



Interoperability in Industrial SoCPS

Professor Jerker Delsing
Luleå University of Technology





2030 VISION FOR INDUSTRIE 4.0

● **Interoperability**

- Cooperative and open ecosystems permit plurality and flexibility
- Regulatory framework, Standards and integration, Decentralised systems and artificial intelligence

● **Autonomy**

- Scope of action delivers competitiveness and control of personal data in digital business models
- Technology development, Security, Digital infrastructure

● **Sustainability**

- Modern industrial value creation ensures high standard of living
- Decent work and education, Climate change mitigation and the circular economy, Social participation

SoS, Embedded intelligence and SoCPS requirements

- **Evolvable** IoT, Architectures, Platforms, Tools and business models
- **Distributed** intelligence
- **Autonomous** operation and **evolution**
- **Robustness** over life time
- **Simplistic** and possibly **autonomous engineering**
- ...
- ...

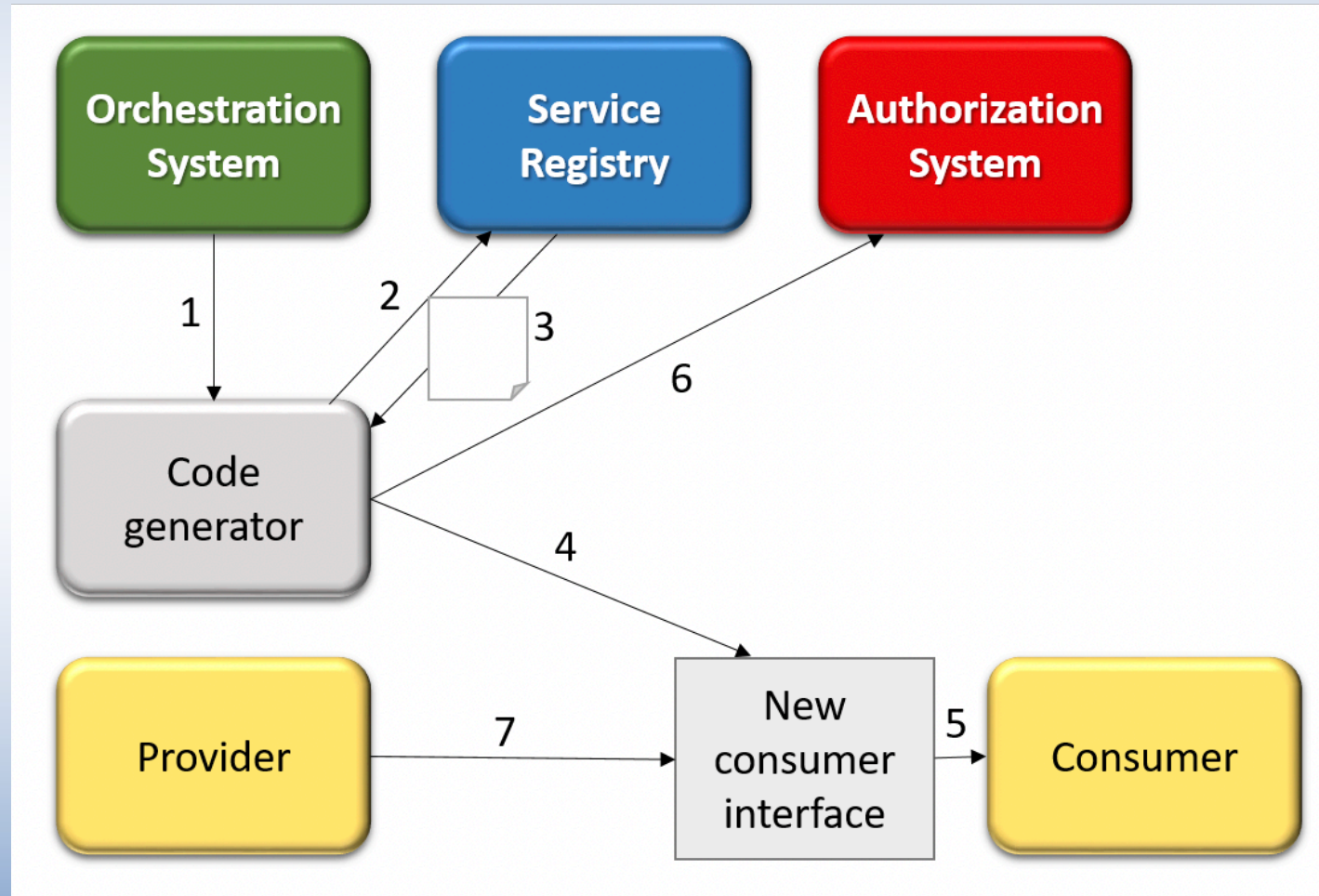


SoS Engineering

Feature	Systems engineering	System of Systems engineering
Focus	Single system	Multiple integrated complex systems
Objective	Optimization	Satisfying
Problem	Defined	Emergent
Analysis	Technical dominance	Contextual influence dominance
Boundaries	Fixed	Dynamic



Autonomous interoperability engineering



SoS and SoCPS behaviour are multidimensional

Do we have a consistent theory?

NO

Can we model SoS solution?

Singel dimensions - **Yes**

Multidimensional - **May be: multidimensional simulators?**

If **AI** is involved?

Do we understand AI behaviours?

IoT's and SoS behaviour will have un-certainties!

May lead to non-predictable SoS solution,
chaotic behaviours!





JERKER DELSING

jerker.delsing@ltu.se

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