

Early Design Decisions

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visuellklar

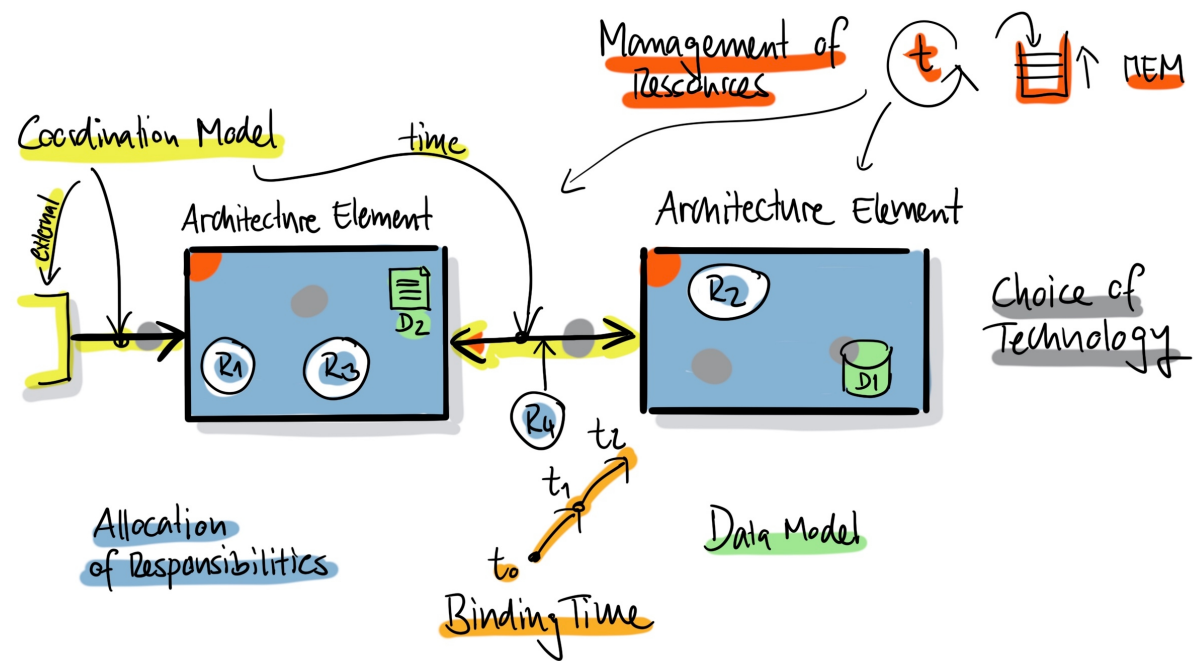
Komplexe Projekte einfach klar nach
SYSTEMArt® - dem Ingenieursprinzip

What are “Early Design Decisions”?

- There are a collection of questions that are associated with early design decisions that should be used as test cases (completeness of the decisions made) in addition to use cases and architectural significant requirements.
- Decisions made early constraint those made later.
- Make decisions earliest that have the farthest reaching impact.

Early Design Decisions

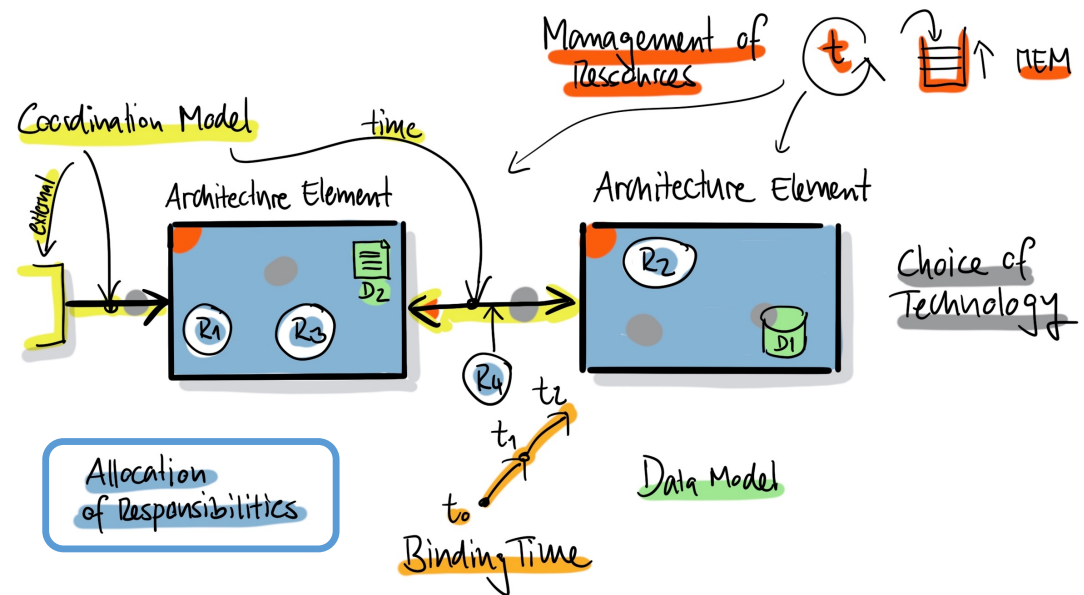
- Allocation of responsibility
- Coordination model
- Data model
- Management of runtime resources
- Choice of technology and mapping to architectural elements
- Binding time of the decisions in the other categories



Early Design Decisions - Questions

Allocation of responsibilities

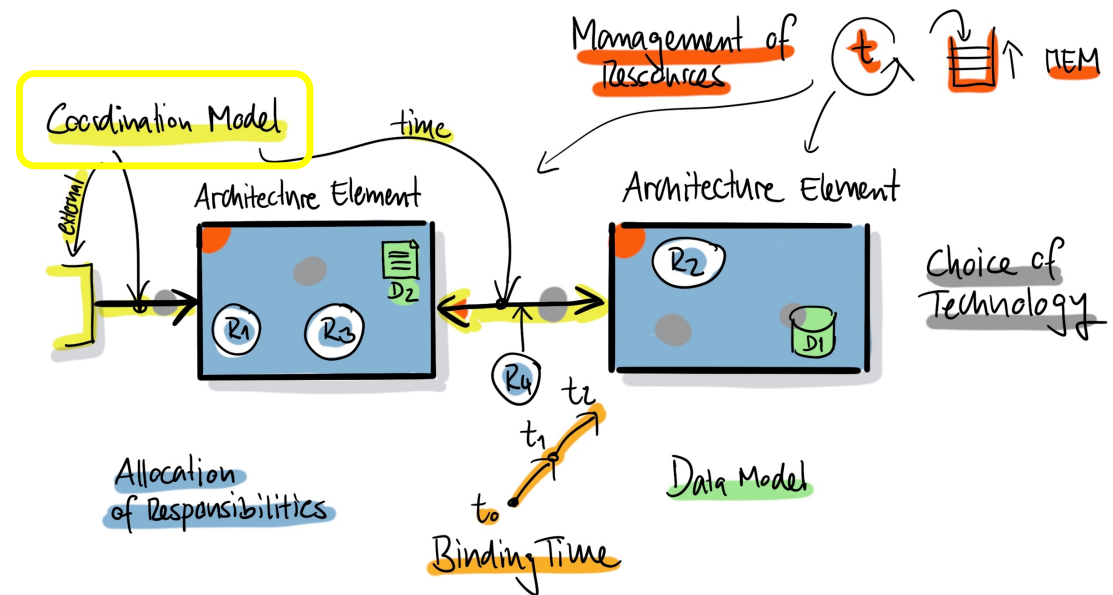
- What is the division and assignment of functionality (responsibilities) to the system elements?
- Are the elements stateful or stateless?
- What are the key abstractions that can be used to provide the services of the system?
- What are the activation and deactivation dependencies among system elements?



Early Design Decisions - Questions

Coordination model

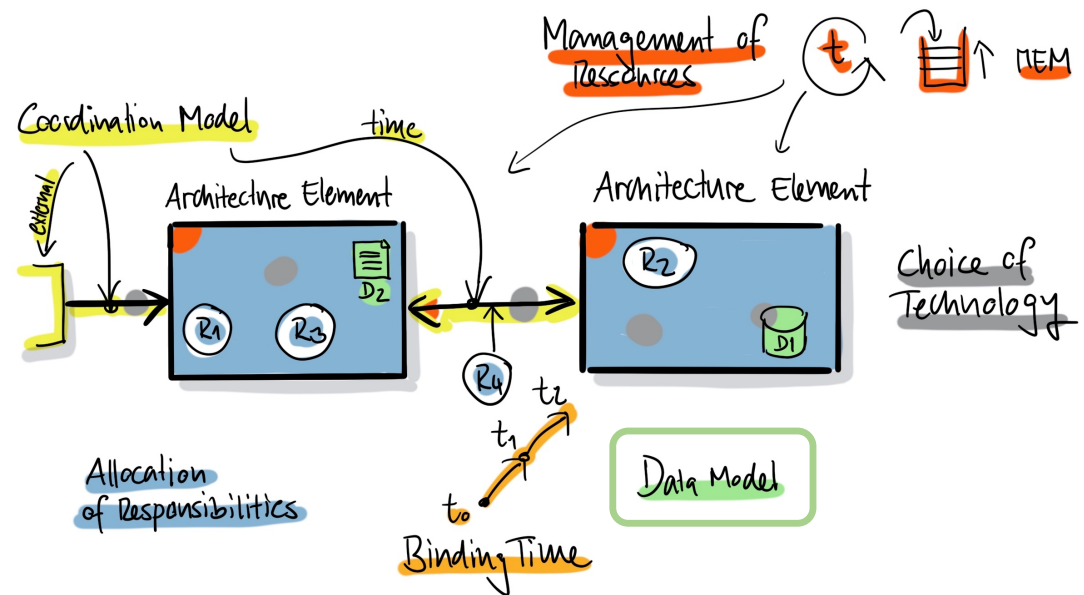
- What are the communication mechanisms between the system and external entities?
- What are the inter-element communication mechanisms and what are their properties (sync, async., hybrid coupling,...)?
- What are the intra-element communication mechanisms?



Early Design Decisions - Questions

Data model

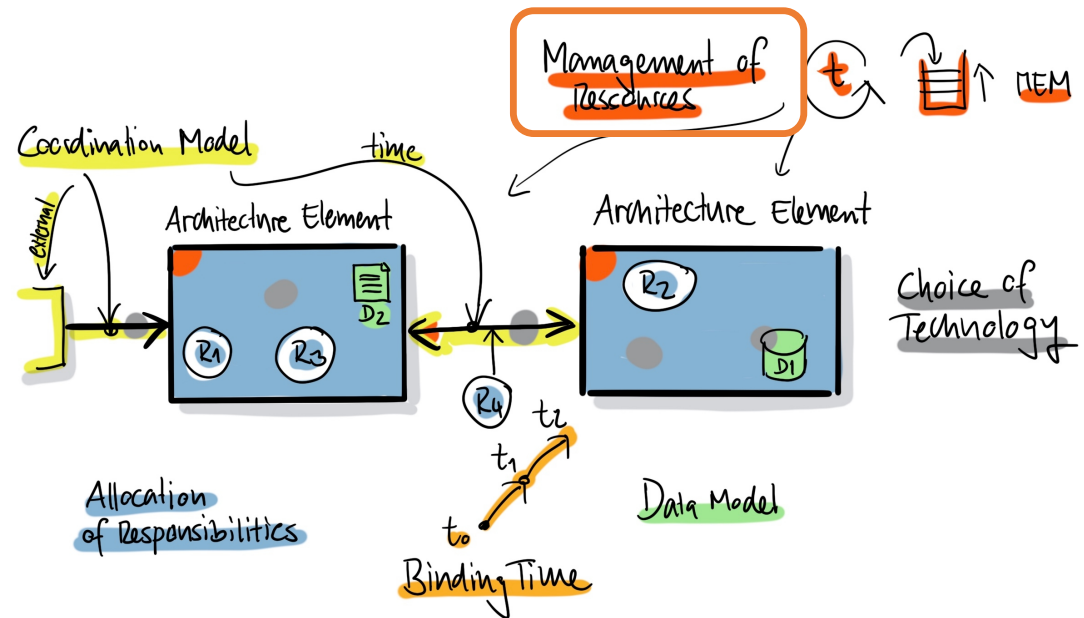
- What is the structure and relations in the data model?
- Which portion of the data model are used by which element in which order?
- What are the access rules for the data items?
- Where are the data items created, modified, and destroyed?



Early Design Decisions - Questions

Management of runtime resources

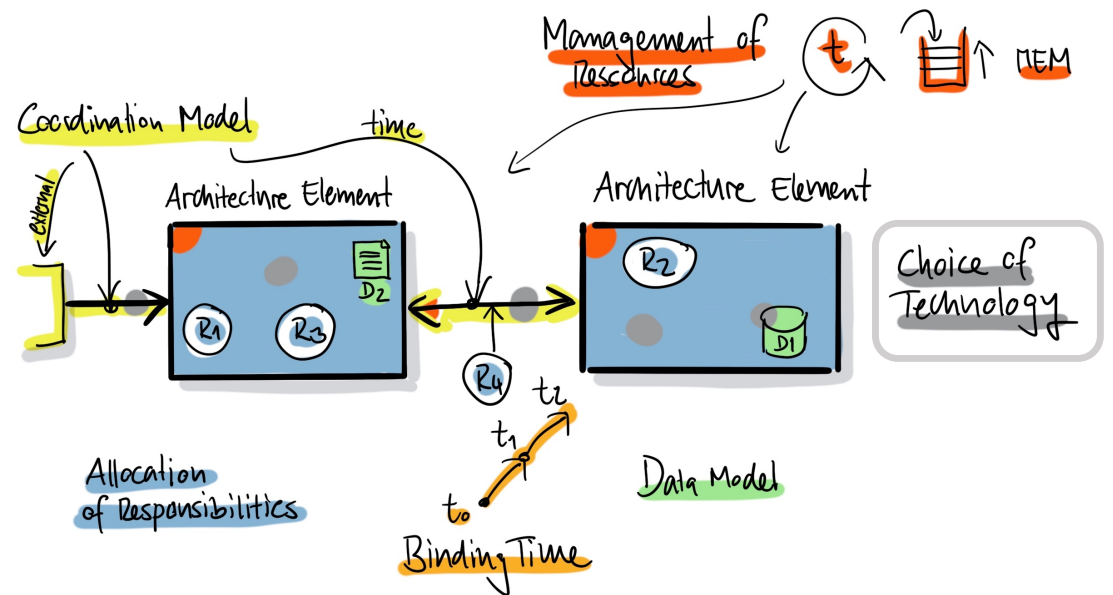
- What scheduling strategies will be used?
- How much do the elements know about time?
- What process/thread model will be used?
- What resources must be managed and what are their limits?



Early Design Decisions - Questions

Choice of technology and mapping to architectural elements

- How are the modules mapped to runtime elements?
- How are runtime elements mapped to processors?
- How are units of development mapped to configuration elements in the development environment?
- Which technologies are used?
- How are the units of development mapped to technology?



Early Design Decisions - Questions

Binding time decisions

- The decisions made to resolve the questions on the previous slides can be bound to a variety of times:
 - Design time
 - Compile time
 - Build time
 - Load time
 - Initialization time
 - Runtime

