E -- enterprises and eco systems (e.g., trading communities, standards bodies, other frameworks that help scope the case study)

N -- the needs (business case) driving the enterprise(s)

T -- technology constraints and opportunities (legacy or interoperability concerns from existing technologies or implementations; new or improved processes or outcomes enabled by technology)
D-O-C-U-M-E-N-T in the Document Engineering Approach
10 Things to Remember About Document Engineering (#2)

Document Engineering isn't only about "Document Automation" -- "Paving the Cow Paths"
Generic Justifications for DE + IA
(Chapter 16)

- Reduce processing costs for goods and services
- Improve operational visibility and control
- Accelerate existing processes and enable new ones
- Publish cheaper, faster, better - reuse, repurpose, repackage information
- Reduce system development, maintenance, and integration costs
- Enhance employee and customer satisfaction
10 Things to Remember About Document Engineering (#3)

Narrative and Transactional Documents are on a Continuum
The Document Type Spectrum
Crossing the Data/Document Chasm

Document Engineering harmonizes the terminology and emphasizes what they have in common rather than highlighting their differences

- Identifying the presentational, content, and structural components and defining their relationships to each other
- Identifying "good" content components
- Designing, describing, and organizing components to facilitate their reuse
- Assembling hierarchical document models that organize components according to the requirements of a specific context for information exchange
10 Things to Remember About Document Engineering (#4)

Documents and Processes are Yin and Yang
Yin and Yang

Analyze Business Information
Analyze Business Process
Modeling Documents \{and, vs, or\}
Modeling Processes

A document exchange -- or any web-based service -- consists of both the documents and the processes that produce and consume them.

By understanding the information in the documents, we learn what kinds of processes (or services) are possible.

By understanding the processes (or services), we learn what kinds of information are needed.
A Process-Centric Depiction

Product Catalog → Order → Invoice

Buyer Creates Order
Seller Processes Order & Creates Invoice
A Document-Centric Depiction

Seller Process

Product Catalog

Order

Invoice

Buyer Process

Seller Process
10 Things to Remember About Document Engineering (#5)

Overlapping Information Is the Glue of Processes
Overlapping Information Components as "Process Glue"
10 Things to Remember About Document Engineering (#6)

Friends don't let Friends Model Alone
What's in a Name?

"The expense of resolving ambiguous business terms over and over on a daily basis pales in comparison with the expense of NOT realizing that there is an ambiguity in the term"
The Equivalence Problem

**Problem:** Does my "purchase order" mean the same thing as everyone else's?
Patterns Rule! Reuse when you can, and Follow the Golden Rule when you can't
The Model Matrix
Learn to Love the PIPs

<table>
<thead>
<tr>
<th>Clusters</th>
<th>Segments</th>
<th>Partner Interface Processes (PIPs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Partner Product &amp; Service Review</td>
<td></td>
<td>3A1 Request Quote</td>
</tr>
<tr>
<td>2 Product Information</td>
<td></td>
<td>3A2 Request Price &amp; Availability</td>
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<tr>
<td></td>
<td></td>
<td>3A3 Request Shopping Cart Transfer</td>
</tr>
<tr>
<td>3 Order Management</td>
<td>3A Quote &amp; Order Entry</td>
<td>3A4 Request Purchase Order</td>
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<td></td>
<td></td>
<td>3A5 Query Order Status</td>
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<tr>
<td></td>
<td></td>
<td>3A6 Distribute Order Status</td>
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<tr>
<td></td>
<td></td>
<td>3A7 Notify of Purchase Order Update</td>
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<tr>
<td></td>
<td></td>
<td>3A8 Request Purchase Order Change</td>
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<td></td>
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<td>3A9 Request Purchase Order Cancellation</td>
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<td></td>
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<td>3A10 Notify of Quote Acknowledgment</td>
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<td></td>
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<td>3A11 Notify of Authorization to Build</td>
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<td></td>
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<td>3A12 Notify of Authorization to Ship</td>
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<td></td>
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<td>3A13 Notify of Purchase Order Information</td>
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<tr>
<td></td>
<td></td>
<td>3A14 Distribute Planned Order</td>
</tr>
</tbody>
</table>
Design Issues for the Information Supply Chain

What information is exchanged?
Which entities in the supply chain are able to exchange information?
What is the frequency of this information exchange?
10 Things to Remember About Document Engineering (#8)

Balance Archeology and Anthropology

Find the "Headwaters"
Requirements in the Model Matrix

- **Granularity**
  - **Organization Level**
  - **Process Level**
    - Usage Requirements
    - Structural Requirements
  - **Information Level**
    - Semantic Requirements
    - Presentation Requirements
- **Abstraction**
  - Conceptual Models
  - Physical Models
  - Implementations
Iteration in Document Inventory

Identifying all the potentially relevant documents or information sources is inherently an iterative task

- Documents may refer or link to other documents
- Documents may refer to people, who can refer to other documents or people

Developing a causal model of the domain can help identify the intrinsic documents

- Where are the "headwaters" for the information -- what events or processes cause it to be created?
- A causal analysis can suggest other correlated information "streams" that merge with the primary source you've identified
Context is a Point of View
10 Things to Remember About Document Engineering (#9)

"Meeting in the Middle"
Converging Modeling Perspectives

Converging Modeling Perspectives

Granularity

Abstraction

ORGANIZATION LEVEL

PROCESS LEVEL

INFORMATION LEVEL

CONCEPTUAL MODELS

PHYSICAL MODELS

IMPLEMENTATIONS

Business Process Analysis

Data Analysis

Task Analysis

Document Analysis
The Modeling Artifacts of Document Engineering

Analyzing the Context -- UML use case diagrams

Analyzing/Designing Business Processes -- Worksheets, UML Activity and Sequence Diagrams

Applying Patterns to Business Processes -- Document Checklist

Analyzing Documents -- Document Inventory

Analyzing Document Components -- Consolidated Table of Content Components

Assembling Document Components -- UML Class Diagram

Assembling Document Models -- UML Class Diagram or Spreadsheet

Implementing Models -- XML Schemas
10 Things to Remember About Document Engineering (#10)

Preserve your Modeling Investments in your Implementations
The Big Red Button?
Or Many Small Red Buttons?

An alternative to the search for the BRB is the goal of partial automation for user interface and application generation:

- Tools that generate prototype from specifications
- Tools that synthesize use cases into sequence diagrams
- Tools that merge sequence diagrams to hide states that have no UI implications
- Tools that generate UI skeletons or scaffolds while enforcing layout constraints
- Tools that generate a family of UIs via "graceful degradation"

UI Design Patterns
10 Things to Remember

1. Document Engineering isn't about XML; it's about systematic modeling
2. Document Engineering isn't about Paving the Cow Paths
3. Narrative and Transactional Documents are on a Continuum
4. Documents and Processes are Yin and Yang
5. Overlapping Information Is the Glue of Processes
6. Friends don't let Friends Model Alone
7. Patterns Rule! Reuse when you can, and Follow the Golden Rule when you can't
8. Balance Archeology and Anthropology
9. Meet in the Middle
10. Preserve your Modeling Investments in your Implementations
This is not the end of Document Engineering