Business Processes Modelling

MPB (6 cfu, 295AA)

Roberto Bruni

http://www.di.unipi.it/~bruni

?? - What we missed
Performance analysis

Performance analysis answers quantitative questions
- How many cases can be handled in one hour?
- What is the average flow time?
- How many extra resources are required?
- How many cases are handled within 2 days?

Ch.7 of Fundamental of Business Process Management. M. Dumas et al.
(inspired by slides available at https://courses.cs.ut.ee/2014/bpm/)
Performance measures

A process performance measure is a quantity that can be determined in a business process (Key Performance Indicators (KPI) for time, cost, quality)

Flow analysis techniques and Little’s law can be used to estimate average execution time and cost of many business processes
Process mining is a relative young research discipline that sits between machine learning and data mining on the one hand and process modeling and analysis on the other hand.

Chapters 1, 5, 7. Process Mining. W. van der Aalst
Process Mining

The idea is to improve real processes (not hypothetical ones) by extracting knowledge from event logs readily available in today’s systems (.xes standard format)

it can be used, e.g., for

- **discovery**: takes an event log and produces a model
- **conformance**: distance between reality and model
- **enhancement**: extend/improve existing process models

To know more, **ProM**: [http://www.promtools.org](http://www.promtools.org)
Process simulation

Process simulation is the most popular and widely supported technique for quantitative analysis of process models.

Ch. 7 of Fundamental of Business Process Management. M. Dumas et al.
(inspired by slides available at https://courses.cs.ut.ee/2014/bpm/)
Process simulation

It is a very flexible analysis technique. It is applicable to almost any workflow. It is accessible to people without mathematical background.

It can be used to estimate, e.g. process duration, cost information, bottlenecks, resource utilization

To know more, BIMP: http://bimp.cs.ut.ee
Final exam