Relations and Requirements

Design of Software Architectures

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Role of the software architecture

to provide

solution direction

for

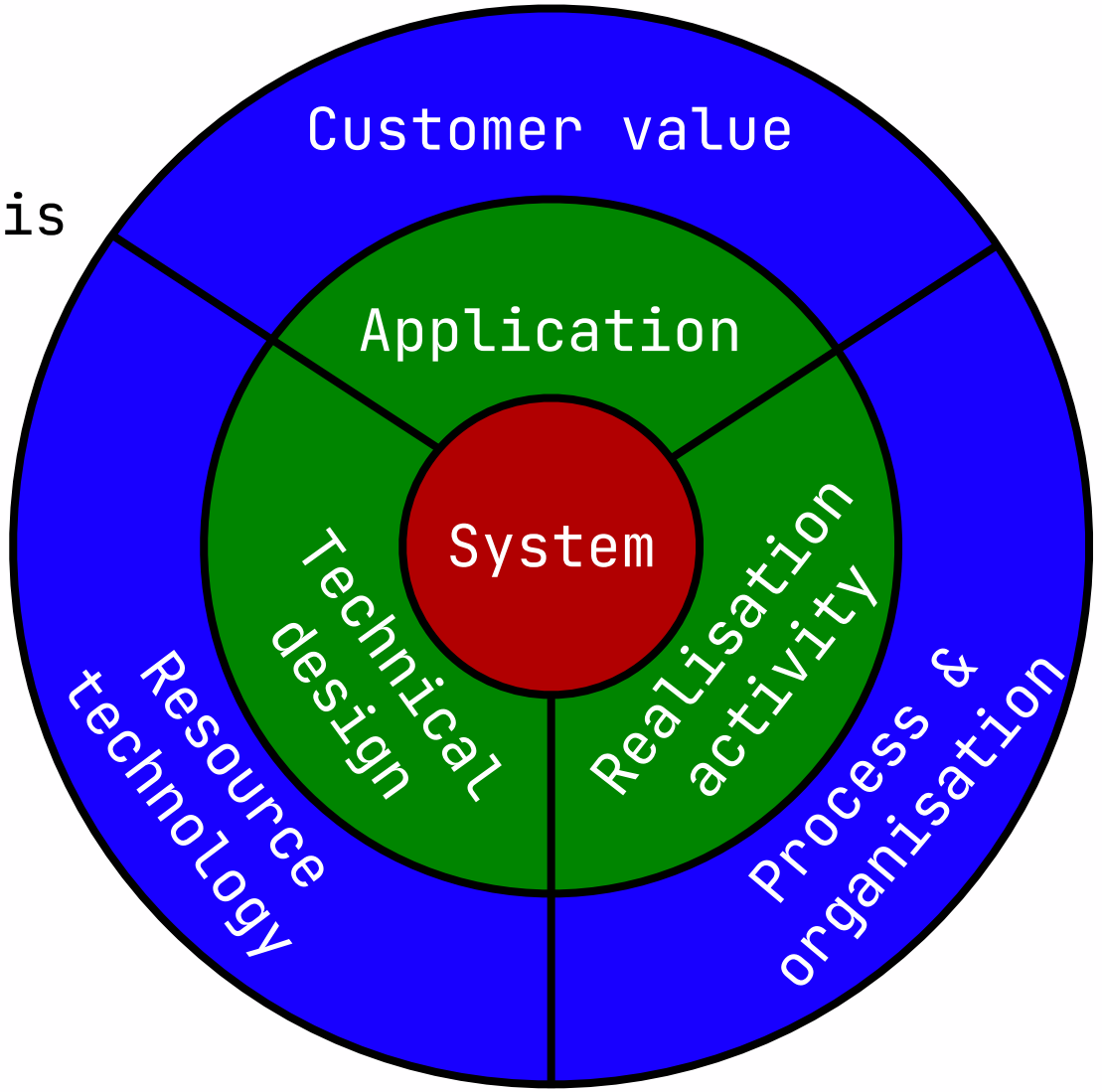
most important properties

that are

the most difficult to realise

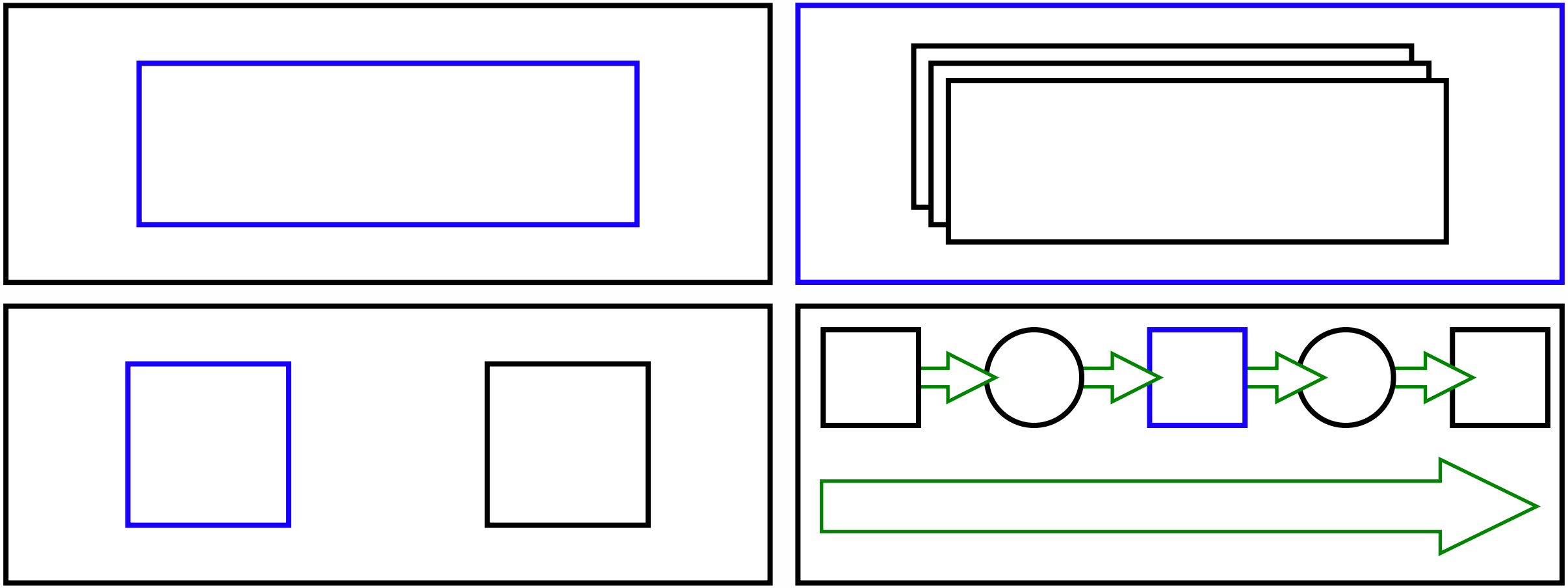
Software architecture

- The software architecture of a system is
  - a collection of statements
  - that gives direction to
    - the design
    - the realisation and
    - the evolution
  - of the **software in its environment**
- Statements are a model of:
  - structure
  - guidelines for creating structure



How Can Systems Relate?

How can systems relate?



How Does a System Relate to a User?

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Why use requirements?

- Understand what stakeholders need
- Agree about what to deliver
- See business relevance for context
- Know what to realise
- Establish basis for testing
- Mechanism for outsourcing development
- Scope management

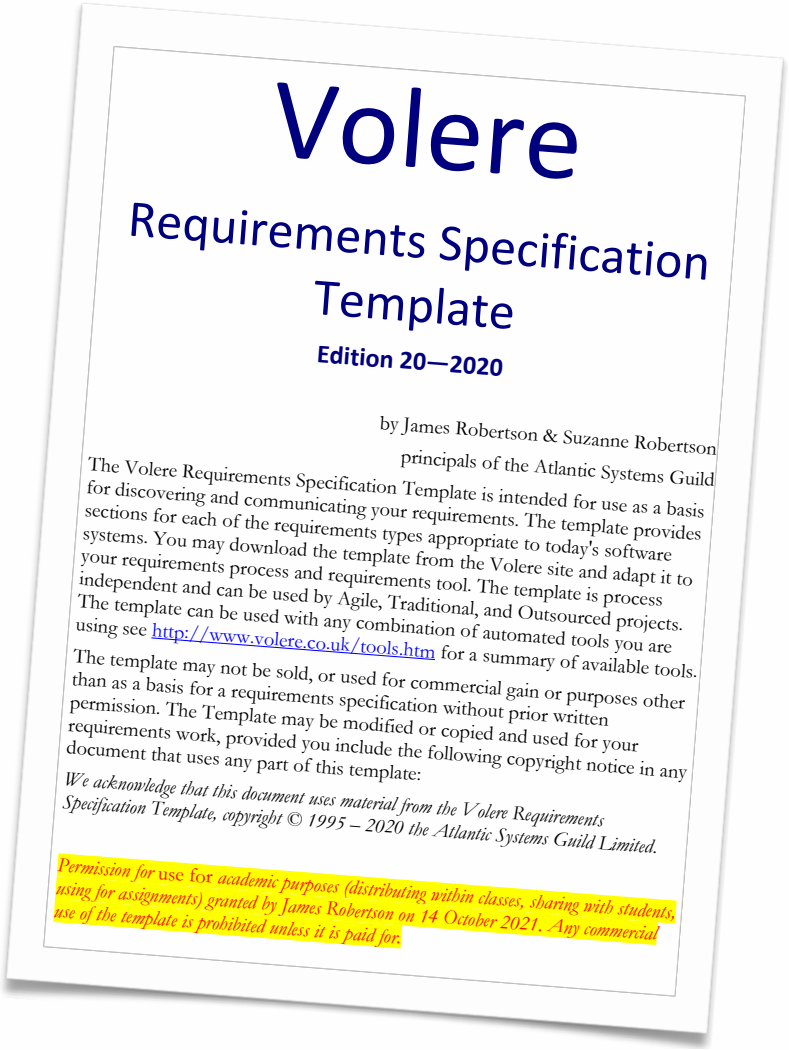
- know what you have realised
- know what you have planned
- enable impact analysis when reqs change

Requirements for requirements

- Fulfils a need
  - for at least one stakeholder
  - when
- Verifiable
  - testable
  - acceptance criterion
- Realisable
  - approved by supplier
  - known realisation approach
  - or explicit uncertain
- Atomic
  - indivisible
  - specific
- Traceable
  - forward
  - backward

Req properties & priorities

- SMART
- MoSCoW
- High/Medium/Low
- Satisfaction/dissatisfaction
- Specifications in a chosen language
  - application domain model
  - standard terminology
  - UML, OCL, …



Volere

Requirements Specification Template

Edition 20—2020

by James Robertson & Suzanne Robertson

principals of the Atlantic Systems Guild

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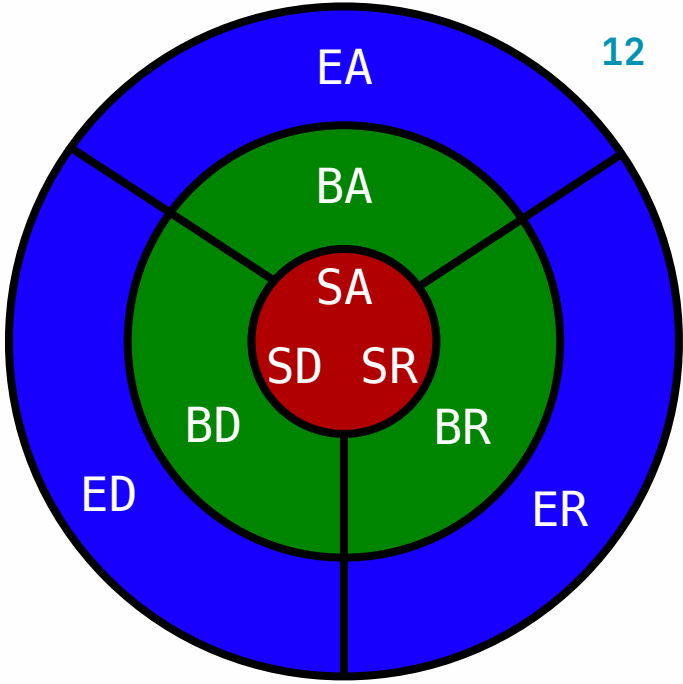
Identify related systems

- Define which type of relation each has with yours
- with respect to
  - Functionality
  - Design
  - Realisation
- Visualise relations between your system and systems in the environment.

Requirements



- Distribute workload systematically
- Pick three main stakeholders, per stakeholder:
  - identify concerns (goal, task, needed system property)
  - write requirements/use cases, put on the circle
- Each req
  - fulfils a need, is verifiable, realisable, atomic, traceable
- All reqs
  - prioritised, grouped, unique, cover the domain, free of conflicts
- Prioritise according to sat/dissat level (per stakeholder)
- What was difficult? (be specific!)

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