Improving performance in cataloguing and technical services workflows

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CIG conference, Exeter
14th September 2010
Overview

• Context
• BPR tools & techniques
• Application – macro & micro scales
• Apply tools & techniques to entity relationship model of FRBR
Research context

• Little or no published research that applies techniques to cataloguing or metadata workflows

• Useful insights from related areas
  – Backlogs/arrearages
  – Quality
Wider context

- Challenging economic climate
- Slow or no economic growth
- Current & future cuts within HE sector
- Impact upon libraries
- Consideration of activities at process level
Local context

- Processfix engaged by 2007/8
- BPRs/RIWs across University
- WBS – operational excellence
- Library RIWs 2008/9-
## SIPOC

<table>
<thead>
<tr>
<th>Suppliers</th>
<th>Inputs</th>
<th>Process</th>
<th>Outputs</th>
<th>Customers</th>
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<tr>
<td>Library users</td>
<td>Orders</td>
<td>Ordering books (etc)</td>
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<td>Library users</td>
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<td>Library staff</td>
<td>Suppliers databases</td>
<td>Receipting</td>
<td>Bibliographic records</td>
<td>Library staff</td>
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<td>Innovative Interfaces</td>
<td>Publishers databases</td>
<td>Checking &amp; paying invoices</td>
<td>Authority records</td>
<td>Suppliers</td>
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<td>catalogues</td>
<td>Labelling</td>
<td>Payments</td>
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<td>Cataloguing</td>
<td>Management</td>
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<td>OCLC</td>
<td>AACR2</td>
<td>Classifying</td>
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<td>Classification schedules</td>
<td>Subject indexing</td>
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**Suppliers:**
- Library users
- Library staff
- Innovative Interfaces
- Publishers
- Suppliers
- OCLC
- RLUK
- University
- Materials suppliers (3M, etc)
- Library of Congress

**Inputs:**
- Orders
- Suppliers databases
- Publishers catalogues
- Bibliographic records
- AACR2
- Classification schedules
- NAF
- LCSH
- Library funds
- Spine labels
- Library stamps
- Tattle tape
- RFID tags
- ILS
- IT equipment
- etc

**Process:**
- Ordering books (etc)
- Receipting
- Checking & paying invoices
- Labelling
- Cataloguing
- Classifying
- Subject indexing
- Management reporting

**Outputs:**
- Books (etc)
- Bibliographic records
- Authority records
- Payments
- Management
- information

**Customers:**
- Library users
- Library staff
- Suppliers
- OCLC
- RLUK
- Suppliers
- University
Book

- Speed of availability
  - Right book
    - Right time
      - Adequate no. of copies
        - Appropriate to user needs
          - Available/right place
Process map

- Full representation of process
- Flow chart
- Sequence of activities within process
- Records each stage in process end-to-end
- ‘Swim lanes’ identify functional areas
- ‘As is’ & ‘to be’ process maps
Process map
Waste

• Anything that does not add value to a process
• Anything that at customer is not prepared to pay for
• All processes have waste
7 wastes (Ohno)

- Waiting time
- Transport
- Component design
- Inventory
- Over production
- Motion
- Defective goods
Process efficiency

\[
\frac{\text{Value-added time}}{\text{Activity cycle time}} \times 100
\]
WIP

• Unfinished work at any stage in the process at specific point in time

• Amount & volume of WIP used to identify bottlenecks (real & potential)

• Process with no WIP indicative of over-capacity & underutilised resource

• Will always be WIP in an unbalanced process
Pareto chart
FRBR analysis: 2 aspects

• Identifying which elements need to be present within the bibliographic record
• (Re-)organising workflow in order to achieve these requirements
FRBR chpt 6: User tasks

• Maps entity attributes & relationships to user tasks
• Identifies which attributes & relationships important for group 1 entities (work, expression, manifestation, item) relative to user tasks (find, identify, select, obtain)
• Ranks according to high/medium/low value
Attributes & relationships

• To support particular user task, both attribute & relationships between the entity & other entities may be important
• Relationships allow user to associate entity with another entity or to “navigate” a bibliographic database
• “In a sense “relate” could be viewed as a fifth user task.” (p.80)
FRBR & improvement tools

• FRBR analysis breaks open bibliographic record to allow process improvement tools to be applied
• Possible to identify specific data elements & why they are applied
• Identify which attributes are being used to perform a particular user task for an individual group 1 entity
Measurement

• Exposed attributes & relationships of group 1 entities in relation to the user tasks & sub-tasks can be measured within workflow

• Understand proportion of resource expenditure involved in recording specific attributes & relationships

• Can apply to flat data structure of single record or hierarchical, multiple records
Applying improvement tools to FRBR

- Enables analysis of specific entities & relationships that facilitate user tasks within the context of their resource requirements
- Resource expenditure on recording entities & relationships can be set against that of other entities & relationships
Application can be...

• ...done generically against the bibliographic record in relation to the user tasks

• ...applied against specific identified criteria within the context of required input standards
FRBR chpt 7: basic requirements...

- Recommendations for basic levels of functionality
- Which elements should be present for basic record
- Identifies specific data elements needed to enable user to achieve specific tasks
- Arranged into descriptive & organising elements
FRBR & workflows

• Leads analysis back to workflows
• Identify which group 1 entities & attributes are most important for record content to achieve specific user tasks
• Serves as benchmark on which to base workflow
• What work is done, prioritised, included/excluded from individual record
FRBR & tool application

• SIPOC to scope process
  – What is needed to meet record requirements

• CTS trees for each user task & sub-task
  – Find manifestations, Identify works, etc.

• Process map, process efficiency, 7 wastes to target improvement
  – What does not support user tasks is waste
Conclusions

• It is possible to structure work and/or the cataloguing department in order to meet these requirements

• Task become that of allocating resources to meet requirements & balance activities that enable them

• Improvement tools & techniques used to achieve these aims
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