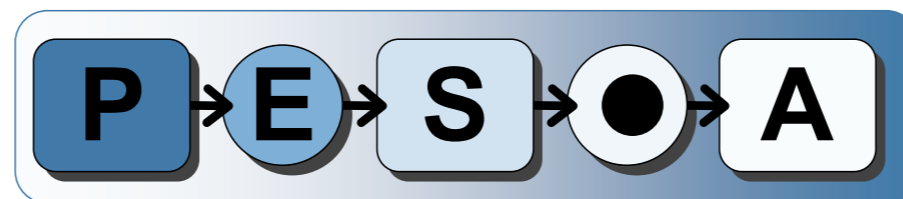


Variability Mechanisms in E-Business Process Families

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Outline

- Motivation
- Preliminaries
 - Software Product Lines
 - Process Family Engineering
- Variability Mechanisms
- Example
- Evaluation & Conclusion

Motivation

PESOA Project Goals

- Aims at developing methodologies and techniques for modeling variant-rich processes
- Based on Software Product Lines
- Two domains: E-Business and Automotive



Fraunhofer Institut
Experimentelles
Software Engineering



UNIVERSITÄT LEIPZIG

Faculty of Economics and Management
Information Systems Institute



DELTA
software
technology

The Generator Company

DAIMLERCHRYSLER

ehotelag

Preliminaries

Software Product Lines

- Derived from industrial product lines:
- Dual life-cycle of software product lines:
 - Domain engineering (for a set of related products)
 - Application engineering (for a certain product)

Software Product Lines

- Derived from industrial product lines:



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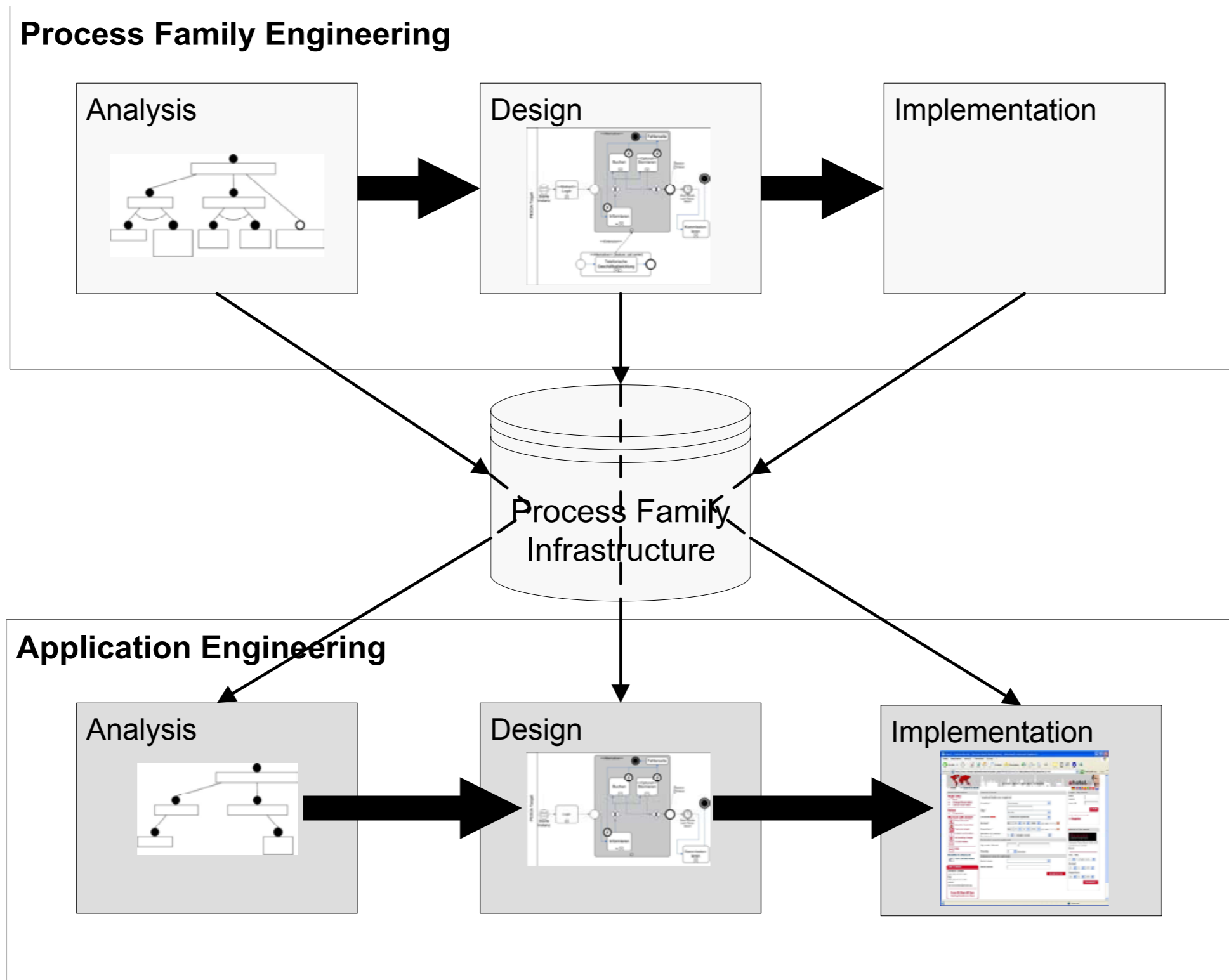


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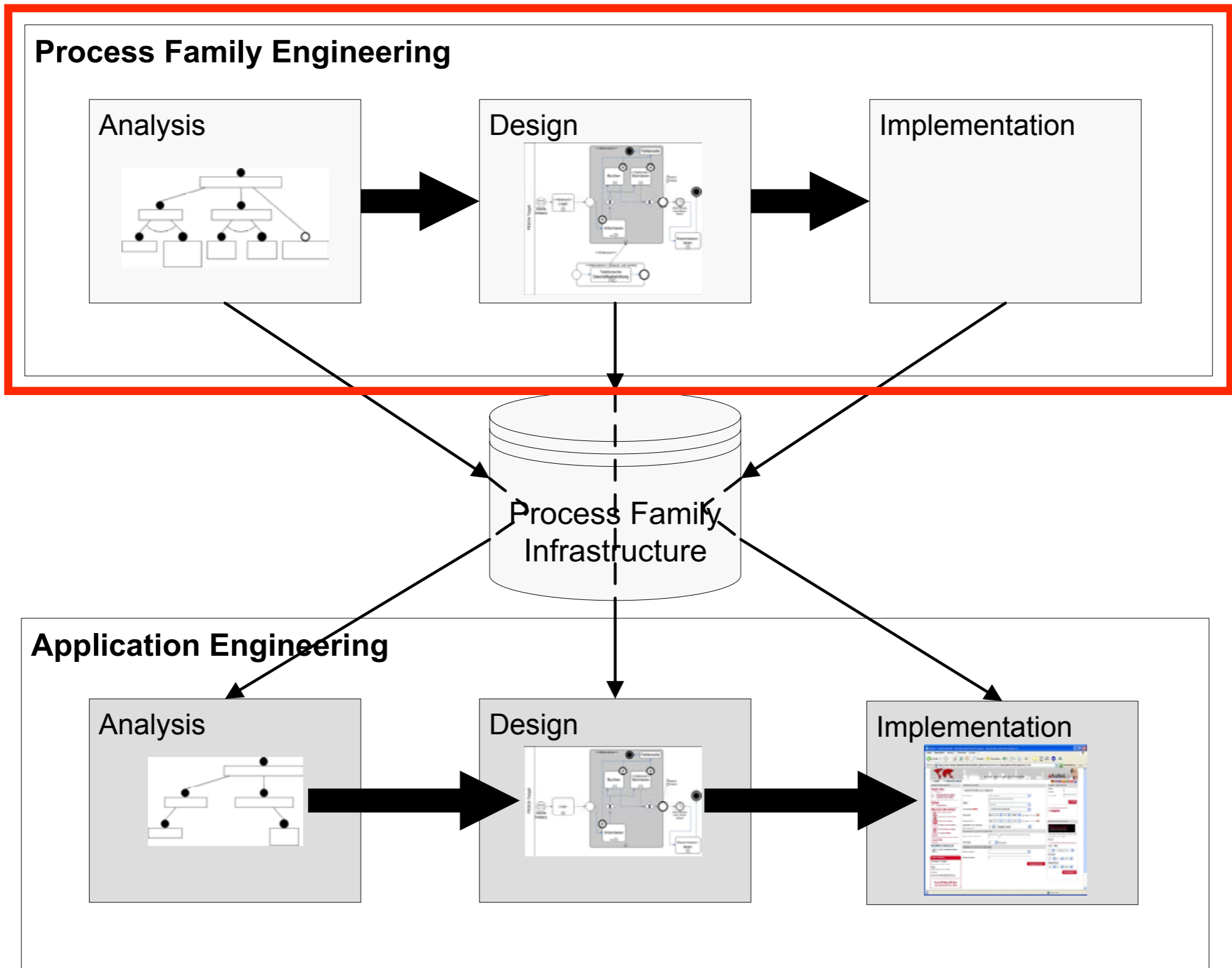


C 270 CDI

- Dual life-cycle of software product lines:
 - Domain engineering (for a set of related products)
 - Application engineering (for a certain product)



Process Family Engineering



Process Family Engineering

Process Family Engineering

- Analysis:
 - Requirements on process family members
- Design:
 - Variant-rich processes containing
 - Variation points
 - Possible resolutions (variants)
 - How to resolve (variability mechanisms)
- Implementation:
 - Process artifacts containing variability

Variability Mechanisms

Variability Mechanism

- *Describes techniques for realizing variability*
- Selection can have substantial impact
- Links design and implementation

Mechanisms
Encapsulation
Parameterization
Extension
Inheritance
Design Patterns

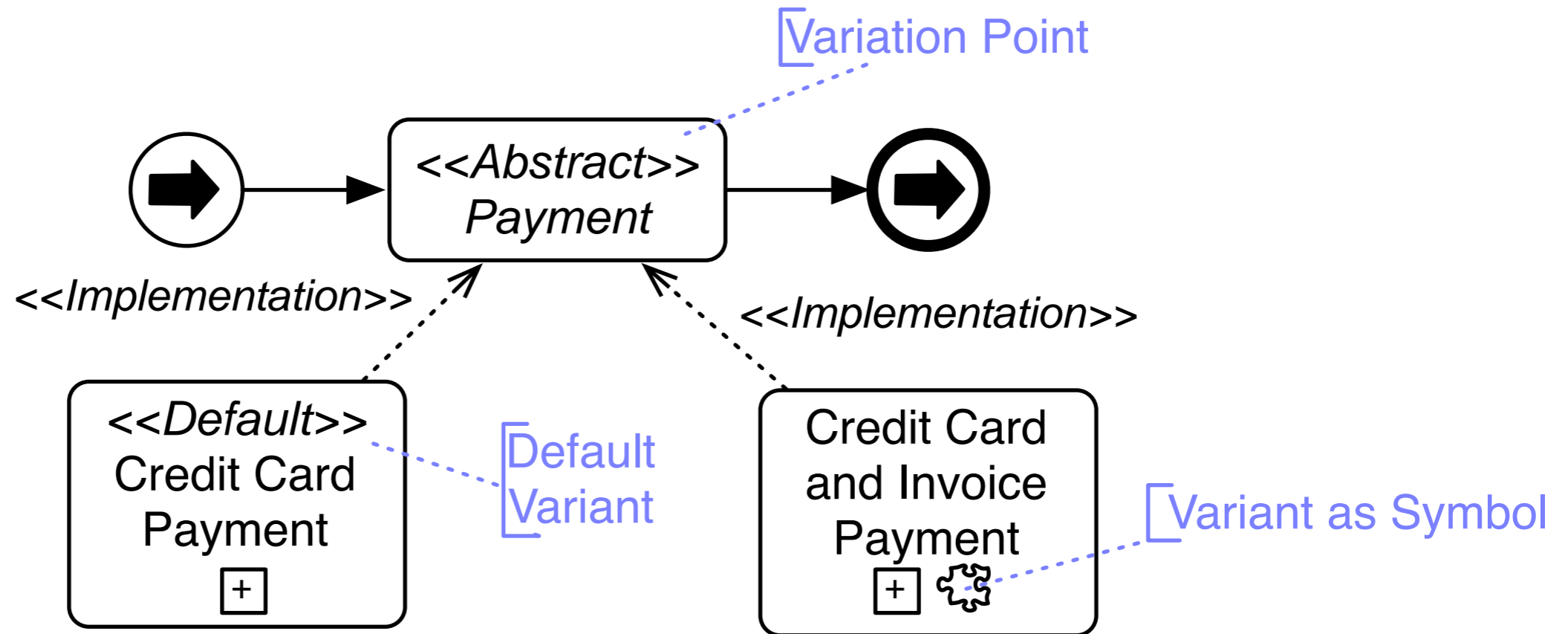
Examples of Variability Mechanisms

Mechanisms
Encapsulation
Parameterization
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Inheritance
Design Patterns

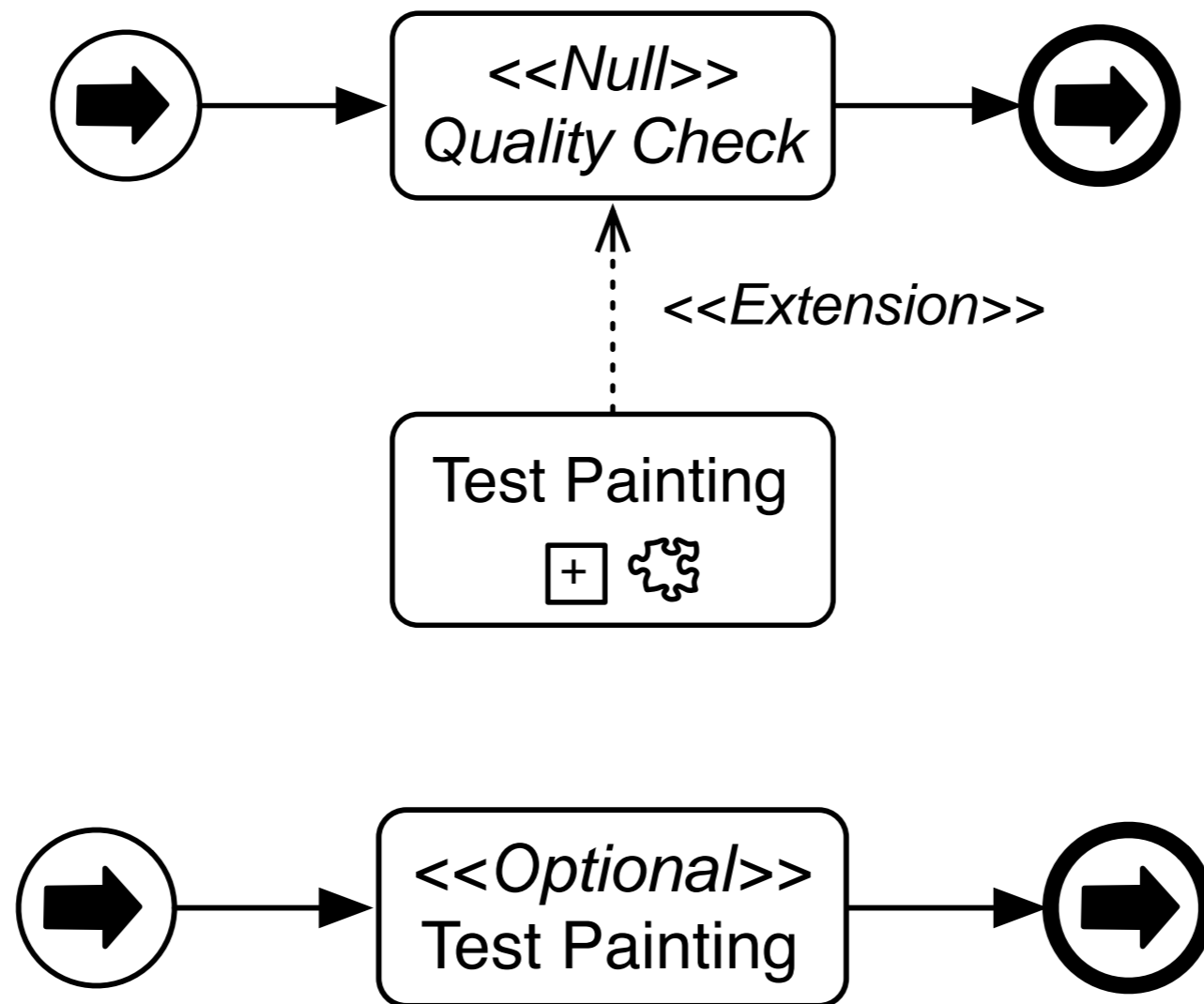
Examples of Variability Mechanisms

Mechanisms
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Examples of Variability Mechanisms

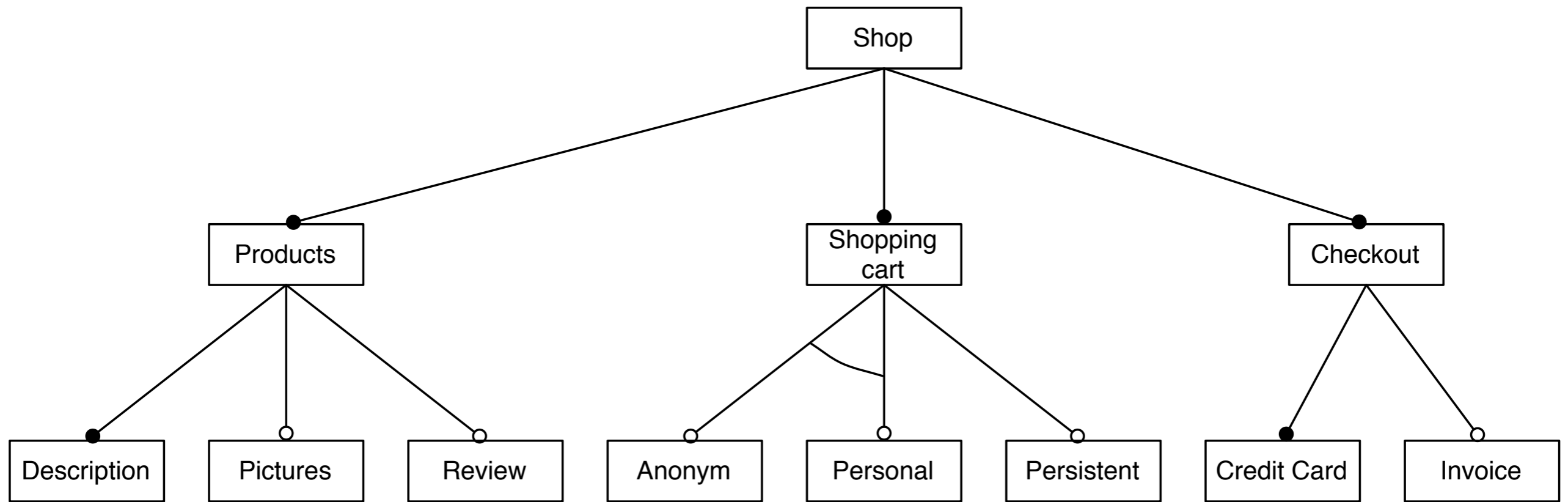


Encapsulation

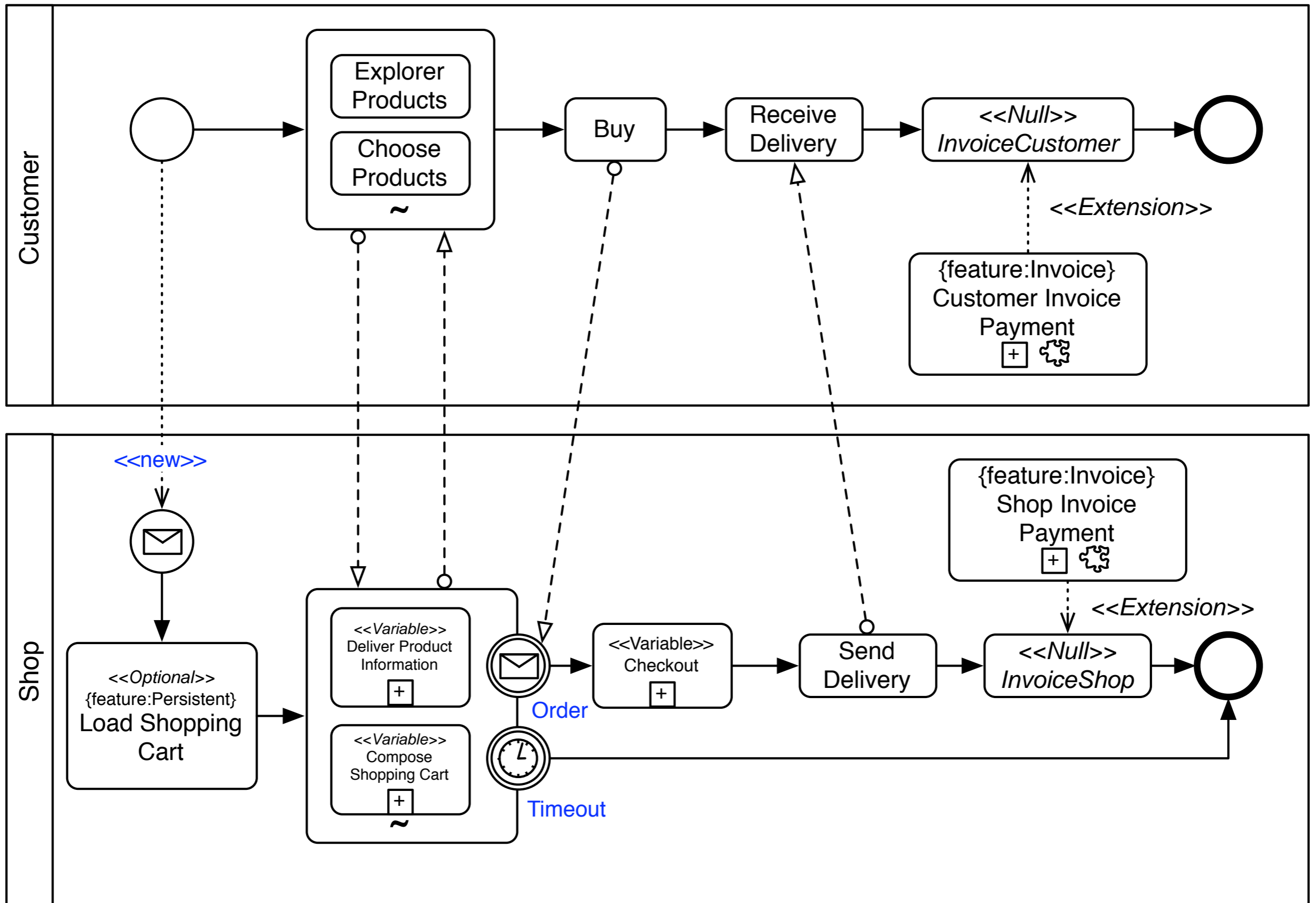


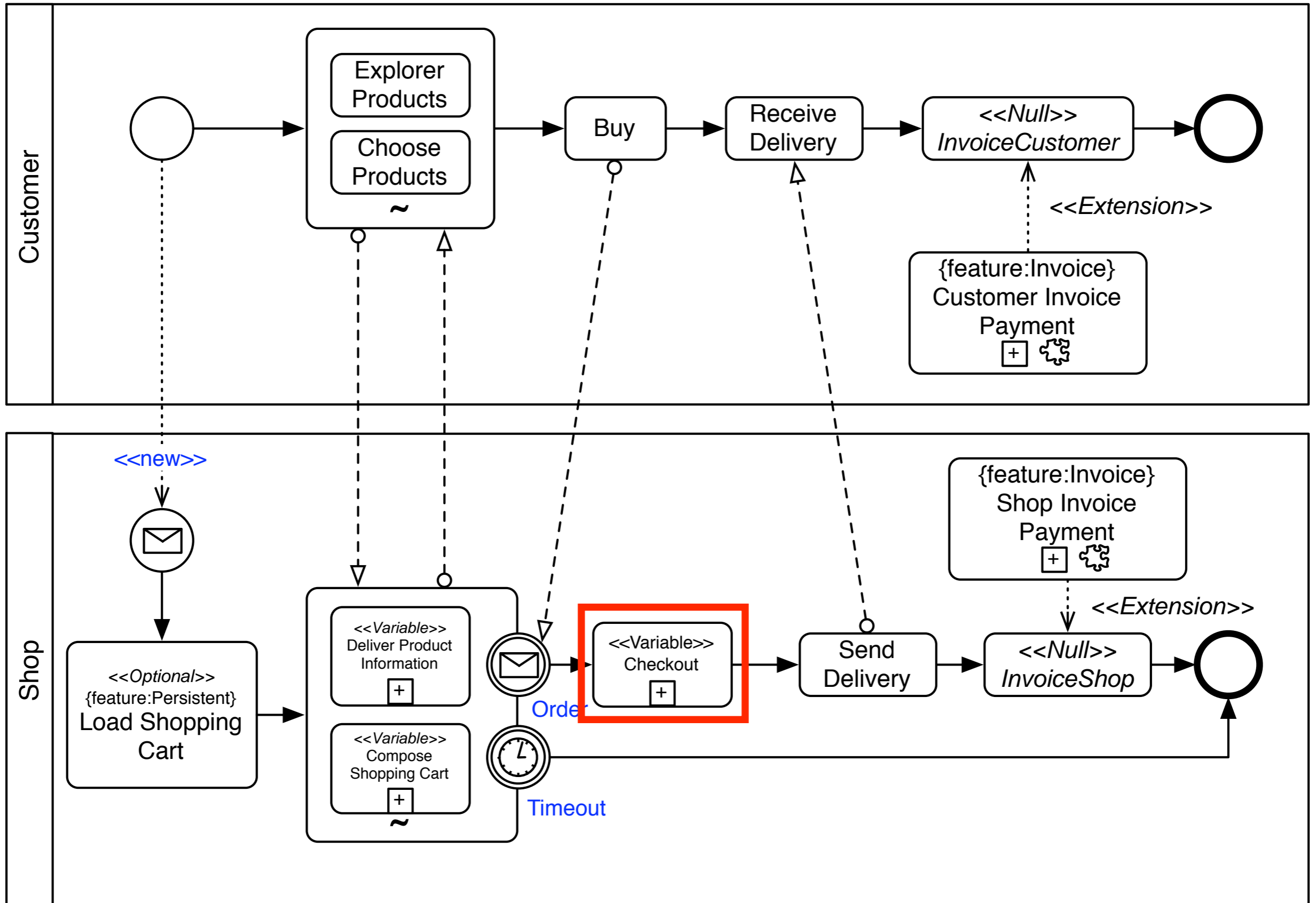
Extension

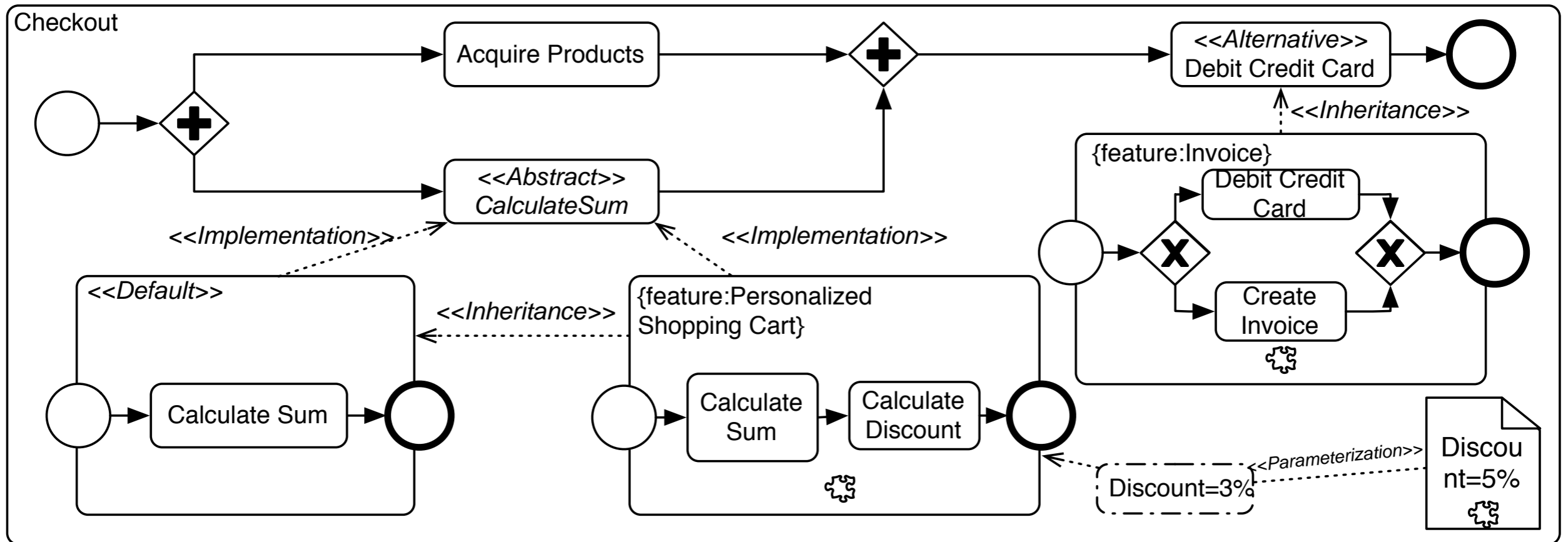
Example



Features of an E-Business Shop







Evaluation & Conclusion

Evaluation

- Case studies at ehotel
 - Source of variant-rich processes
- Bachelor project „Magrathea“ (in corporation with ehotel and Delta Software)
 - Complete prototype covering domain and application engineering
 - Generation of web-based applications based on variant-rich processes

Conclusion

- PESOA researches novel approaches for process family engineering
- We showed how a family of E-Business processes can be modeled using
 - Process Family Architecture
 - Variability Mechanisms

Thank You!

<http://pesoa.org>

