Business Process Modelling

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Bibliography
Lectures

- Lecture 1 (14.02) - Introduction to BPM
  - Slides
  - Video recording (2016 recording)
  - Quiz (self-test, this is not graded, it's just for you to check your understanding of the lecture)
- Lecture 2 (21.02) - Process Identification and Architecture
  - Slides (in pdf)
  - Video recording
- Lecture 3 (28.02) - Essential Process Modeling in BPMN
  - Slides (in pdf)
  - Video recording
  - Quiz
Blatant Advertisement

T6
GT02
2PM-3:30PM

Business Process Modelling: Hands-on session

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Business?
Modeling ?
From Architecture to Urbanism
Activity must pilot Technology versus Technology must pilot Activity
Silos

HR     R&D     Sales   Prod   Serv.   Acc.
Crosscutting Business

Product Development

Ordering

After-sales service

HR  R&D  Sales  Prod  Serv.  Acc.
Farewell architecture, ...
Welcome, Urbanism!
Purposes of process modeling

- Communication
- Documentation
- Analysis (e.g. simulation)

- Automation
- Testing
BPM for Dummies
(BPMN101)
Business Process Lifecycle

1. Process identification
2. Process architecture
3. Process discovery
   - Conformance and performance insights
4. As-is process model
5. Process analysis
   - Insights on weaknesses and their impact
6. Process redesign
7. To-be process model
8. Process implementation
9. Executable process model

[UT]
Let’s start modeling

Order-to-cash

A typical order-to-cash process is triggered by the receipt of a purchase order from a customer. The purchase order has to be checked against the stock regarding the availability of the item(s) requested. Depending on stock availability the purchase order may be confirmed or rejected.

If the purchase order is confirmed, an invoice is emitted and the goods requested are shipped. The process completes by archiving the order or if the order is rejected.

Is this a process?

Is this a model?
BPMN Model

Order-to-cash

Naming conventions

- Event: noun + past-participle verb (e.g. insurance claim lodged)
- Activity: verb + noun (e.g. assess credit risk)
Alternative models for the very same process

Solution 1
Order distribution process

Solution 2
Order distribution process
Modelling vs Executing
The well-known gap...
The result: two sides of the story

Conceptual “to-be” process models
- are made by domain experts
- provide a basis for communication amongst relevant stakeholders
- must be understandable
- must be intuitive and may leave room for interpretation
- contain purely a relevant set of process information

Executable process models
- are made by IT experts
- provide input to a process enactment system - BPMS
- must be machine readable
- must be unambiguous and should not contain any uncertainties
- contain further details that are only relevant to implementation

“to-be executed” process model
Worklist Handler

- Imagine it as an “inbox”
- Offers work items to process participants and allows participants to commit to these work items
- Handles participants’ work queues and work item priorities
- May provide social network capabilities
Example worklist handlers

Bonita Soft Bonita Open Solution
Example monitoring & administration tools

IBM BPM Process Portal

IBM BPM Admin Console
IBM BPM Process Portal
BPMOne Perspective
Simulating Business Processes
Alternative Paths

CT = $p_1T_1 + p_2T_2 + ... + p_nT_n = \sum_{i=1}^{n} p_iT_i$

Inspired by a slide by Manuel Laguna & John Marklund
If two activities related to the same job are done in parallel the contribution to the cycle time for the job is the maximum of the two activity times.

\[ CT_{\text{parallel}} = \text{Max}\{T_1, T_2, \ldots, T_M\} \]

Inspired by a slide by Manuel Laguna & John Marklund
Rework

• Many processes include control or inspection points where if the job does not meet certain standard, it is sent back for rework

\[
CT = \frac{T}{1-r}
\]
Arrival rate and branching probabilities

10 applications per hour (one at a time)
Poisson arrival process (negative exponential)

Alternative: instead of branching probabilities one can assign “conditional expressions” to the branches based on input data
Simulation output: KPIs

Resource Cost

Cycle Time - Histogram