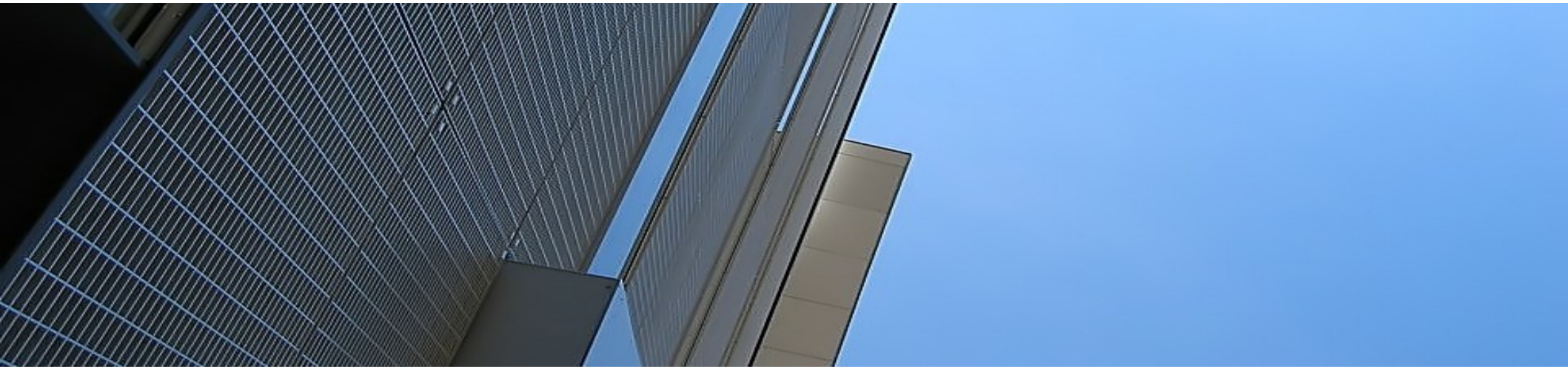
CINCO

Collaborative and interoperable computing



Service oriented software engineering
Trends and motivation

Lea Kutvonen
January 2010

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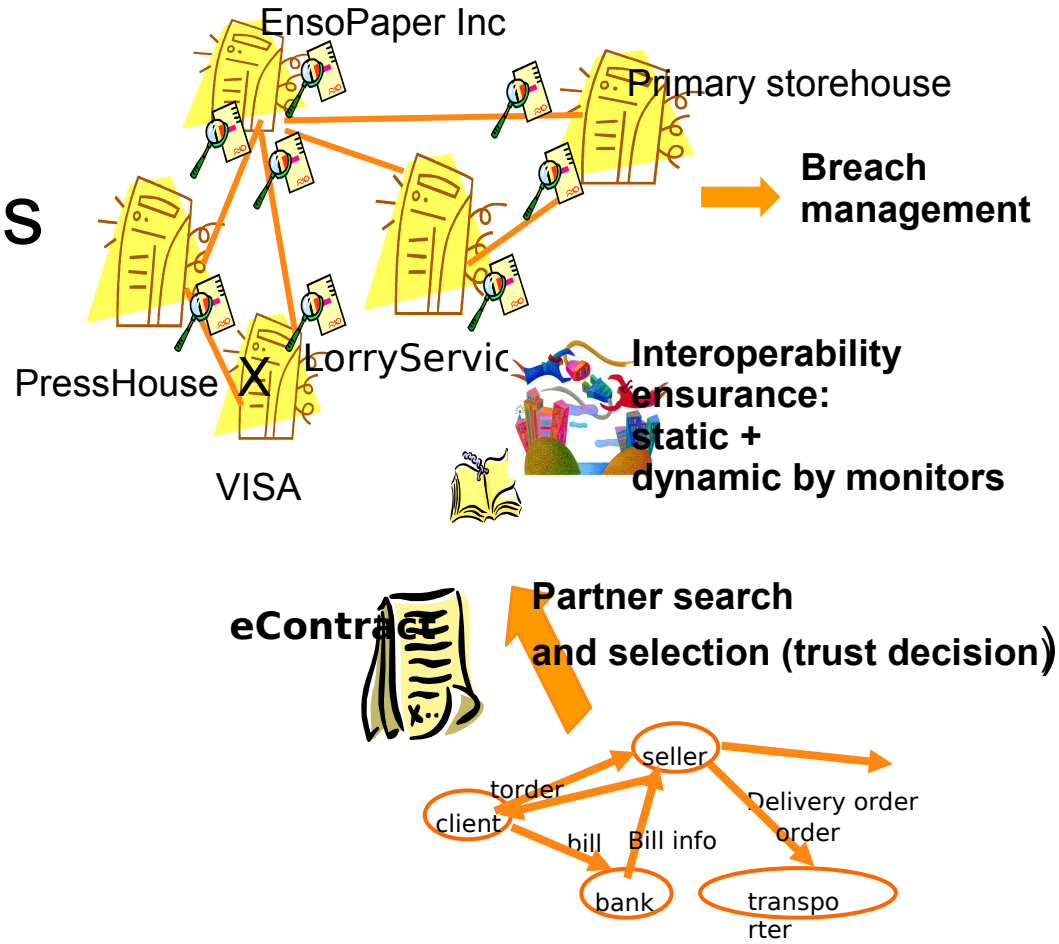
- Software engineering crises
- Service ecosystem architecture
- Properties of SOSE
- Learning goals

CINCO GROUP VISION

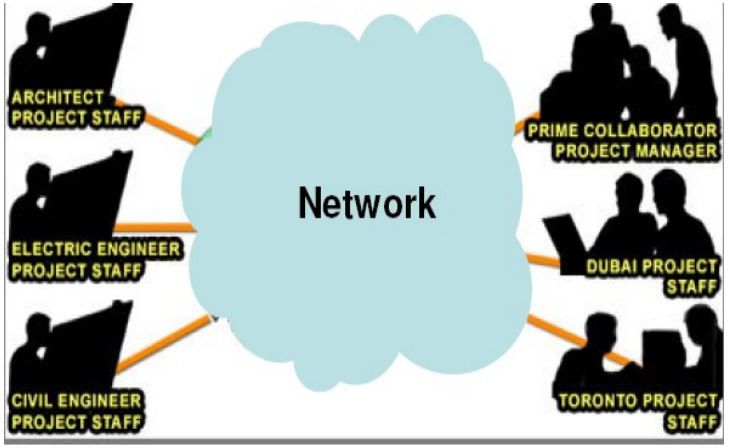
In future,
enterprises and individuals expect to

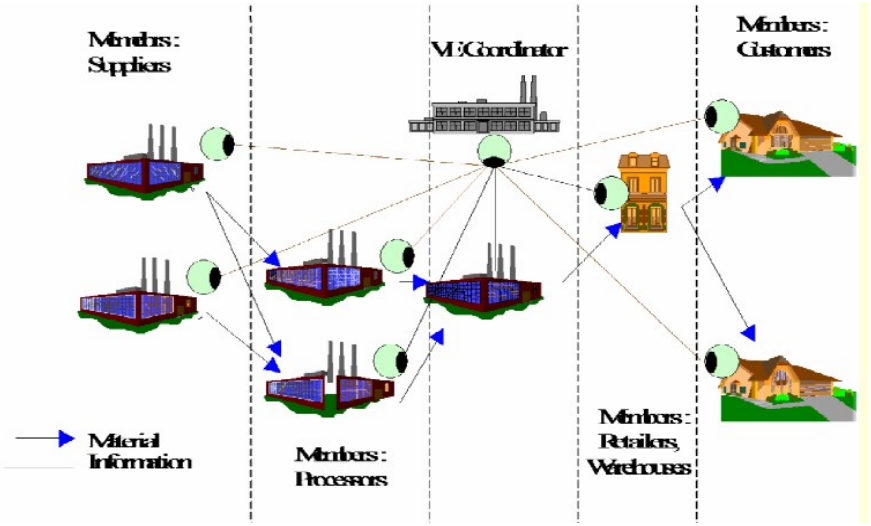
- easily compose new services/collaborations from open service markets, and
- manage these constructs respecting requlation and autonomomy of partners



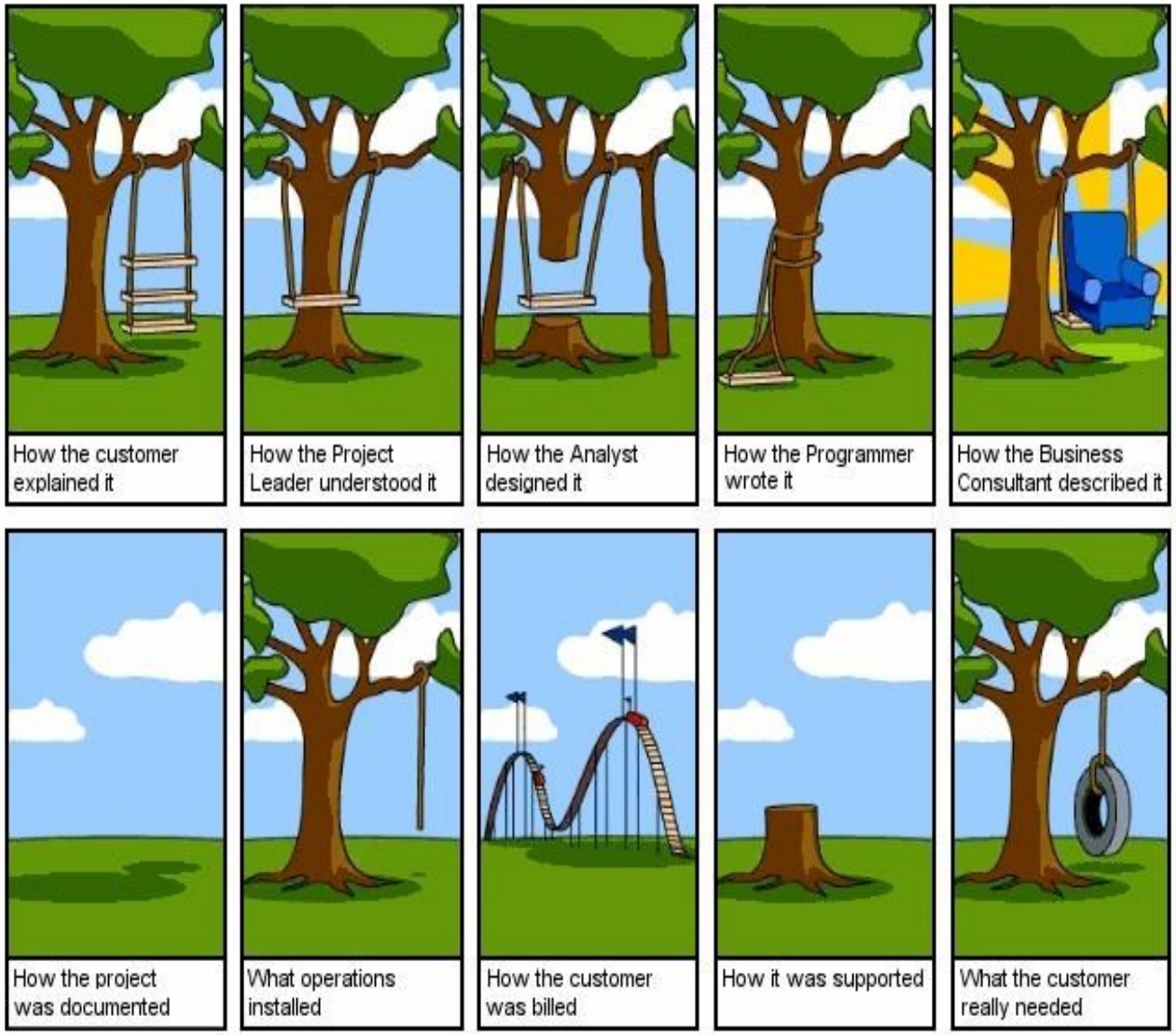
Types of collaborations and business networks

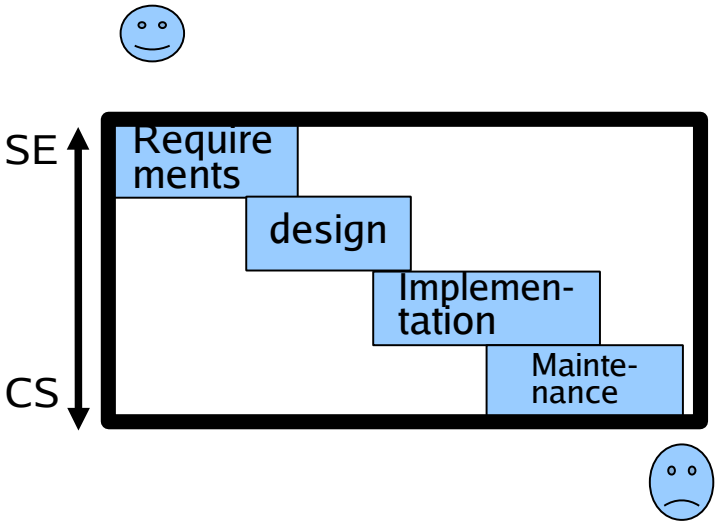
- Social network of friends
  - Contents (e.g. Flickr)
- ***Expert nets***
  - Scientific society
  - standardisation
- Broadcasting
  - News, entertainment
  - Net of newsagens
- ***Business networks***
- ***Virtual organisations***
  - roles, gains, responsibilities



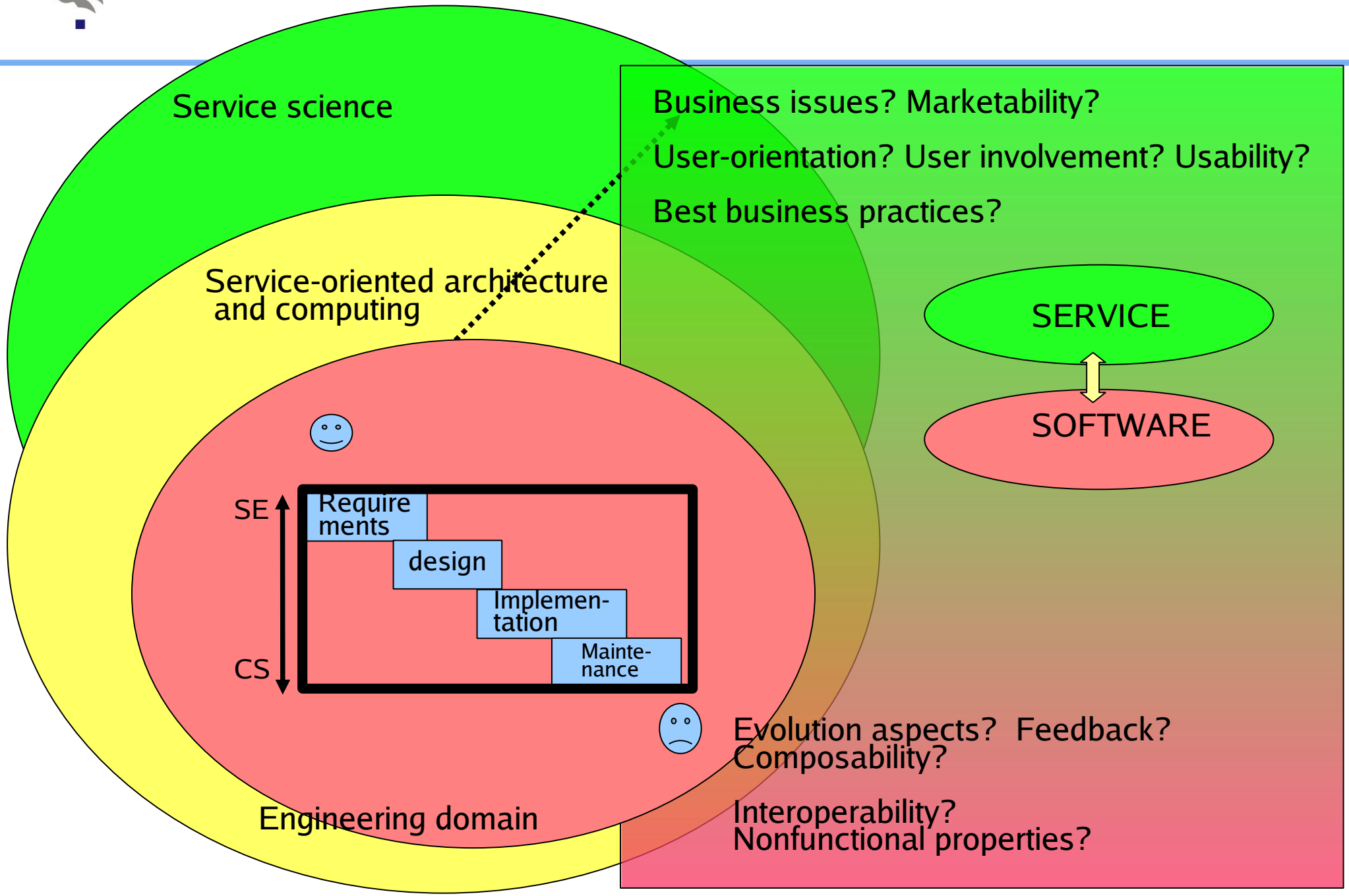


Software engineering crises and ability to compose and control?

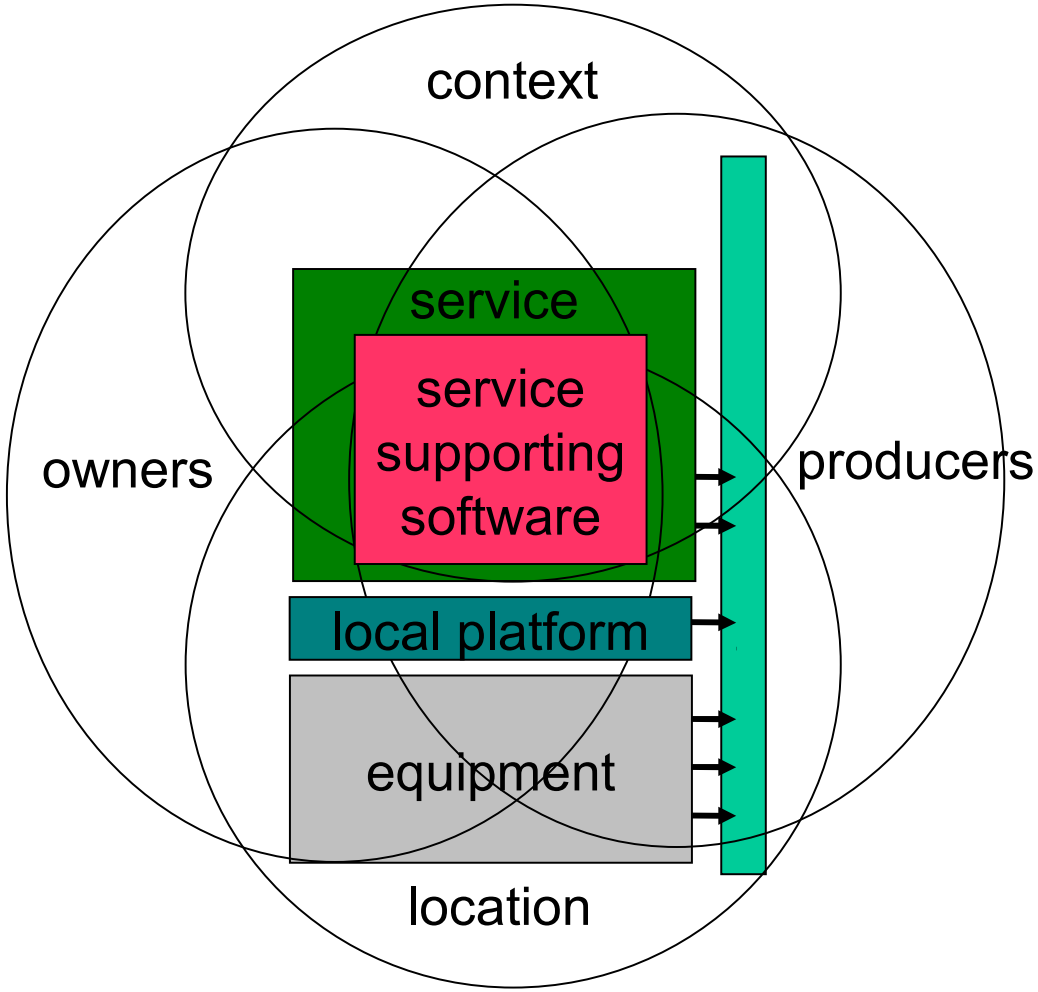




Software engineering crises



Software-based services

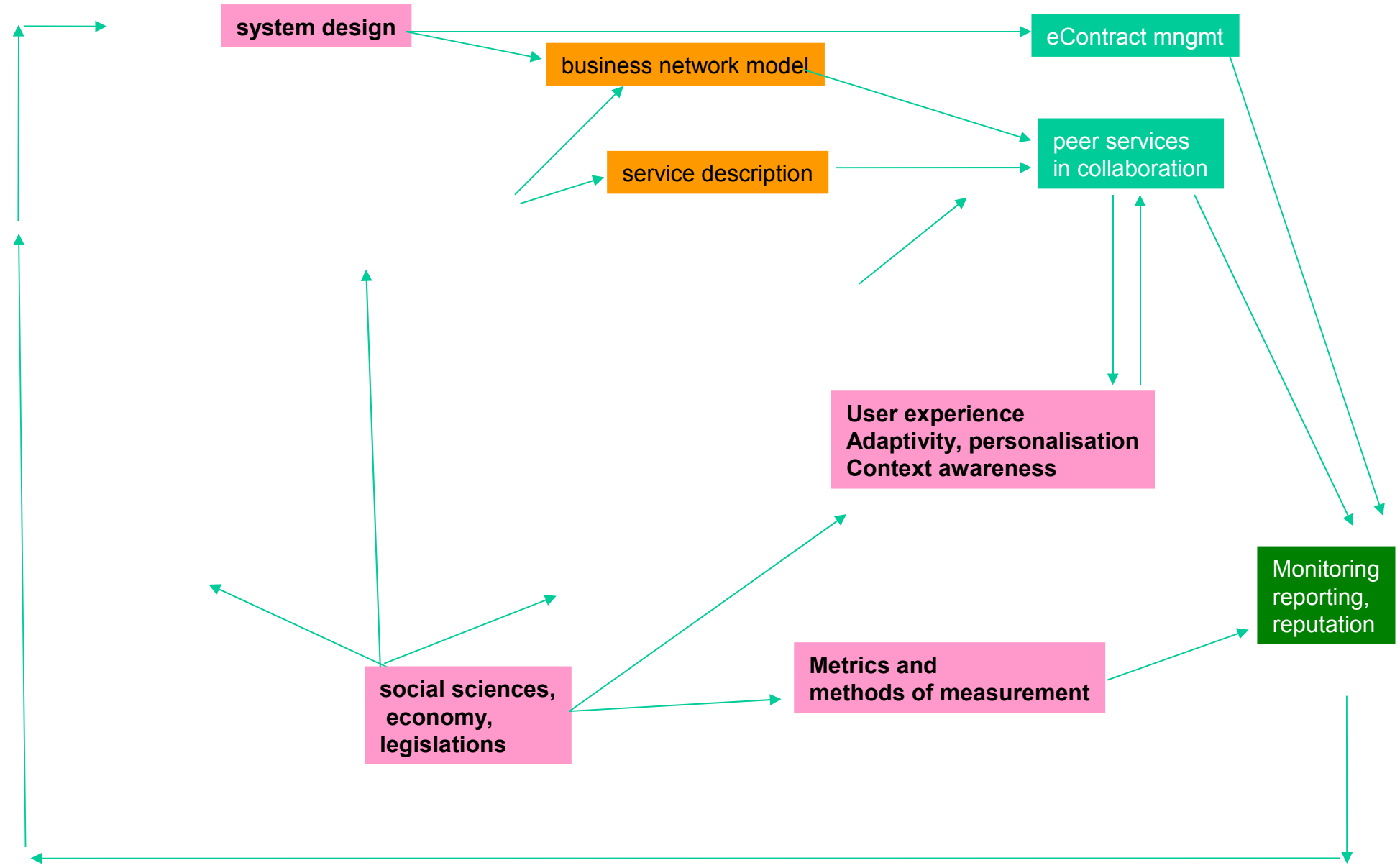


Properties of a service?

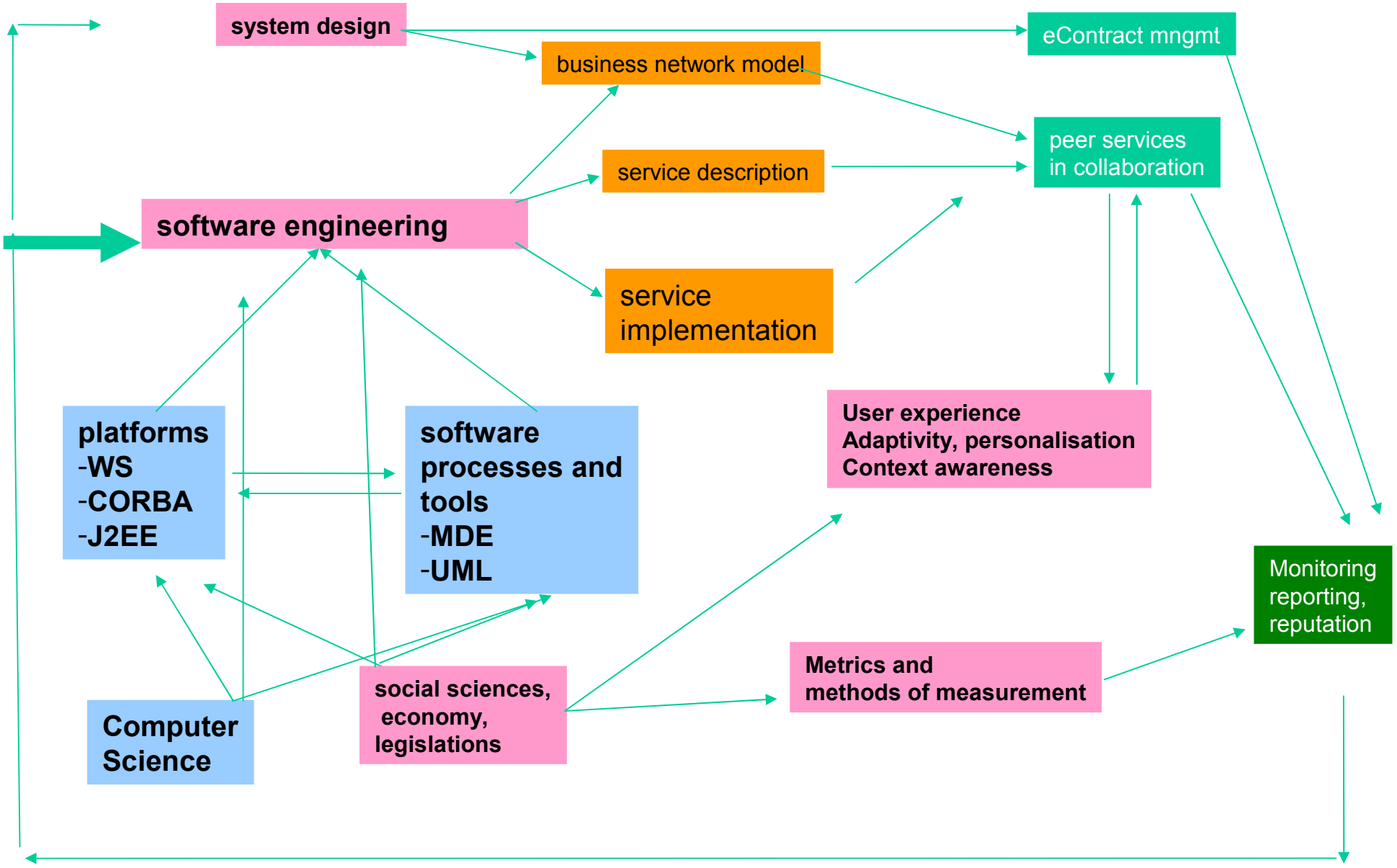
- user interaction / modalities
- adaptation or context awareness
- composability, collaboration ability
  interoperability, reputation
- usage cost vs properties
- qualities like nonrepudiation,
  transactionality

Challenges for the software!

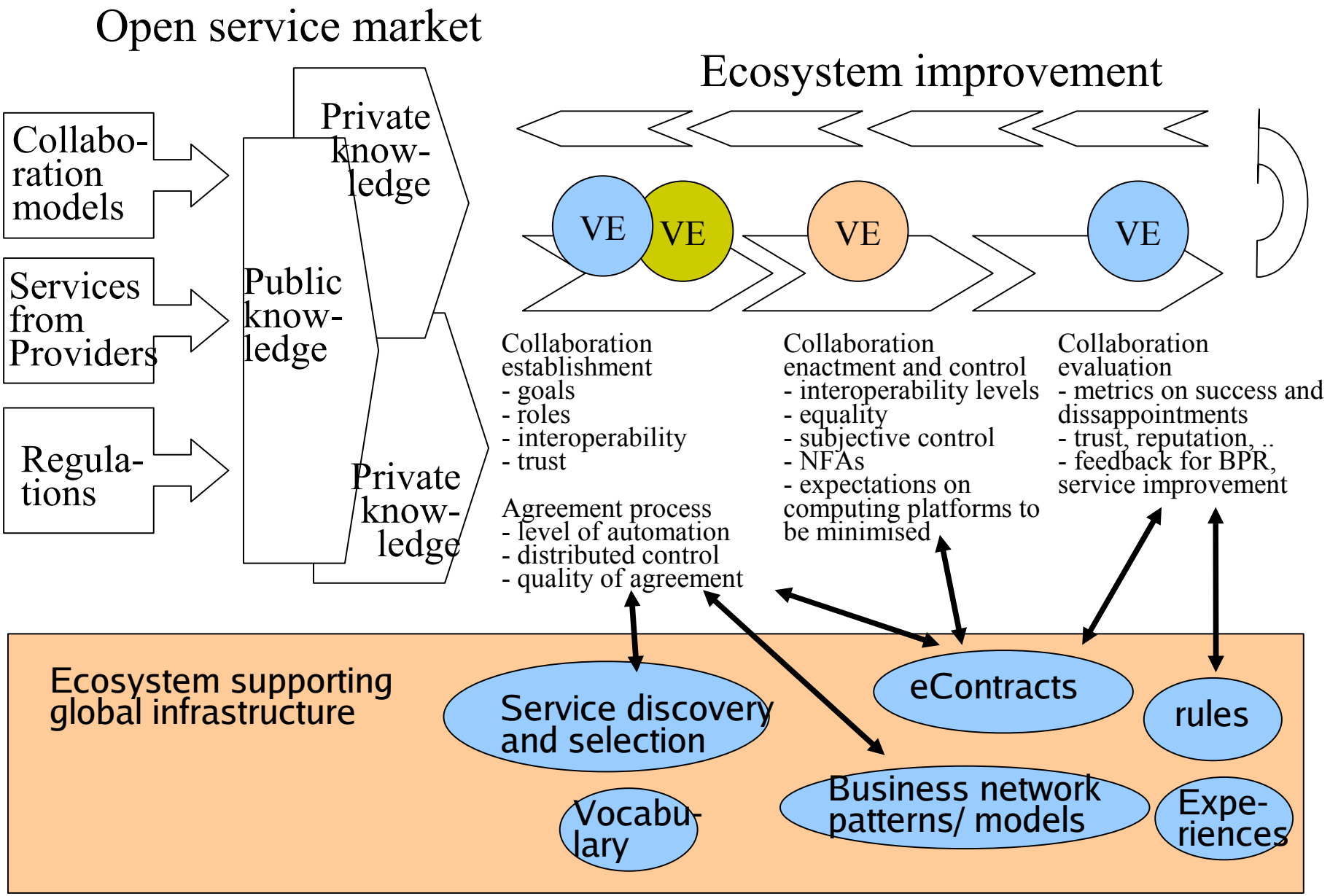
Transition from traditional SE towards SOSE



Transition from traditional SE towards SOSE

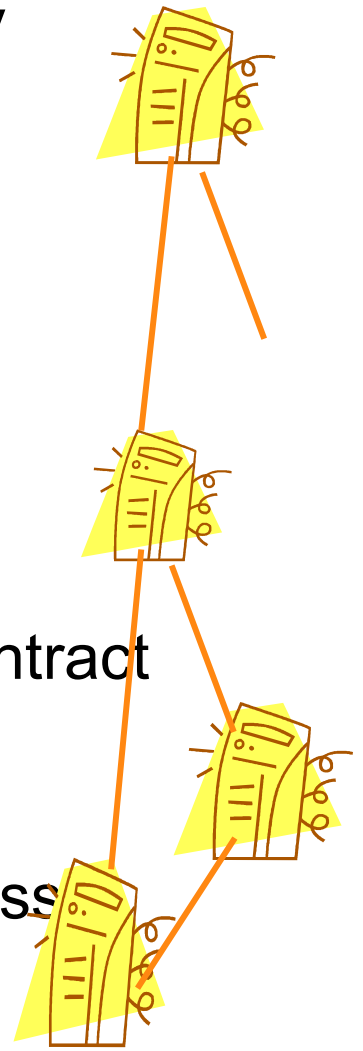


CINCO group vision: Open service ecosystem



Properties produced by SOSE

- Service availability from open ecosystem
  - Tool support for ensuring dependability and suitability
  - Shared vocabulary on service negotiation and management
  - Reusability and replaceability of services
- Composition of added-value services
  - Interoperability: pragmatic, semantic
  - Contract breach and recovery
  - QoS and NFP (nonfunctional props) as part of the contract
- Service management facilities even for the user
  - Multichannel services
  - Self-controlled services: adaptation, context-awareness



Service quality aspects in the ecosystem

Traditional

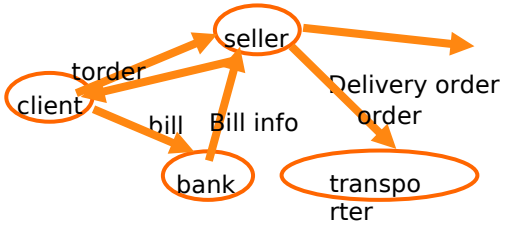
- Software implementation view
  - Internal quality measures
  - Missing features
- Production process maturity
  - collection of feedback from all steps of process
- Organisation
  - Controlled by one organisation
  - “Factory”, product family

Service oriented

- Service usage view
  - External quality measures
  - Goals
  - Not only software measures
- Maturity and multifacetness of processes of production, composition, control and usage
  - The operational environment is instrumented for collecting feedback
  - Operational environment has effect on the use and behaviour of the software; control of services
- Organisation
  - Federated, ecosystem; no signle controller
  - Shared knowledge bases support evolution
  - Also the business cases / models get iterated for better validity

Learning goals

- Skills and knowledge for architecture work that becomes increasingly critical
  - Enterprise architecture
  - Business network architecture



New concepts and architectures

Current environment for design, existing systems, company maturity

Tools developed to support previous phase concepts

- Routine of following and assessing new developments on processes, tools and Infrastructure services that build SOSE environment

Learning goals

- Principles in service ecosystem
  - SOA/SOC, infrastructure services, service lifecycle
- SOSE process and products
  - Services, models, patterns
  - Requirements for composability and interoperability
  - Process, supportint tools
  - Producing required service quality
- Models
  - Role of models in the ecosystem
  - Modeling technique and tools for various artefacts
  - Understanding transformations
    - Impact in heterogeneity and evolution management
    - Techniques within tools; quality of products

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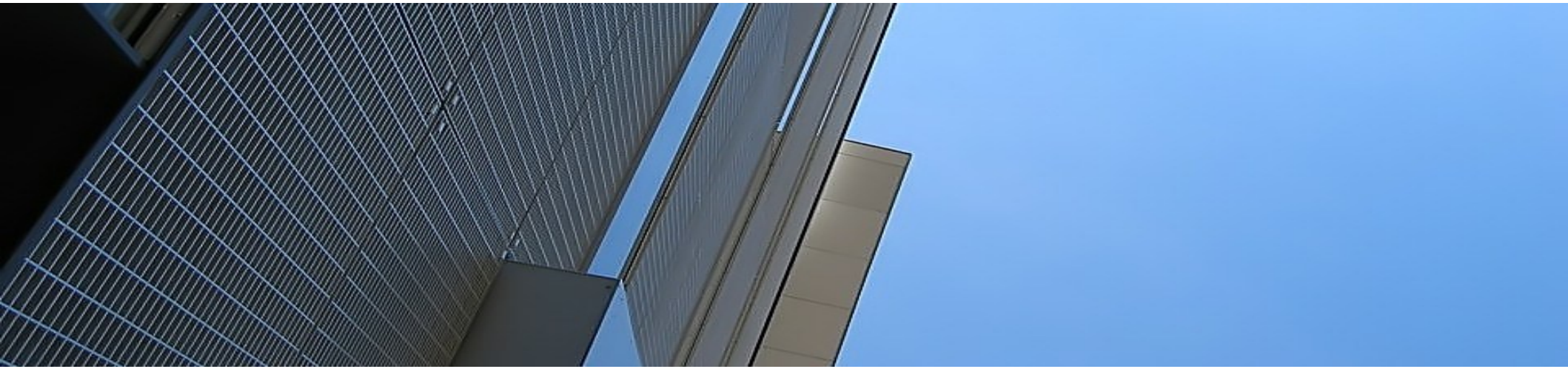

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