

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.

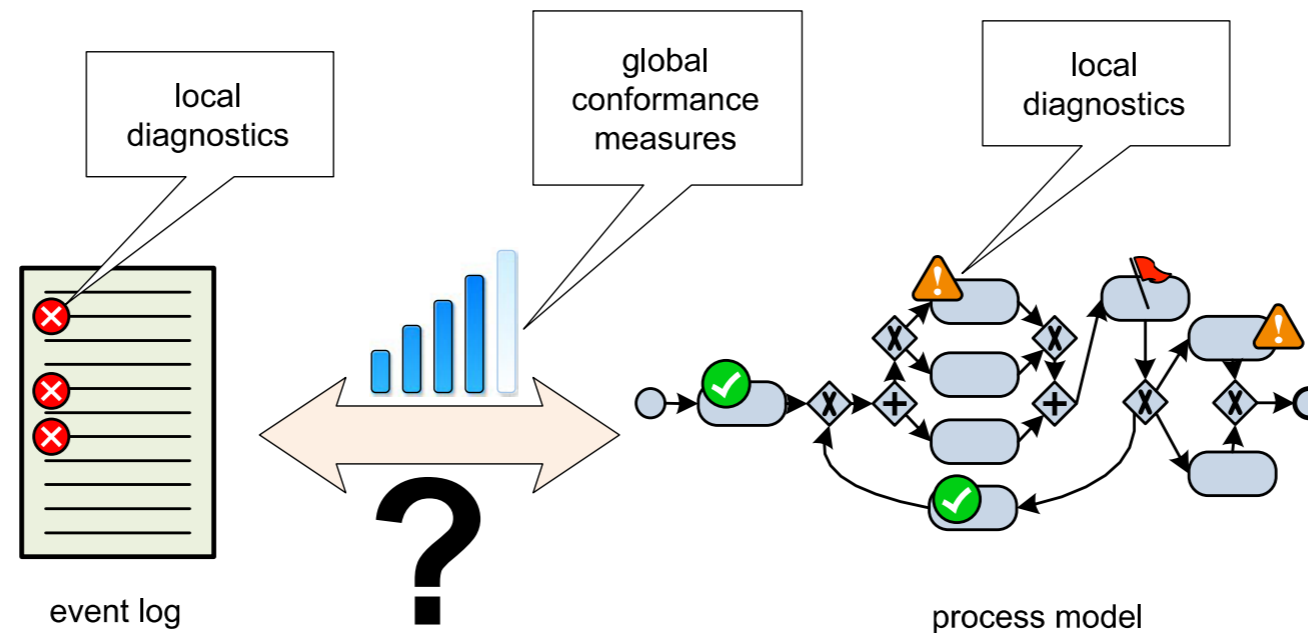
(inspired by slides available at <https://courses.cs.ut.ee/2014/bpm/>)

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



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

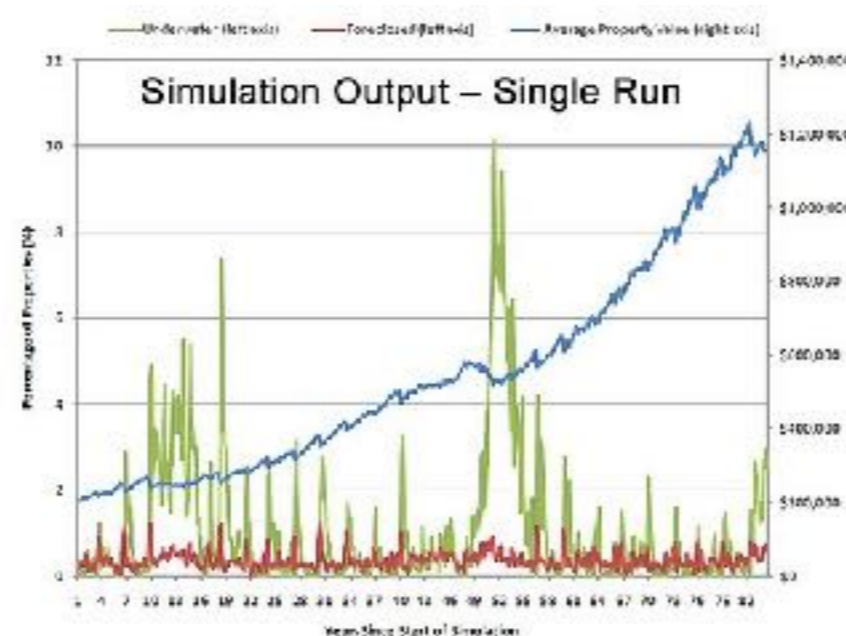
discovery: takes an event log and produces a model

conformance: distance between reality and model

enhancement: extend/improve existing process models

To know more, **ProM:** <http://www.promtools.org>

Process simulation



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

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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

