



A Variability Viewpoint for Enterprise Software Systems

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Enterprise system

Variability
(plan adaptation during architecting)

Business unit 1

Business unit 2

Business unit 3

Business unit N

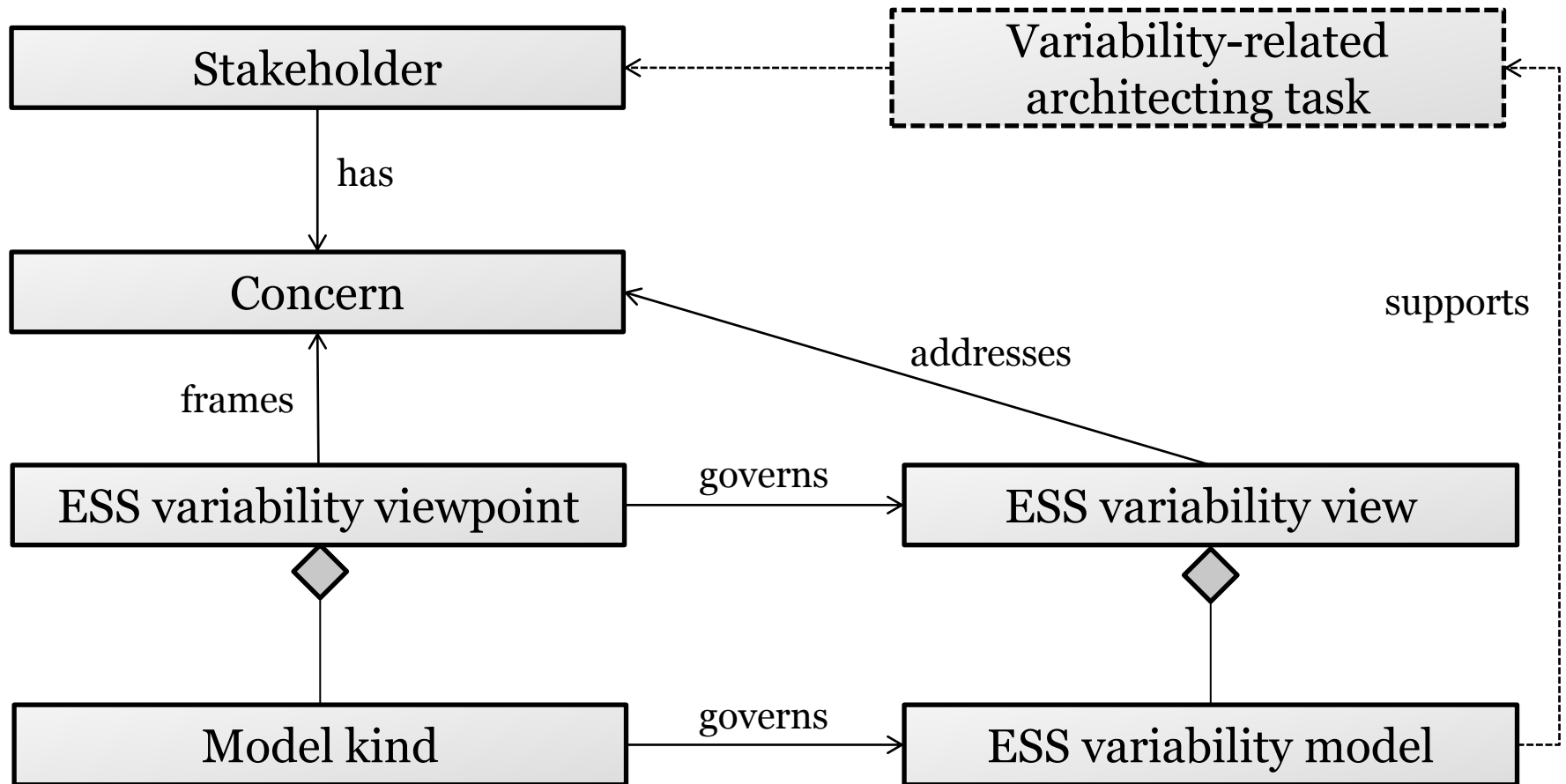


So,...

... how can we facilitate the **representation** and **analysis of variability** in the **architecture** of enterprise software systems?



Architecture viewpoint for
 variability in enterprise software systems



Step 1: identify preliminary concerns (**previous work**)

Exploratory study with students

Step 2: identify concerns, stakeholders, model kinds

Industrial case study:
 B2B platform

concerns

Step 3: define ESS variability viewpoint

concerns,
 stakeholders,
 model kinds

Step 4: demonstrate applicability of viewpoint

Industrial case study:
 E-government



Architect



Customer



Evaluator





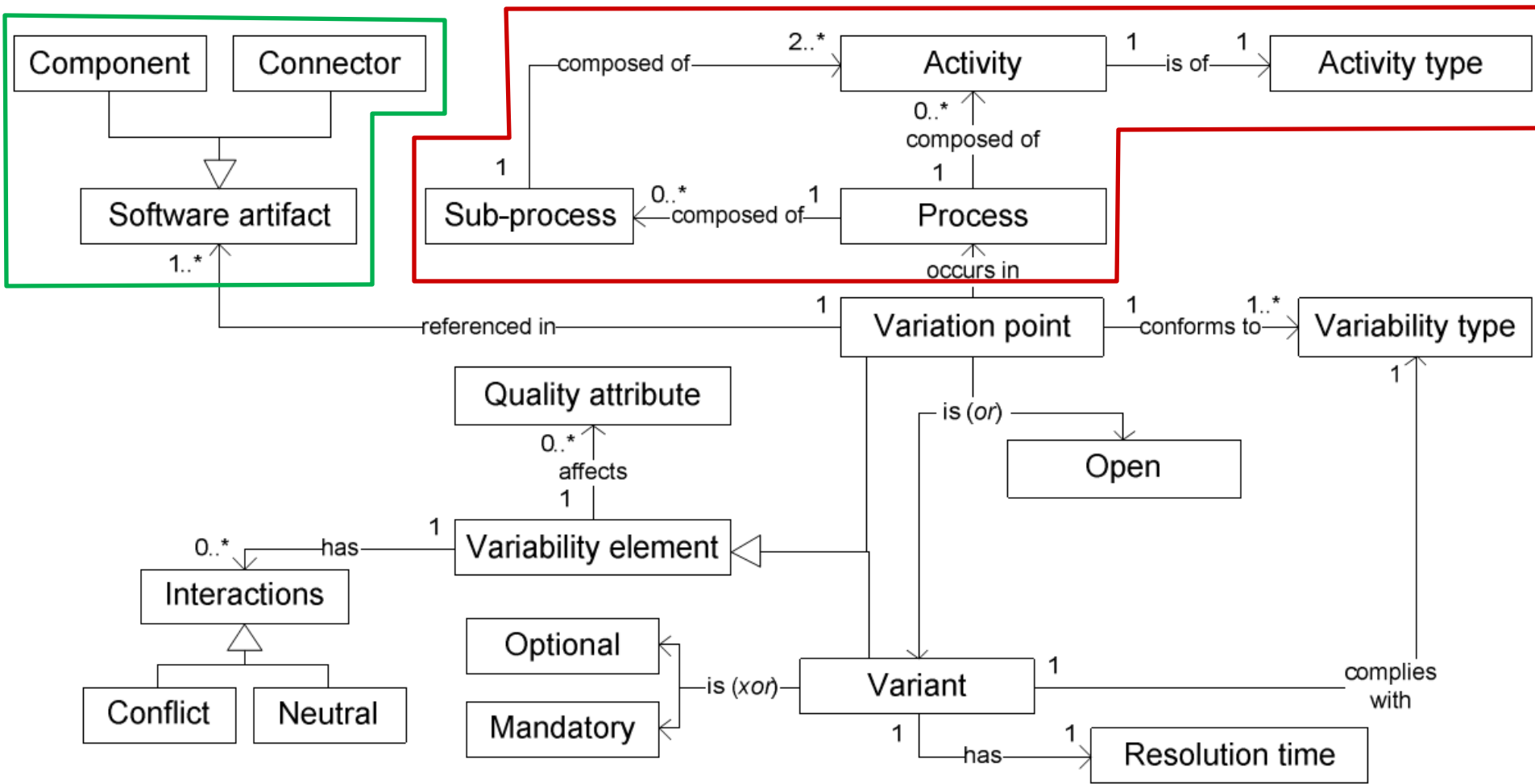
Domain expert



Stakeholders

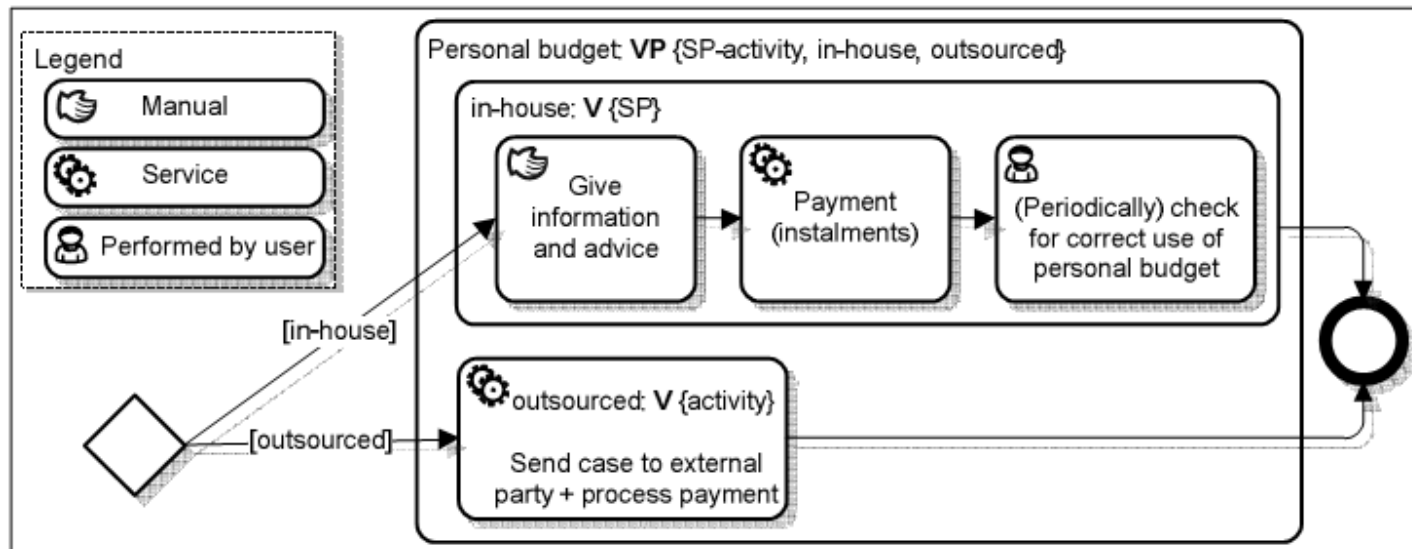
- C1: Where in the BP does variability occur?
- C2: What types of variability occur in the BP?
- C3: What variants are available to resolve a variation point?
- C4: When would variability in the BP be resolved?
- C5: Where in the architecture is variability needed?
- C6: How does a variation point in the BP map to the architecture?
- C7: Is a variant a valid option at a variation point?
- C8: What are relationships between variation points and variants?
- C9: How do variants and QA's interact?

- › Business process variability 
- › Business process variation point
- › Variability distribution 
- › Variability mapping
- › Variability interaction
- › Variability quality influence



- › Model kinds illustrated based examples from case study
 - Dutch e-government (social support)
 - Implementations differ substantially between municipalities

- › Annotated version of the **Business Process Modeling Notation**

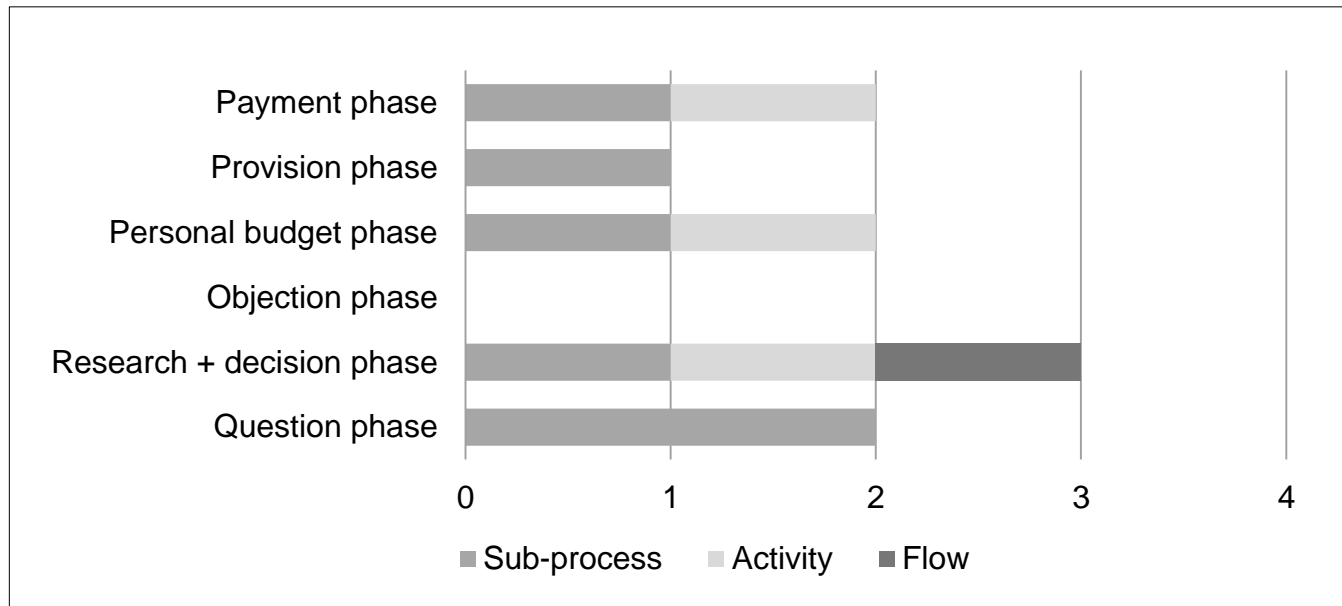


Where in the BP does variability occur?

What variants are available to resolve a variation point?

What types of variability occur in the BP?

› Frequency distribution and types of variability



Where in the BP does variability occur?

What types of variability occur in the BP?



> Conclusions

- **Reusable** architecture knowledge to reason about variability
- Elements of viewpoint based on the **needs of industrial organizations**
- **Traceability** from business process to architecture design
- **Limitations** related to viewpoint and viewpoint definition



> Future work

- **More model kinds**
- Viewpoint in **reference architecture design** for variability-intensive systems



Thank you for your attention