2. Motivation and Strategies; Analyzing Case Studies

DE + IA (INFO 243) - 28 January 2008

Bob Glushko

Plan for Today's Class

More big ideas in Document Engineering (Chapter 1)
- Business Patterns in the "Virtual Enterprise"
- The Document Type Spectrum
- Overview of the Document Engineering Approach

Discussing the "mini" case studies

The D-O-C-U-M-E-N-T checklist

Assignment 1 -- Document Engineering in the News
The "Virtual Bookstore"

Scenario:
- Customer selects book from catalog on an online bookstore
- Customer pays with credit card
- Book arrives via express shipper two days later

From the customer's perspective there is only one "transaction"

But the bookstore is a "virtual enterprise" or "composite application" that follows the drop shipment pattern to coordinate the activities of 4 different service providers transacting with each other

This coordination - or choreography - is carried out with document exchanges

Two Ways to Analyze the Virtual Bookstore

In terms of the "drop shipment" business pattern

In terms of the overlapping semantic components that "glue" the business processes together
Amazon.com started out as a drop shipper

It was forced to rapidly expand its own warehousing and distribution capabilities after Barnes and Noble bought Ingram Books as a competitive response to Amazon

Amazon had to build a configurable "merchant platform" to handle its growth in product categories, transaction volume, and associated services

In 2003 Amazon began to use this platform to host various combinations of these services for other businesses
Amazon Web Store

Fulfillment by Amazon
Amazon Drop Shipment

Overlapping Semantic Components
CALL me Ishmael. Some years ago—never mind how long precisely—having little or no money in my purse, and nothing particular to interest me on shore, I thought I would sail about a little and see the watery part of the world. It is a way I have of driving off the spleen, and regulating the circulation. Whenever I find myself growing grim about the mouth; whenever it is a damp, drizzly November in my soul; whenever I find myself involuntarily pausing before coffin warehouses, and bringing up the rear of every funeral I meet; and especially whenever my hypos get such an upper hand of me, that it requires a strong moral principle to prevent me from deliberately stepping into the street, and methodically knocking people’s hats off—then, I account it high time to get to sea as soon as I can. This is my substitute for pistol and ball. With a philosophical flourish Cato throws himself upon his sword; I quietly take to the ship. There is nothing surprising in this. If they but knew it, almost all men in their degree, some time or other, cherish very nearly the same feelings towards the ocean with me.
### A Transactional Example

<table>
<thead>
<tr>
<th>COVERAGE</th>
<th>LIMITS OF LIABILITY</th>
<th>09</th>
<th>6-MONTH</th>
<th>11</th>
<th>6-MONTH</th>
<th>12</th>
<th>DEOICD</th>
<th>PREMIUM</th>
<th>13</th>
<th>DEOICD</th>
<th>PREMIUM</th>
<th>14</th>
<th>DEOICD</th>
<th>PREMIUM</th>
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<tbody>
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<td>PART A - LIABILITY</td>
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<td>Bodily Injury EA PER</td>
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<td>6.20</td>
<td>59.55</td>
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<td>Bodily Injury EA ACC</td>
<td>$ 1,000,000</td>
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<td>41.50</td>
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<td>PART C - UNINSURED MOTORISTS</td>
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<td>Bodily Injury EA PER</td>
<td>$ 500,000</td>
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<td>18.27</td>
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<td>Bodily Injury EA ACC</td>
<td>$ 2,000,000</td>
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<td>3.78</td>
<td>3.98</td>
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<td>PART D - PHYSICAL DAMAGE COVERAGE</td>
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<tr>
<td>Comprehens. Loss ACV LESS</td>
<td>$ 100</td>
<td>66.69</td>
<td>100</td>
<td>79.99</td>
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<tr>
<td>Collision Loss ACV LESS</td>
<td>$ 500</td>
<td>105.61</td>
<td>100</td>
<td>123.38</td>
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<tr>
<td>Rental Reimbursement</td>
<td></td>
<td>7.65</td>
<td>7.65</td>
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</tbody>
</table>

**Vehicle Total Premium**: $ 308.70  
**6 Month Premium**: $ 330.89

**The following coverage(s) defined in this policy are not provided for:**

**VEN 09** - Medical Payments, Extended Benefits Coverage, Towing and Labor  
**VEN 11** - Medical Payments, Extended Benefits Coverage, Towing and Labor

**Endorsements:**  
Added 12-03-05 - A100CA(01)  
Remaining in Effect (Refer to Previous Policy) - A137(01) A400CA(01) A142(01)  
Information Forms (Not Part of Policy) - NIPFCA(02) 39923(01) 200CA(14) 15380(02)

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### A Hybrid Example: Catalog = Data (Document)

![Industrial or Light Weight Bags on a Roll](image1)

<table>
<thead>
<tr>
<th>Bags Per</th>
<th>Part No.</th>
<th>Price Per Carton of 2 Rolls</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-11</td>
<td>12-23</td>
<td>76+</td>
</tr>
</tbody>
</table>

Discount per package: Less than 12 rolls: 10% off 24 rolls or more.

<table>
<thead>
<tr>
<th>Lightweight Bags on a Roll</th>
<th>Size (in.)</th>
<th>Price Per Carton of 2 Rolls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispenser</td>
<td>17.80 each</td>
<td></td>
</tr>
</tbody>
</table>

Discount per package: Less than 10 rolls: 10% off 24 rolls or more.
Systematic Variation Across the Spectrum

- Homogeneity
- Prescriptiveness
- Variety of data types
- Precision of data types
- Correlation between presentation, structure, and content

Processes that Involve Both Data and Documents

PUBLISHING

Requirements
- RFI
- RFQ
- Product
- Catalogs & Brochures

Orders

Technical Documentation;
User, Installation,
Troubleshooting
Manuals

TRANSACTIONS
The Data/Document Chasm

It's obviously a continuum... but transactional and narrative documents have traditionally been analyzed with different disciplines and use different tools, terminology, and techniques – little intersection

Very different intellectual and domain roots

- "Document analysis" for narrative documents: literary criticism, graphical design; electronic publishing
- "Data modeling" for transactional documents: philosophy, linguistics, systems analysis; data automation

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
Data/Document Driven {and, or, vs} Business Process Analysis

The document analysis and data modeling approaches focus from the beginning on the structure and content of the "document payload" that will be exchanged – a "bottom up" approach that emphasizes "Does this work from a technical perspective?"

In contrast, business process analysis begins with an abstract or broadly scoped perspective on business activities.

Emphasizes "Does this work from a business perspective?"

Inherently a "top down" approach that starts with business models and processes and gets to the "document payloads" only at the end.

{and, or, vs} User Task Analysis

Task analysis (or user analysis) is the observation of people performing the tasks or use cases when the application or system must support human interfaces and not just other applications.

Task analysis and document analysis are closely related; document analysis reveals candidate information components and task analysis reveals rules about their intent and usage.

Task analysis is especially important when few documents or information sources exist because human problems or errors can suggest that important information is missing.
Meeting in the Middle

The Model Matrix

Abstraction
Reminder: Document Engineering in the News (23 January lecture)

"Tailing Virulent Veggies"
"SPEEDy Airline Self-Service"
"More Clicks at the Bricks"
"Landstuhl to use Electronic Health Records"
"Big Employers Plan Electronic Health Records"
"Insurers Lack Governance"
New "Mini" Case Studies for Today

Why XForms"

"Accelerating RosettaNet"

"Department of Homeland Security's Efforts Promise to Be the Biggest Change Management Job of All Time"

"Accelerating RosettaNet"

Linear

Arrow
Arrow Electronics (http://www.arrow.com/) is a distributor for products from Linear Technology (http://www.linear.com/) and other suppliers.

Linear is in the process of going from two national distributors to just one.
Syncata Corporation was engaged to automate the flow of purchase orders and order status between Arrow and Linear as well as the subsequent introduction of orders into Linear's back end systems.

Linear's implementation is one of the first deployments of Microsoft's Biztalk Server Accelerator for RosettaNet (http://www.rosettanet.org)
"Accelerating RosettaNet" [5]

RosettaNet Partner Interface Processes were 3A4 and 3A7

"Accelerating RosettaNet" [6]

Linear is planning to link up external partners and exchange inventory information with Arrow (PIP 4C1)
"Integrating America"

When the "Department of Homeland Security" article was first published, its title was "Integrating America"

The Department of Homeland Security was created in late 2002 to unify diverse and overlapping security functions of the federal government.

Twenty-two agencies that were formerly in the Depts. of Agriculture, Commerce, Defense, Energy, Health and Human Services, Justice, Transportation, and Treasury or in independent bodies were combined and reorganized in the new department.

"...the success of the proposed department -- and the security of the nation -- will, in large part, hinge on IT"

DHS Starting Point
The "Enterprise Architecture" Challenge in Integrating America

OVERALL GOAL: take a functional view rather than an agency-by-agency view

Identify business processes in the merging agencies and defer technology discussions

Identify the information that is consumed by the processes and produced by them

But this is easier said than done; the "same" process can be done differently in many agencies

(The "Federal Enterprise Architecture" effort emerged from this mandate and has been pretty successful)
The "Legacy Systems" Challenge in Integrating America

Inventory and assess existing systems
- Example: 22 agencies have 22 personnel and 7 payroll systems
Reduce the number of current enterprise licenses
Decide "which assets could form the basis for integration efforts"

The "Information Overload" and "Data Quality" Challenges in Integrating America

Potentially relevant information will come from all the DHS parts, as well as from the FBI, CIA, and NSA

"...Much of the data will be dirty, redundant and useless" or already filtered according to outside biases that potential internal users might not share

To "capture once, reuse many" first you have to decide which information sources are the authoritative "databases of record"
The "Culture Clash" Challenge in Integrating America

The agencies and departments to be brought into DHS "have never had any reason or incentive to think of themselves as part of a larger enterprise"

Their interactions in many cases have been minimal

"Many have long histories with organizational identities, cultures, traditions that they won't easily give up"

"... a merger, acquisition, and a startup all coming together at the same time"

Assessing the DHS Integration Effort

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)
Readings for 30 January

Document Engineering, Chapter 2
Document Engineering, Chapter 15 (pages 491-501)
Document Engineering, Chapter 3 (pages 73-86)

Assignment 1 - Document Engineering in the News

Part 1: Find a Document Engineering in the News story (as current as possible)

1.1 Write a 100-word summary of the story
1.2 Apply the D-O-C-U-M-E-N-T case study checklist to it (a sentence or two per item)
1.3 Post the URL or bibliographic citation to the story to the course blog ("Doc or Die") along with your 100-word summary and your D-O-C-U-M-E-N-T checklist analysis

Part 2. Monitor the blog and comment on some other stories

Due by 9am on Wednesday February 6, so don't wait until the last minute to start looking for it