Event-driven modelling

Content

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- SAP R/3
- Place in ISD
- Evaluation of event driven modelling
- Reading list for next week

Different perspectives

- Process
- Data
- Behaviour / Stimulus response – how system reacts to external and internal events
- Difference
Techniques

- State transition diagrams (STD)
- Business rules diagram (BRD)
- Event-driven process chain (EPC) methodology
- Petri nets
- Finite state machines

Key constructs of BRD

Definition of a business rule

- An explicit state change context in an organisation which describes the states, conditions and signals associated with events that either change the state of a human activity system so that subsequently it will respond differently to external stimuli or reinforce the constraints which govern a human activity system
Business rule types

- Policy rules
- Processing rules
- Implementation rules

Steps in creating BRD

- Identify candidate business (policy) rules
- Identify candidate events and signals
- Identify candidate objects in the problem situation
- Construct object life histories (OLH) for each object identified
- Construct user business rule diagrams (UBRD)
- Construct business rules diagram
- Construct event specification table (EST)

Example candidate business (policy) rules

- Orders sent by mail or telephone
- Omissions on order line leads to deletion
- Available credit $\geq$ order value to accept order else reject
- Available stock qty $\geq$ order qty to accept order otherwise reject
- One invoice for one order
- Sum of payments = order value – sum of credit notes
- One order may have many credit notes
Further examples

- Many payments per invoice possible
- Overdue invoices occur 30 days after statement
- If product not carried reject item
- If unobtainable multiples reject item
- New order created for outstanding items
- Only good customers may obtain credit orders
- Credit balance reduced for all items on an order including outstanding items

Example of candidate list of business events and signals

<table>
<thead>
<tr>
<th>Event</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receive customer order</td>
<td>T</td>
</tr>
<tr>
<td>Delete line</td>
<td>E</td>
</tr>
<tr>
<td>Reject order</td>
<td>E</td>
</tr>
<tr>
<td>Create new order</td>
<td>E</td>
</tr>
<tr>
<td>Send invoice</td>
<td>M</td>
</tr>
<tr>
<td>Generate credit note</td>
<td>E</td>
</tr>
<tr>
<td>Receive payment</td>
<td>T</td>
</tr>
<tr>
<td>Create outstanding item</td>
<td>E</td>
</tr>
<tr>
<td>Create new customer</td>
<td>E</td>
</tr>
<tr>
<td>Change status to good customer</td>
<td>E</td>
</tr>
<tr>
<td>Change status to bad customer</td>
<td>E</td>
</tr>
</tbody>
</table>

Example object life history

```
Customer
- Temp cust
  - Good cust
    - Bad cust
```

[Image of flowchart showing customer status transitions: Temp cust, Good cust, Bad cust]
Example of UBRD

Example of BRD

SAP R/3

- Best practice processes – then focus on unique aspects
- Blueprint used as reference model
- Business process takes center stage
### Blueprint

- Help organisations to define needs, develop solutions and optimize their processes
- Do not need to start from scratch
- Customisation possible
- Include functions, process, information flow and organisation views
- Business processes are shown in the Event-driven process chains

### Modelling approach

- Define / redefine the organisations goals
- Create a model to reflect the goals
- Develop unique applications
- Implement the applications

### SAP approach

- Map company processes to the blueprint (reflect “best practice”)
- Define target situation
- Focus on unique aspects
- Customize and configure
Key elements of SAP blueprint

- Events (when should something be done?)
- Tasks or functions (what should be done?)
- Organisation (who should do what?)
- Communication (what information is required to the right task?)

Event-driven process chain (EPC) methodology (1)

- Event e.g. Goods arrived
- Task / function e.g. Verify goods
- Organisation e.g. Good receiving dept
- Information e.g. Delivery note

Event-driven process chain (EPC) methodology (2)

- Process path
- Logical operator
- Control flow
- Information/material flow
- Resource/organisation unit assignment
Legend

• EPC is the central view
• Event always trigger a task
• Start and end with an event
• Organisational units are added
• Navigation between process models by start and final event

Example of an EPC

Other views

• Component model – describe what is done
• Organisation model – Who does what and who is responsible
• Data model – what is needed to do something
• Interaction model – what information must be exchanged between different units
Reading for next week

- Watch this space