Business Process Control at Shell International Petroleum

Presented by Tony Stewart
RivCom
to Lifecycle MSC 2002
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This talk

• How Shell transformed its core business process model
• from a static document
• into an interactive knowledge management framework
• that supports process improvement and harmonisation
• on a global scale
Outline

• Background
  – the client
  – the model
  – goals and challenges
  – RivCom’s role

• The project
  – solution components
  – four stages
    • model creation
    • process integration
    • communication
    • knowledge management

• Conclusions
Outline

• **Background**
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    - communication
    - knowledge management

• Conclusions
The client

- Shell International Oil Products
- Major oil company
- World’s largest retailer
- Serving 150 group companies worldwide
  - Historically: Providing support, advice and good practice guidance
  - Increasingly: Needing more centralised control to ensure efficiency, interoperability and agility
The model

- **Downstream Business Activity Model (DBAM)**
  - a model of Shell’s entire downstream business, from acquisition of crude oil to end user delivery
  - developed by a high-level core team
  - focused on managing strategic processes
    - process definitions, information flows, key performance indicators, best practices...
    - comprehensive, but relatively shallow
- **Highly confidential**
  - this talk is about concepts, not content
    - unfortunately, no screen shots
The model

• Evolution from 1991 to 2000
  – traditional printed document...
  – database-driven set of documents...
  – electronic delivery of an online model with links to related information...
    • early use of XML-based publishing technologies
The project

• ‘DBAM4’ - major upgrade to the DBAM
  – Timeline: February 2001 to July 2002

• Goals
  – Harmonise business processes worldwide
    • drive down costs
  – Support new business activities and new types of business relationships
  – Facilitate adoption of new technologies and business paradigms
    • become a more ‘agile’ business
  – Enable detailed analysis of selected processes
    • top-down or bottom-up
Challenges

- Global constituency, but no ‘command and control’
- Decentralised project teams lacked shared methodology or experience
- Volume, complexity and diversity of process information
- Demand for support exceeded available resources
- Resulting models were inconsistent in terminology, approach and structure
- No mechanism for sharing process-related knowledge across the business
RivCom’s role

- Partnered with the DBAM custodian
  - developed and maintained the core model
- Provided continuity of knowledge
- Proposed and implemented the new framework and architecture
- Developed and documented the toolset and supporting methodology
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Solution components

• Paradigm shift
  – Before
    • comprehensive model developed by a central team
    • necessarily high-level
    • little implementation support
  – After
    • set of interlinked models of varying depth
    • developed by distributed teams of key managers and SME’s
    • substantial implementation support
Solution components

• Tools and technology
  – tools to support distributed development
  – technical architecture to merge the resulting models
  – standards-based systems to generate published views of the information
  – integration with Shell’s document management system

• Support / concepts
  – top level model to provide context and example
  – central meta-model to enable integration of process models
  – methodology, guidance and appropriate hand-holding
DBAM4 architecture

Business Activity Framework (BAF)
- Common Activities
- Activity Patterns
- Specialisation Contexts

Specific Process Models
- Etc.

Top Level Model

Knowledge Bank (unstructured)

Management Framework (structured)
- Controls and procedures

Data Model
- Subject Areas
- Data Entities
- Properties
Four stages

• Empower business teams to **create** useful process models

• **Integrate** resulting models with each other and with a core data model

• **Communicate** the new processes across the organisation

• **Add knowledge** via a process-oriented knowledge management framework
Create

• Start with the top level model
  – provides orientation and alignment
  – exemplifies good practice
Top level and specific models
Create

• Start with the top level model
  – provides orientation and alignment
  – exemplifies good practice

• Provide a focused, stripped-down methodology
  – approach, terminology, categories of information

• Supported by lightweight tools for information capture...
  – guide users to enter the recommended information
  – familiar, MS-Office based (Shell desktop standard)
  – minimal training required
# Process definition template (sample)

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Process/Activity Name</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3</td>
<td><strong>Objective</strong> - Briefly describe the business objective of this process/activity (WHY it is carried out)</td>
<td></td>
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<td></td>
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<tr>
<td>4</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td><strong>Description</strong> - Briefly describe the nature of this process/activity (HOW is it carried out)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
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</tr>
<tr>
<td>7</td>
<td><strong>Subprocesses/Subactivities</strong> - What are the subcomponents of this process/activity (WHAT it is made up of)?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td><strong>Trigger</strong> - This section describes the business event or events that cause this process/activity to be initiated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td><strong>Event</strong> Name the event(s) that trigger this process/activity</td>
<td><strong>Communication channel</strong> Name the channel through which the trigger event is communicated</td>
<td><strong>Timing</strong> Indicate the timing of the trigger event (WHEN does it happen)</td>
<td><strong>Volume/Frequency</strong> Indicate how often the trigger event occurs</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td><strong>Inputs/Outputs</strong> - List the inputs and outputs of this process/activity, and the sending or receiving process(es)/activity(ies)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td><strong>Input</strong> Name of input</td>
<td>** Comes from ** Process/activity code</td>
<td>** Output ** Name of output</td>
<td>** Goes to ** Process/activity code</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td><strong>Duration</strong> - Describe the typical or average duration of this process/activity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td><strong>Key Performance Indicators</strong> - What should be measured to determine the degree to which this process/activity is achieving its objective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td><strong>Measure</strong> Describe what should be measured</td>
<td><strong>Target</strong> Indicate the target to be achieved, if known</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td><strong>Tools &amp; Resources</strong> - List key tools or resources needed to support or enable the process/activity.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td><strong>Master Reference Data</strong> - List master reference data items that are used by this process/activity.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td><strong>Other Relevant Features</strong> - Use this section to document any other features or considerations necessary for a full understanding of the process/activity</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Create

• Start with the top level model
  – provides orientation and alignment
  – exemplifies good practice
• Provide a focused, stripped-down methodology
  – approach, terminology, categories of information
• Supported by lightweight tools for information capture...
  – guide users to enter the recommended information
  – familiar, MS-Office based (Shell desktop standard)
  – minimal training required
• ...and a publication/review mechanism
Integrate

- Goals
  - integrate multiple models into a coherent view
  - integrate process and data perspectives

- Benefits
  - share best practices across related/similar processes
  - identify candidates for process harmonisation
  - align technology with processes
Integration concepts

- Identify related processes and activities in different models
  - ‘map’ them to each other
  - create pointers that will underpin later navigation

- 2 dimensions
  - vertical: drill down from top level into specific models
  - horizontal: compare and connect similar activities
    - in same or different models

- ‘Process junction’ approach addresses both dimensions
Point-to-point mapping is untenable
Business Activity Framework (BAF) serves as the ‘process junction’
BAF consists of 3 ‘meta-models’

Specific areas, entities and objects
• “retail”
• “trading partner”
• “warehouse”

Generic business model
• “develop market”
• “sell”

Generic activities
• “manage project”
• “define strategy”

Specific Process Model

Top Level Model

Business Activity Framework

Common Activities

Activity Patterns

Specialisation Contexts
Each process is mapped to all 3 parts of the BAF

Plan Sales Operations
- Activity: “sell”
- Pattern: “plan”
- Contexts: “sales”, “customer”

Activity: “sell”
Data model underpins process models and the BAF

- Business Activity Framework
  - Top Level Model
  - Common Activities
  - Activity Patterns
  - Specialisation Contexts

Data Model
  - Subject Areas
    - Data Entities
    - Properties

- Specific Process Model

- ‘preferred terms’
- definitions
- synonyms
Integration links

• From a process/activity to...
  - related processes and activities, including those in other models
    • by type of Business Activity Framework (BAF) relationship
      - data definitions and preferred terms
• From a BAF item to...
  - processes/activities related to the item
• From a data entity to...
  - processes/activities that use the data entity
    • as Inputs, Outputs, Reference Data
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• Conclusions
Communicate

• The plan
  – leverage Shell’s Intranet infrastructure
  – enable users to ‘surf’ the process models
  – implement Usage-Centred Design

• UCD workshop results
  – search... navigate... download
  – use the process page as a navigation hub
Process/Activity page is also a navigation hub

### Process Definition
- **Name:** ……………………………………………
- **Purpose:** ………………………………………
- **Description:** ………………………………
- **Resources:** ………………………………

### Related Activities
- **Same Common Activity**
  - **activity name**
  - **activity name**
- **Same Activity Pattern**
  - **activity name**
  - **activity name**
- **Same Business Context**
  - **activity name**
  - **activity name**

<table>
<thead>
<tr>
<th></th>
<th>Name</th>
<th>From/To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inputs</td>
<td>data entity</td>
<td>activity name</td>
</tr>
<tr>
<td>Outputs</td>
<td>data entity</td>
<td>activity name</td>
</tr>
<tr>
<td>Master</td>
<td>data entity</td>
<td>activity name</td>
</tr>
<tr>
<td></td>
<td>data entity</td>
<td>activity name</td>
</tr>
</tbody>
</table>

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Communicate

• The plan
  – leverage Shell’s Intranet infrastructure
  – enable users to ‘surf’ the process models
  – implement Usage-Centred Design

• UCD workshop results
  – search... navigate... download
  – use the process page as a navigation hub

• Technology
  – create the HTML via a series of XML transformations
Transformations - 4 steps from input to output

- Process models in separate spreadsheets
- **Topic Map** (XML) containing entire network of information
- **NewsML** (XML) ‘document’ for each process/activity
- HTML/CSS web page for each process/activity
Communicate

• The plan
  – leverage Shell’s Intranet infrastructure
  – enable users to ‘surf’ the process models
  – implement Usage-Centred Design

• UCD workshop results
  – search... navigate... download
  – use the process page as a navigation hub

• Technology
  – create the HTML via a series of XML transformations
  – generate controlled search metadata to feed Shell’s search engine
Add knowledge

• Goal
  – provide an ongoing knowledge management framework for process-related information
    • support implementation of the processes

• Concept
  – published process models make an excellent KM portal
    • capitalise on search and navigation
    • related activities lead to related information

• Challenges
  – integrate with Shell’s existing system (Livelink)
  – control quality and quantity of content
Livelink integration

- A Livelink folder for each process/activity
- 2-way links between them
- ‘Anonymous’ can download
- Log in to edit

Business Activity Framework (BAF)
- Common Activities
- Activity Patterns
- Specialisation Contexts

Data Model
- Subject Areas
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Knowledge Bank (unstructured)
Livelink content

- Types of information vary according to the levels of the processes
  - higher levels: strategic management information
  - lower levels: task and procedure support
- Controlling quality
  - during model development, each project team “owns” its folders
  - once team disbands, central librarian takes control
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Success

• Tools and framework successfully launched in August 2002
  – multiple projects under way

• Shell is now in a much better position to
  – manage its essential business processes
  – allow the business processes to be harmonised across the organisation
  – research best practices and learn from past decisions
  – align its applications with current processes and activities, and with vendor and partner processes as necessary

• but the work is ongoing...
Three ongoing journeys... in incremental steps

**Static documents**
- 1991
- 1997
- 2002
- Dynamically generated interactive views

**Single model, central team**
- 1991
- 2002
- Multiple models, distributed teams

**High level strategic processes**
- 1991
- 2002
- Detailed procedural information (in addition)
A point of pride...

“RivCom has done an excellent job of working closely with us to understand our business needs and respond to them appropriately. They have somehow managed to balance a solid theoretical and academic approach to modeling with a practical ‘get it done’ approach to completing the work. They have consistently proven to be a valued business partner.”

Business Process Advisor
Shell International Petroleum Company, Ltd.
Thank you for your attention

tony.stewart@rivcom.com

www.rivcom.com