

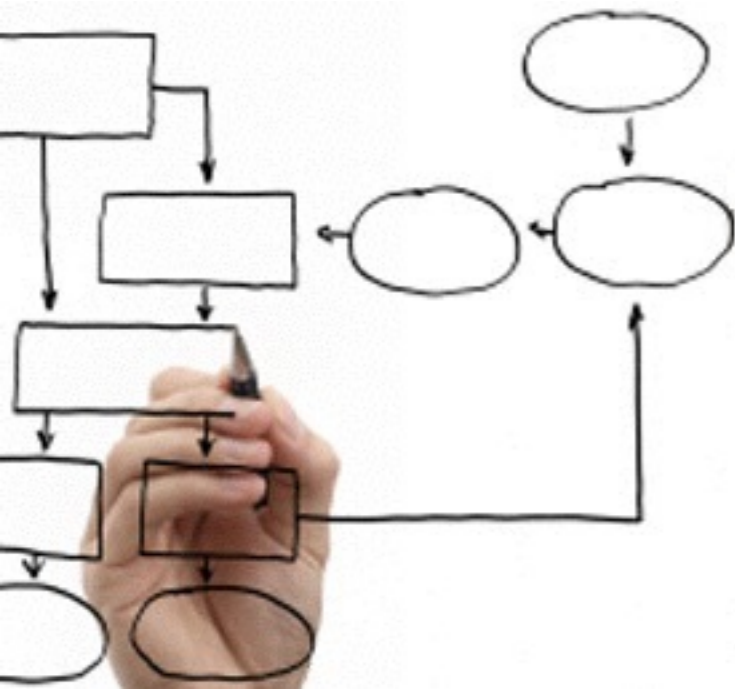
Methods for the specification and verification of business processes

MPB (6 cfu, 295AA)

Roberto Bruni

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

06 - Abstraction

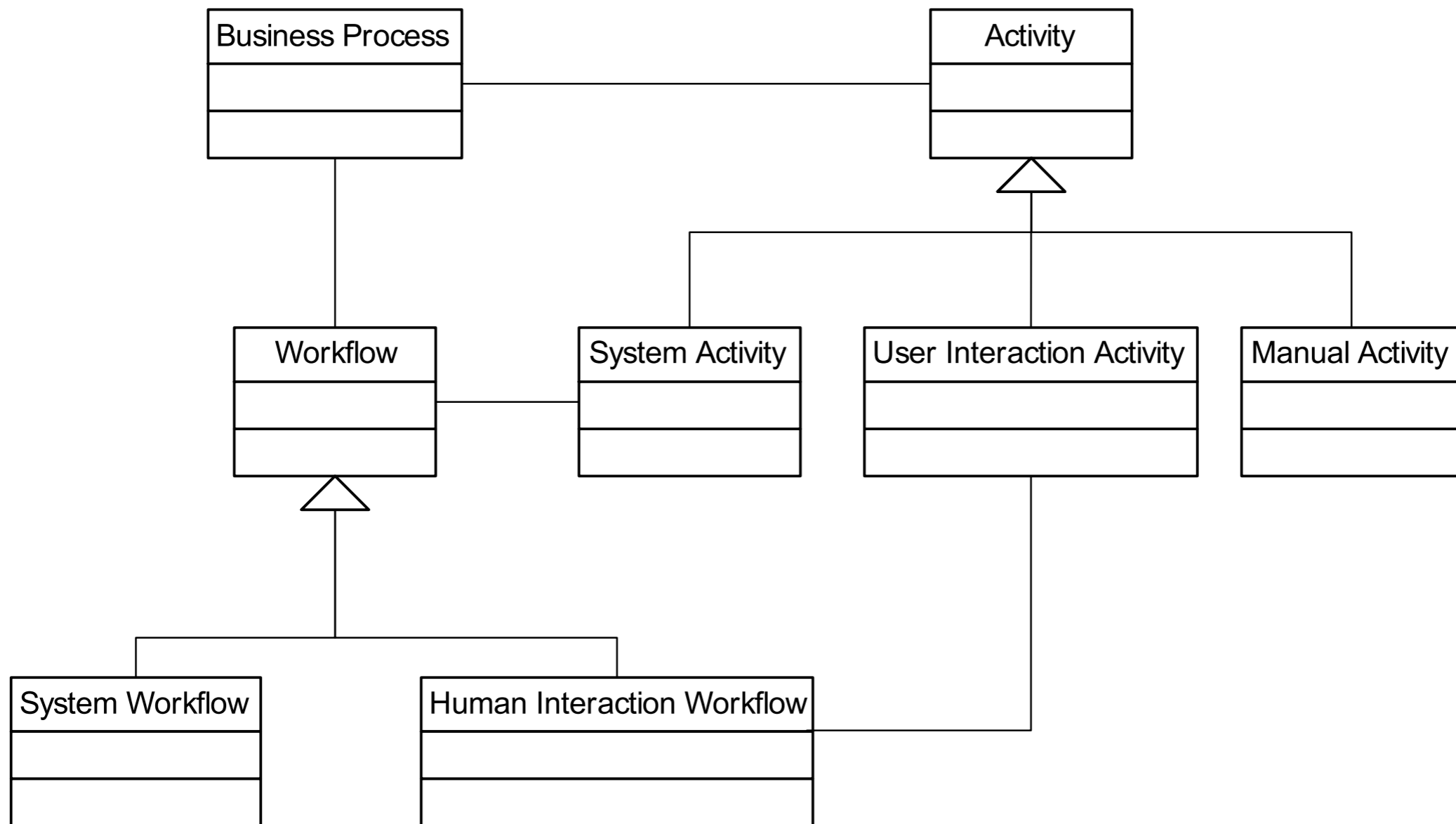


Object

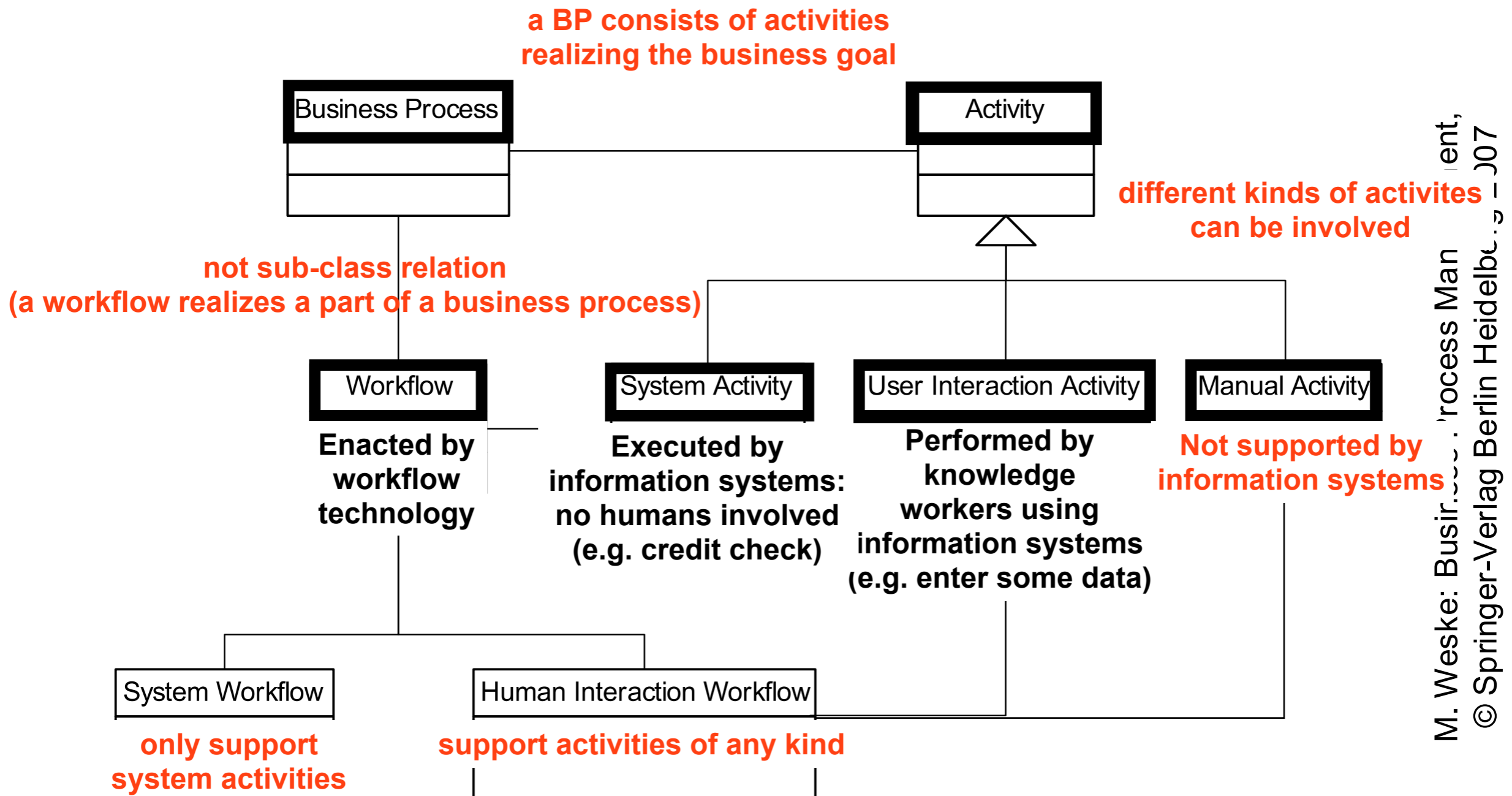
Overview of the conceptual models
and abstraction mechanisms
in business process modeling

Ch.3.1--3.3 of Business Process Management: Concepts, Languages, Architectures

Conceptual model of business processes

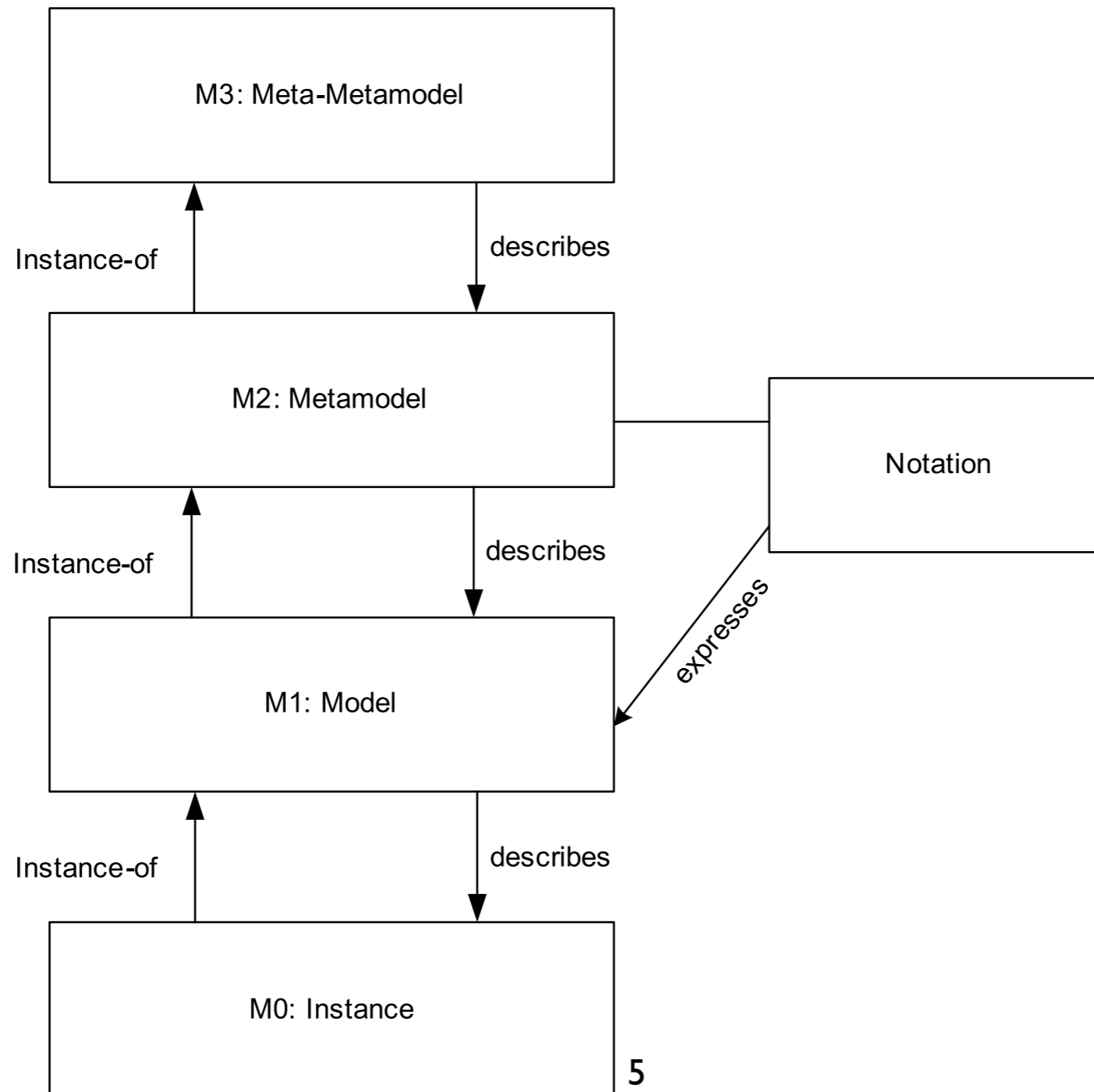


Conceptual model of business processes



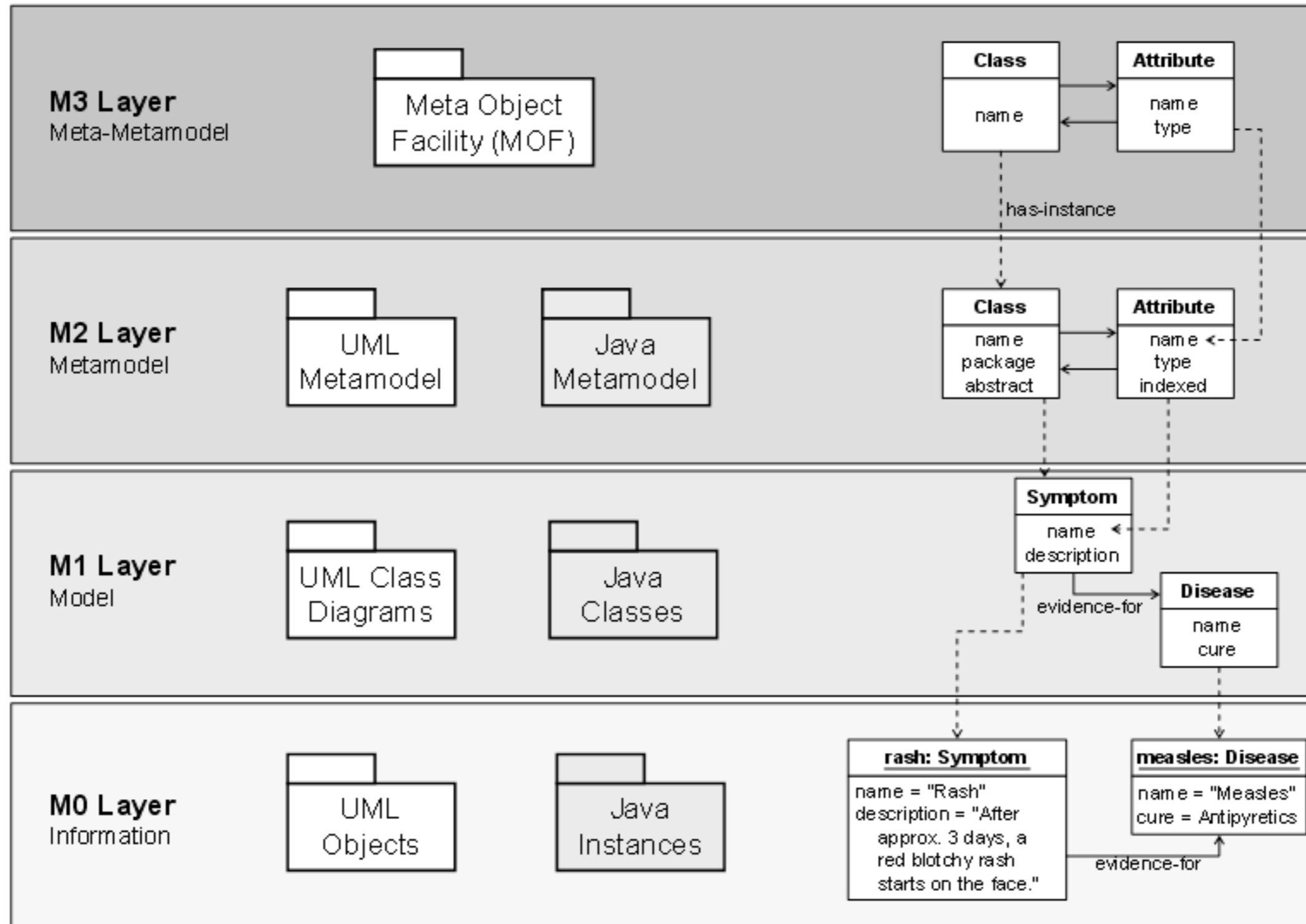
M. Weske: Business Process Management, © Springer-Verlag Berlin Heidelberg, 2007

Horizontal abstraction (modeling levels)

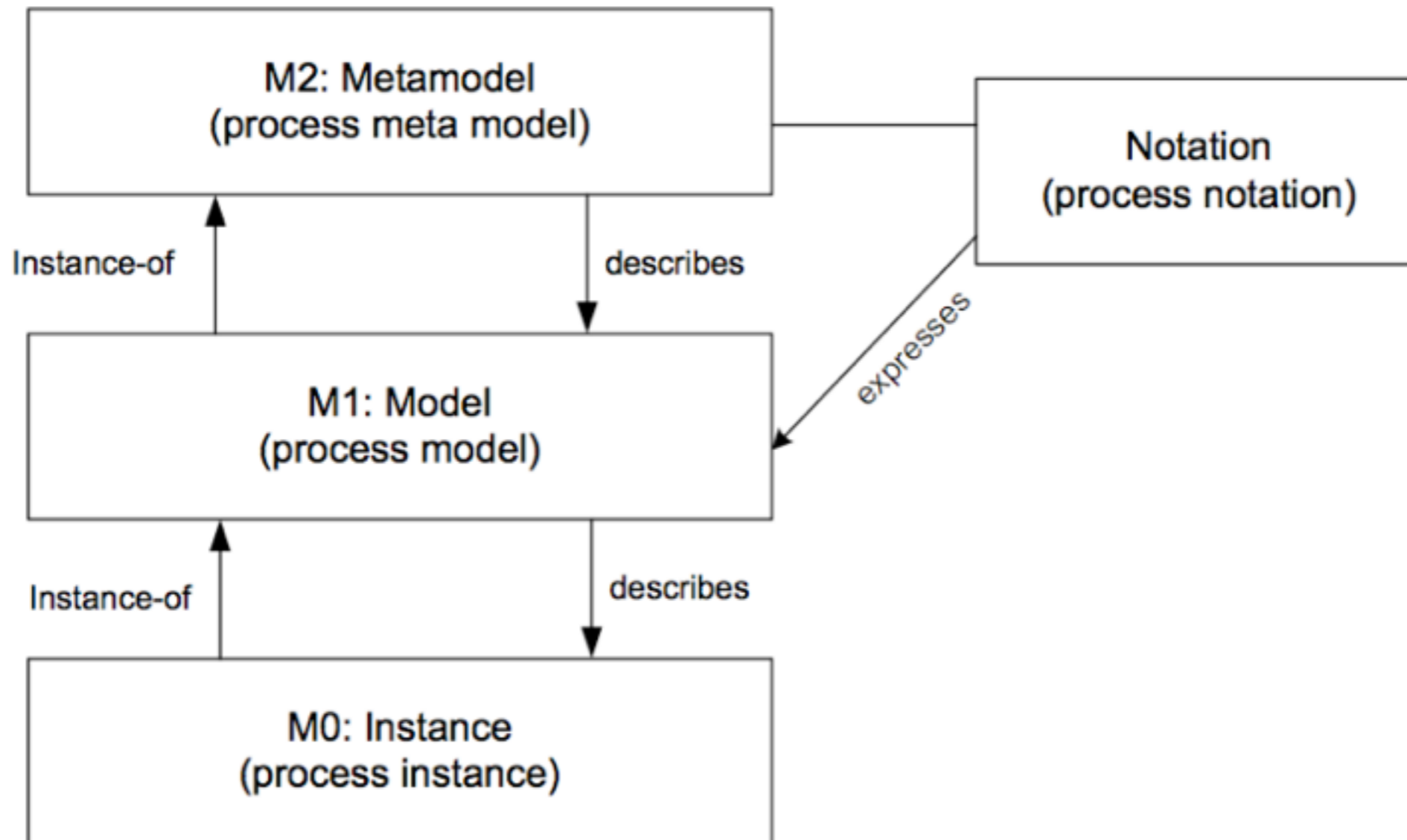


M. Weske: Business Process Management,
© Springer-Verlag Berlin Heidelberg 2007

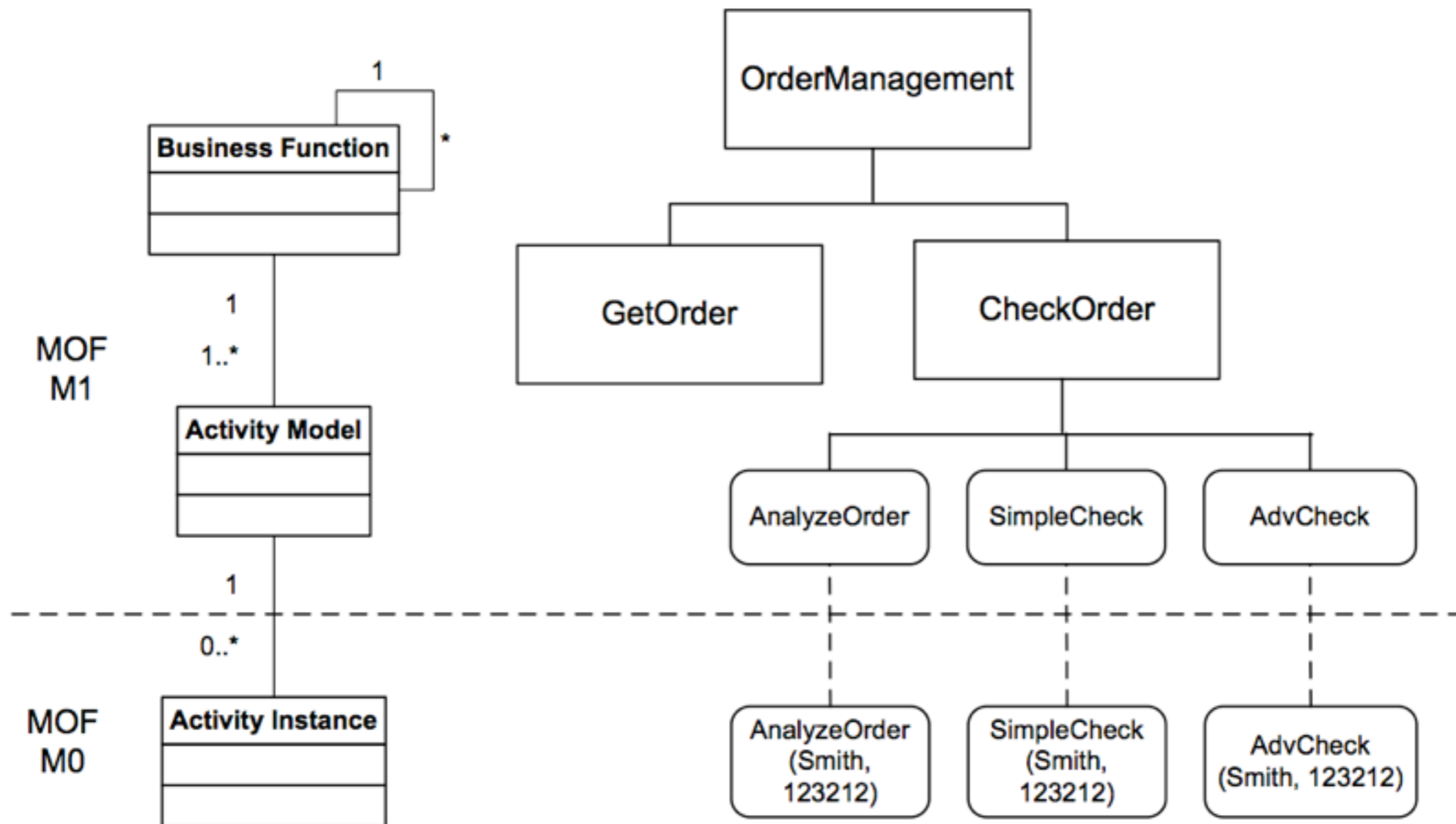
MOF metamodel



Process models and process instances



Activity models and activity instances



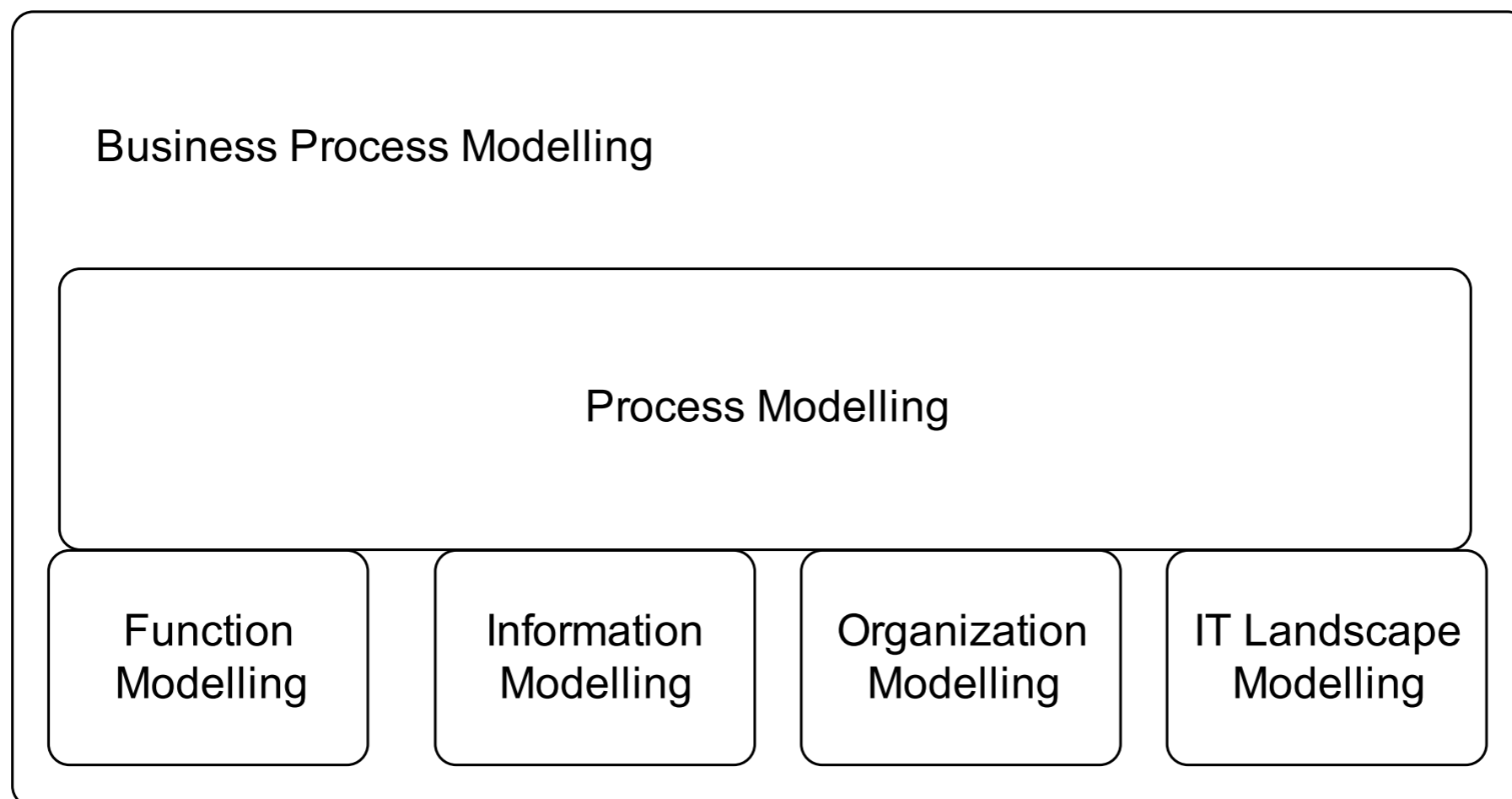
Aggregation abstraction

Multiple elements of a lower level of granularity can be grouped and represented by a single artifact at the higher level of granularity

Aggregation abstraction is different from horizontal abstraction, because all activities are at the same horizontal level of abstraction

Vertical abstraction (domain separation)

BPM includes multiple modelling domains,
integrated by Process Modelling

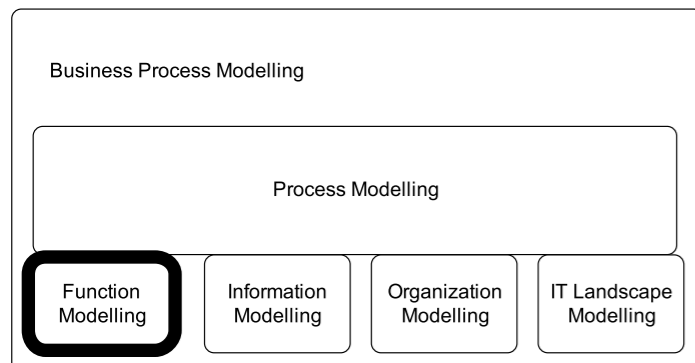


Function models

Units of work enacted by processes
(at different aggregation levels)

Informal description, textual documents
(coarse business level)

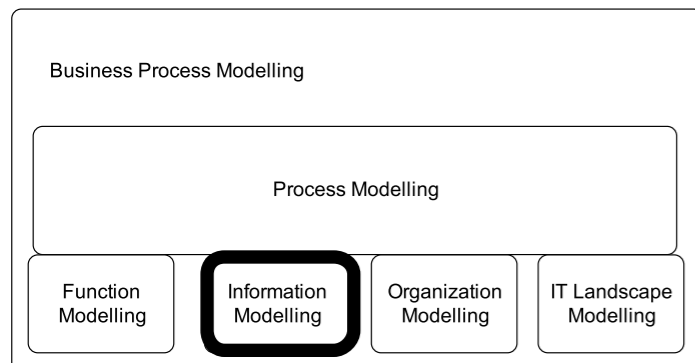
Formal description, function specifications
(software layer)



Information models

Data representation is crucial:
all decisions made during a business process
depends on data values

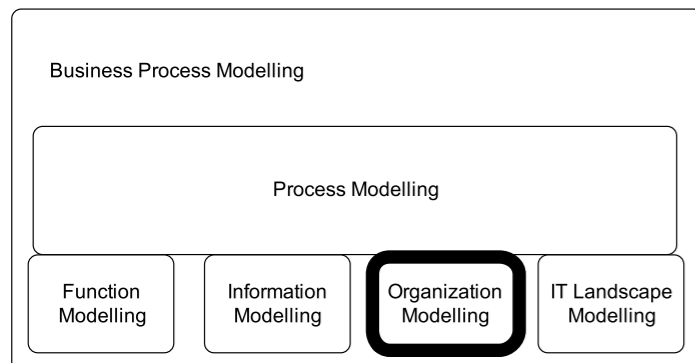
Data dependencies between activities are also
important
(reduce waiting time, avoid deadlock)



Organizational models

Organizational structure must be represented

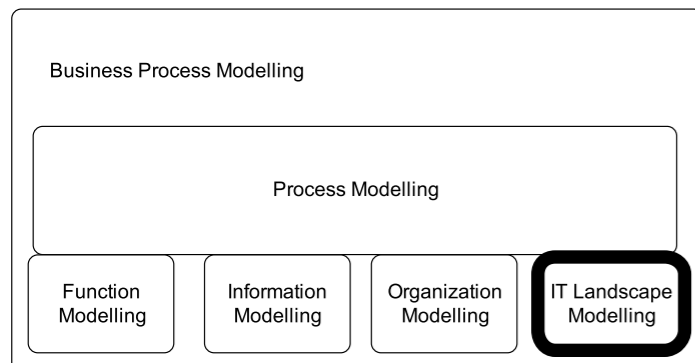
Activities must be associated to specific roles



IT landscape

Many activities in a business process are supported by information systems

Information systems and programming interfaces needs to be represented because they provide functionality

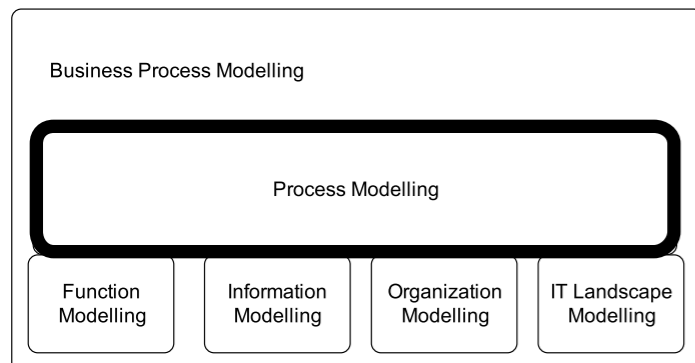


Process models

Define the glue between the subdomains

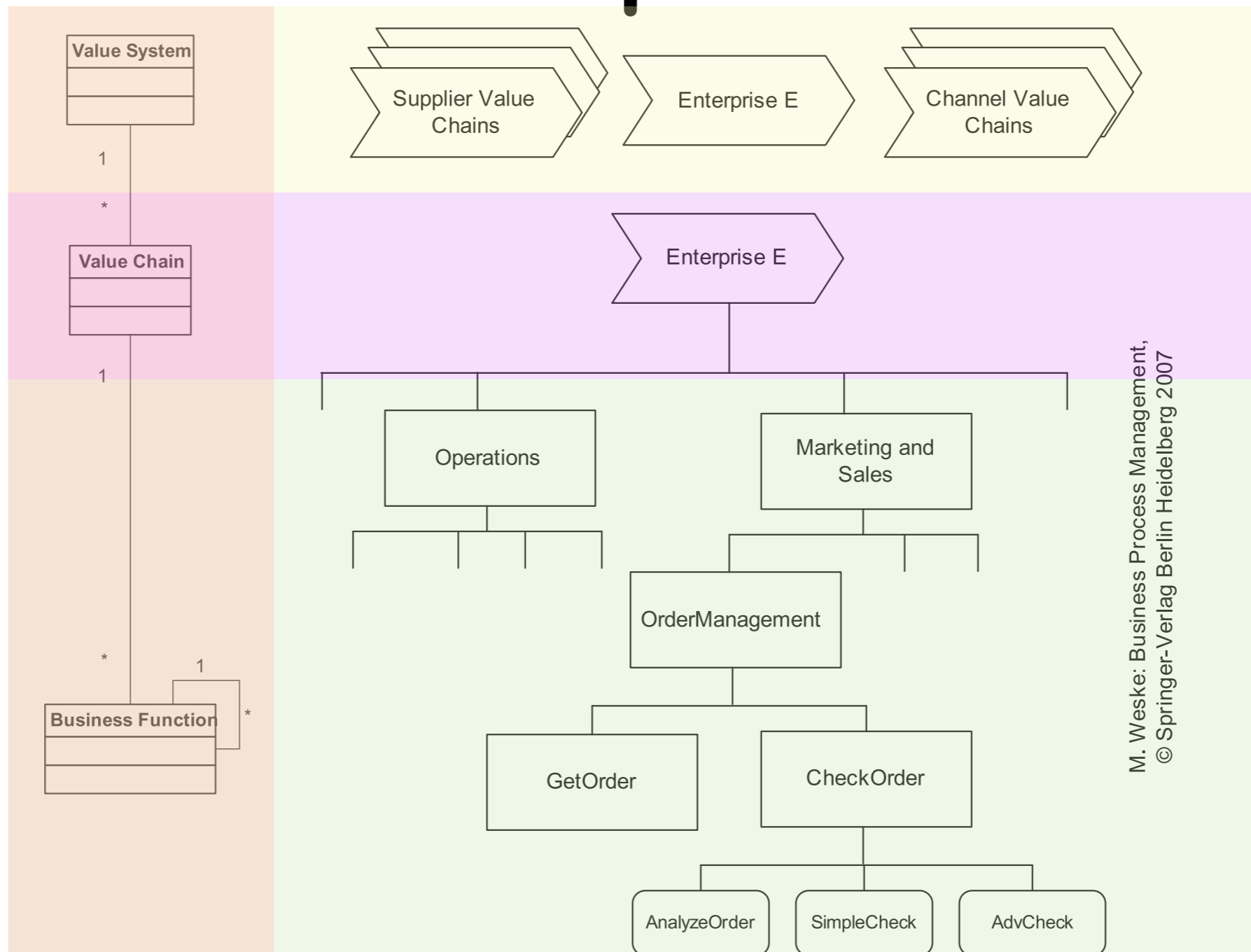
Relate functions and execution constraints

Relate data values with process instances



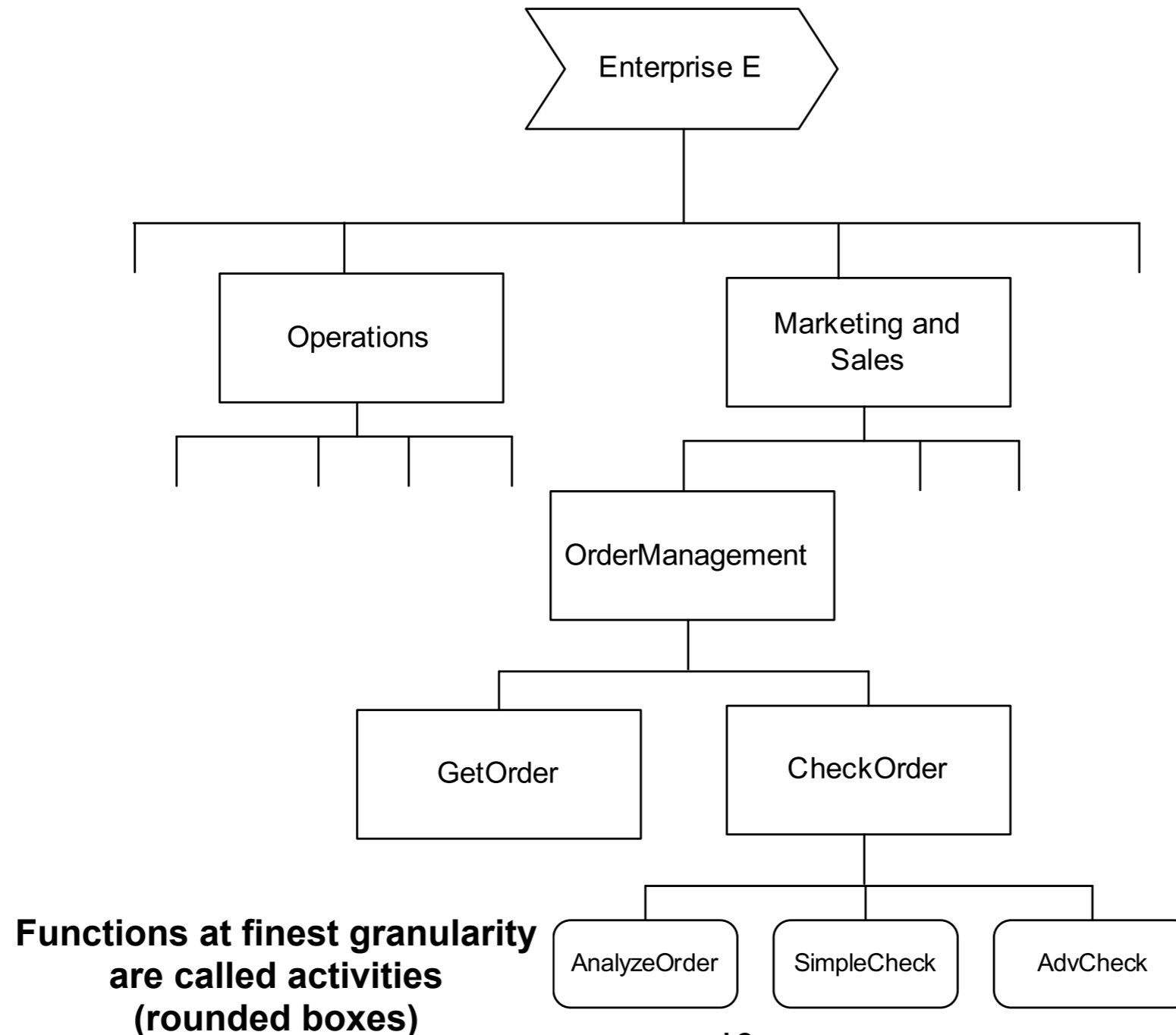
From business functions
to business processes
(and their implementation)

Step 1: Functional decomposition



M. Weske: Business Process Management,
© Springer-Verlag Berlin Heidelberg 2007

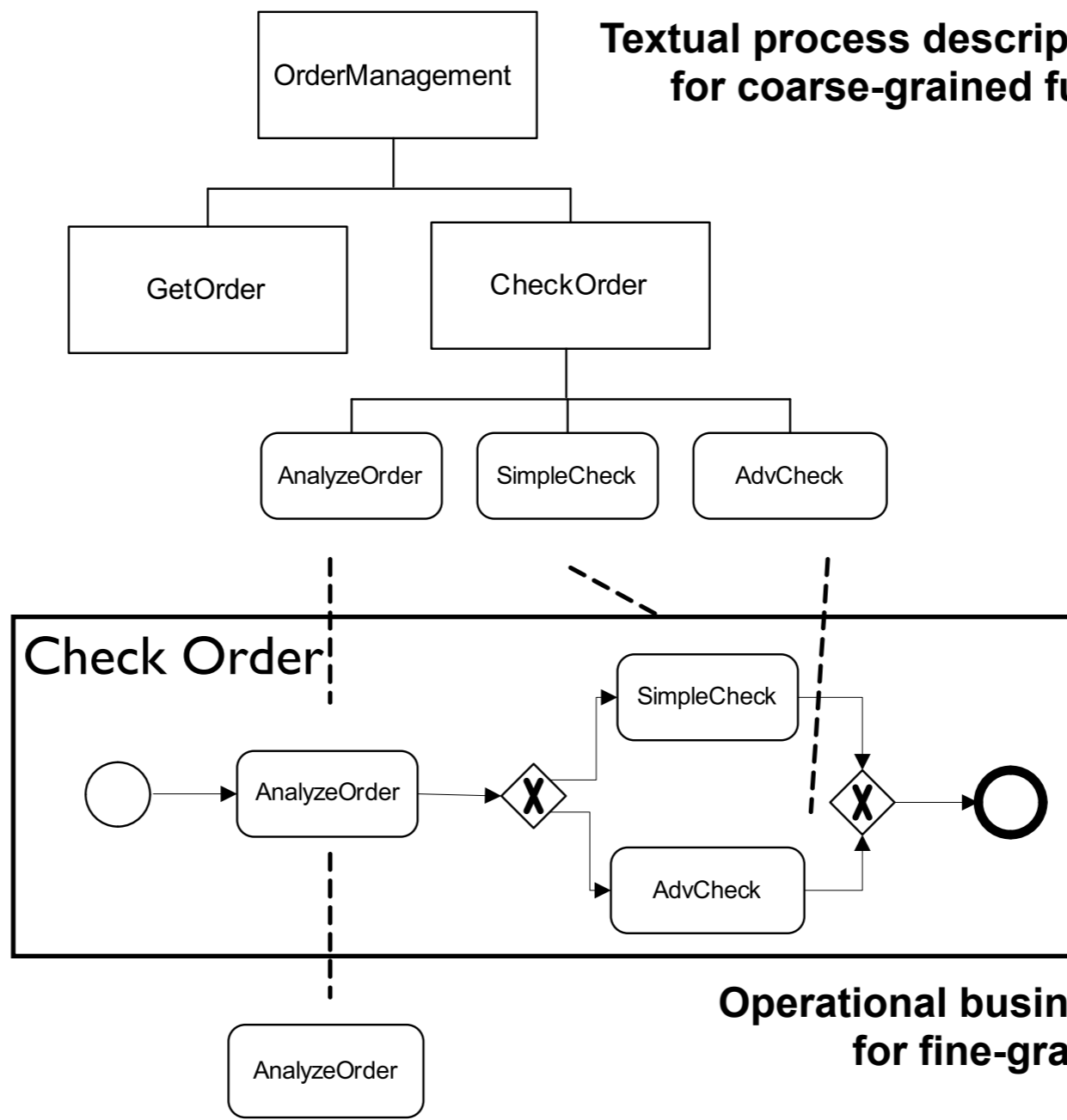
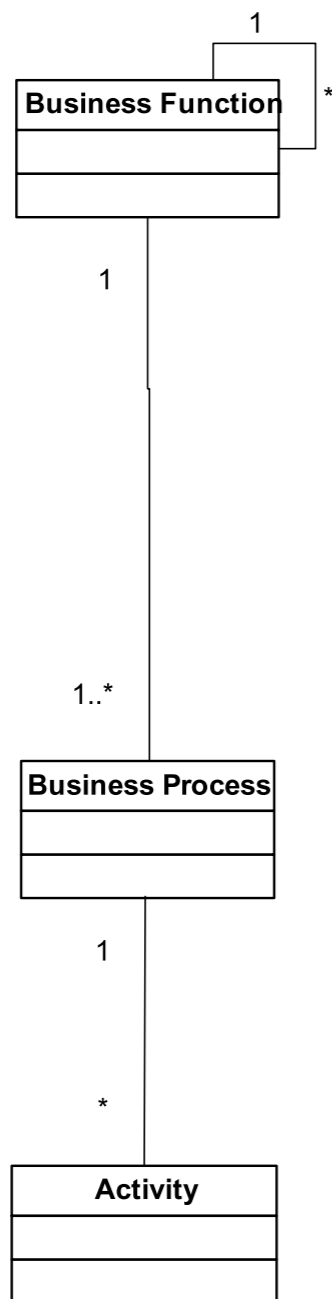
Business functions and activities



M. Weske: Business Process Management,
© Springer-Verlag Berlin Heidelberg 2007

Step 2: Structuring business processes

Fix execution constraints

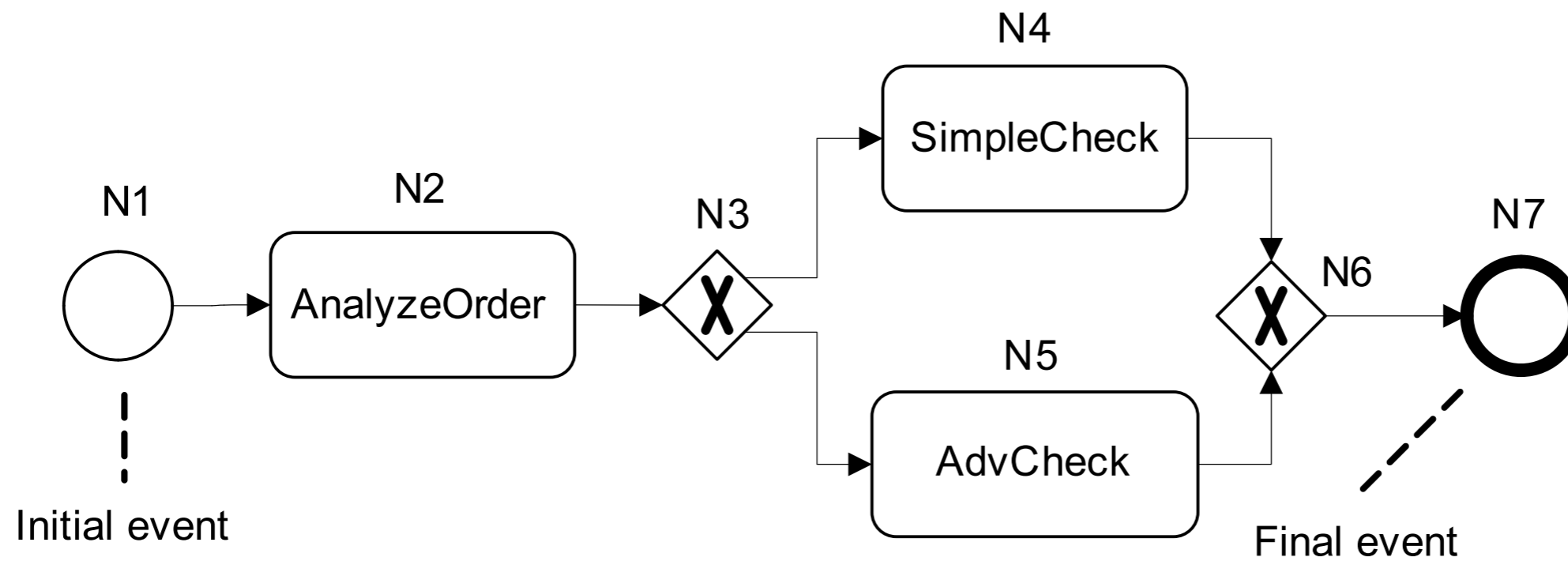


Textual process descriptions are ok for coarse-grained functions

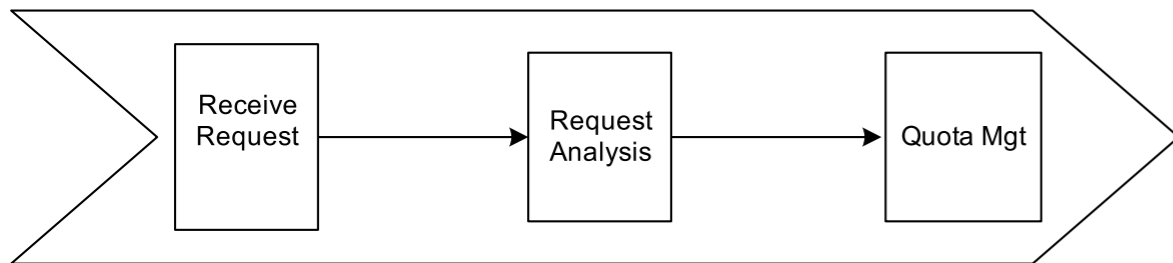
Operational business processes are ok for fine-grained functions

M. Weske: Business Process Management, © Springer-Verlag Berlin Heidelberg 2007

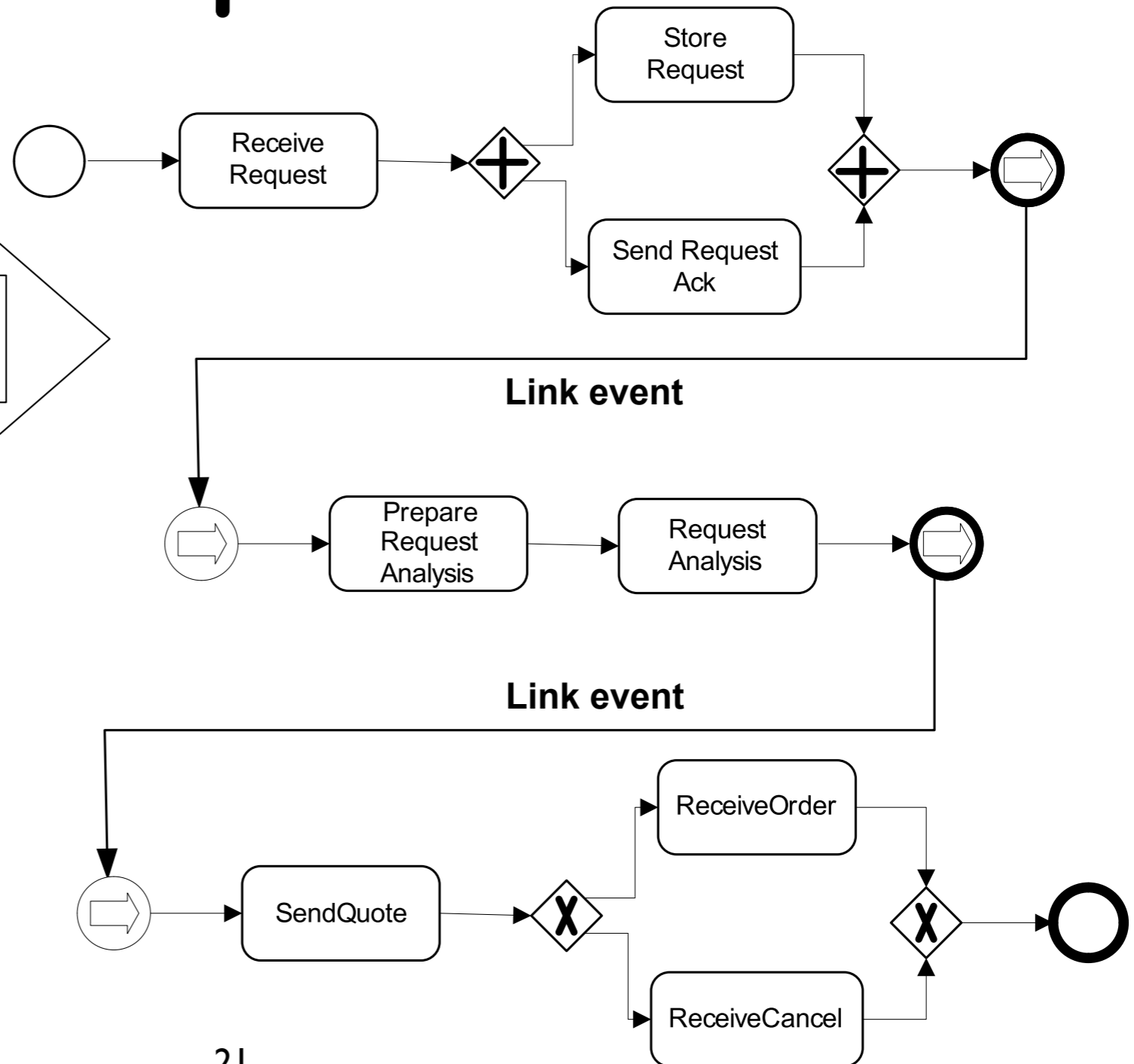
Start event / End event



Step 3: Related business processes

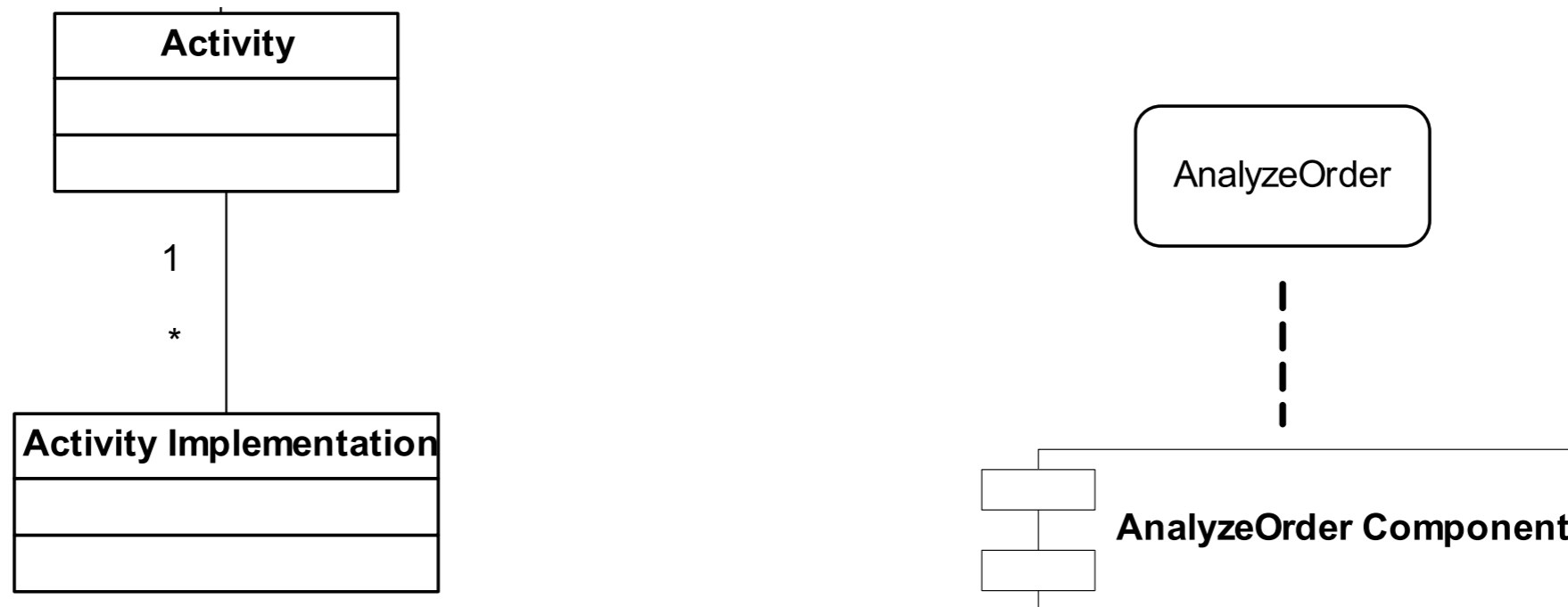


Value chain with related, high level functions



One end event of one process can trigger the start event of another process

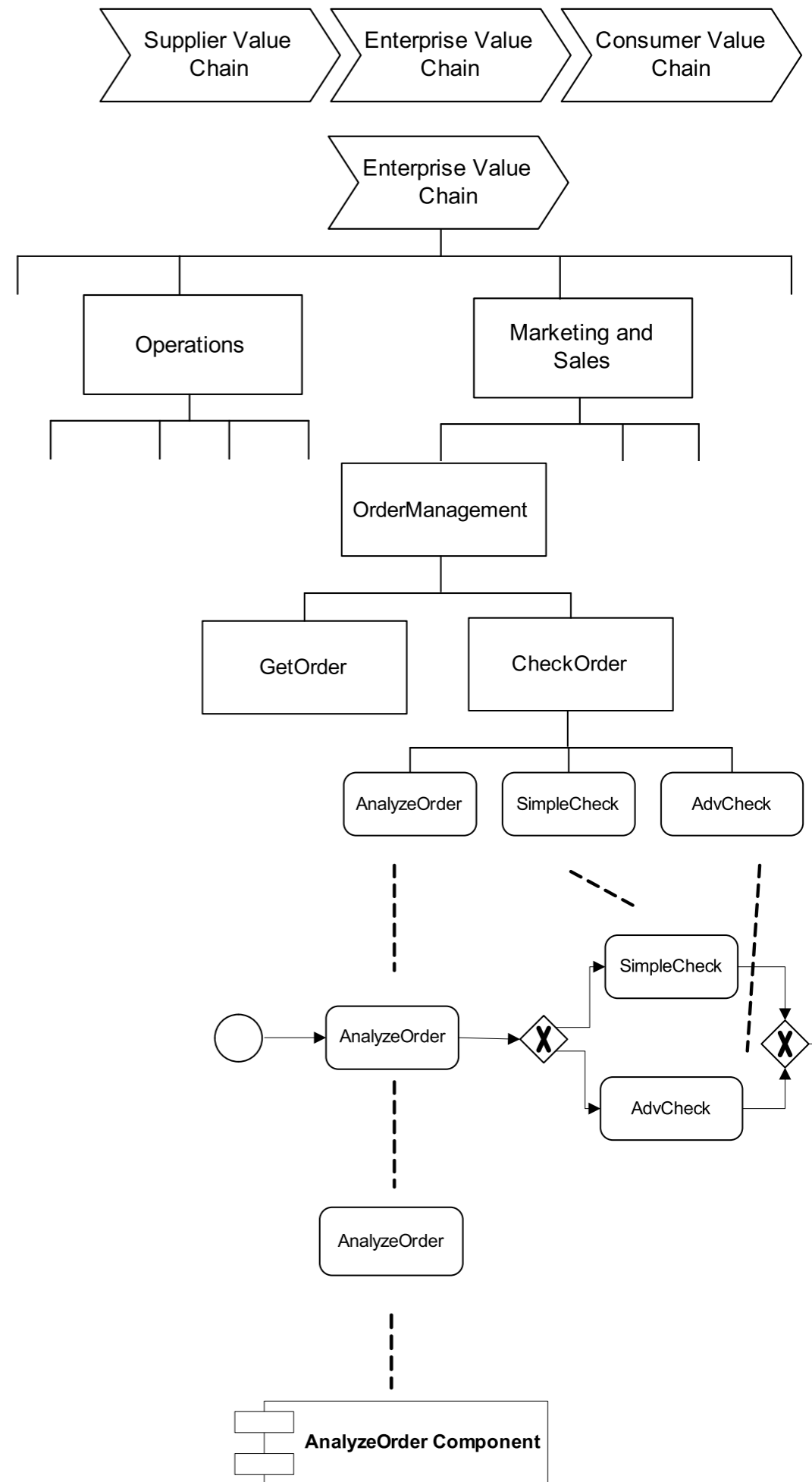
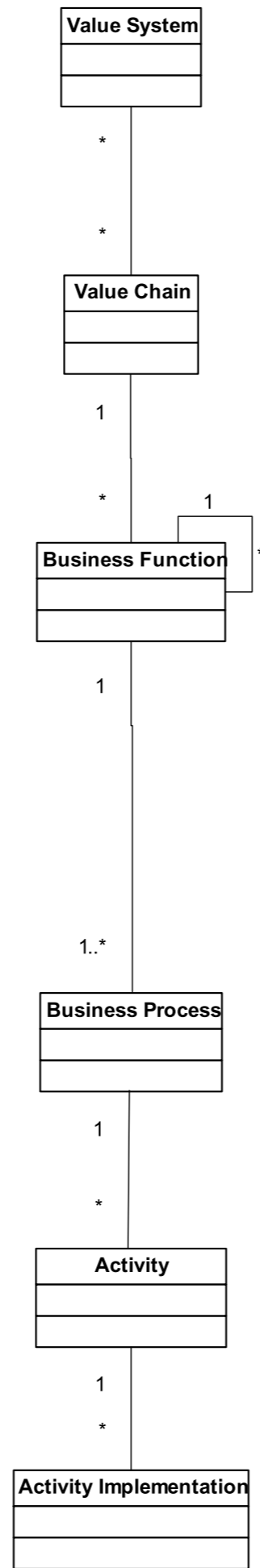
Step 4: Activity implementation



Activities are functions of the finest granularity

**They are the building blocks of operational business processes
(but sometimes activity implementation can be provided by knowledge worker)**

From value system



to implementation