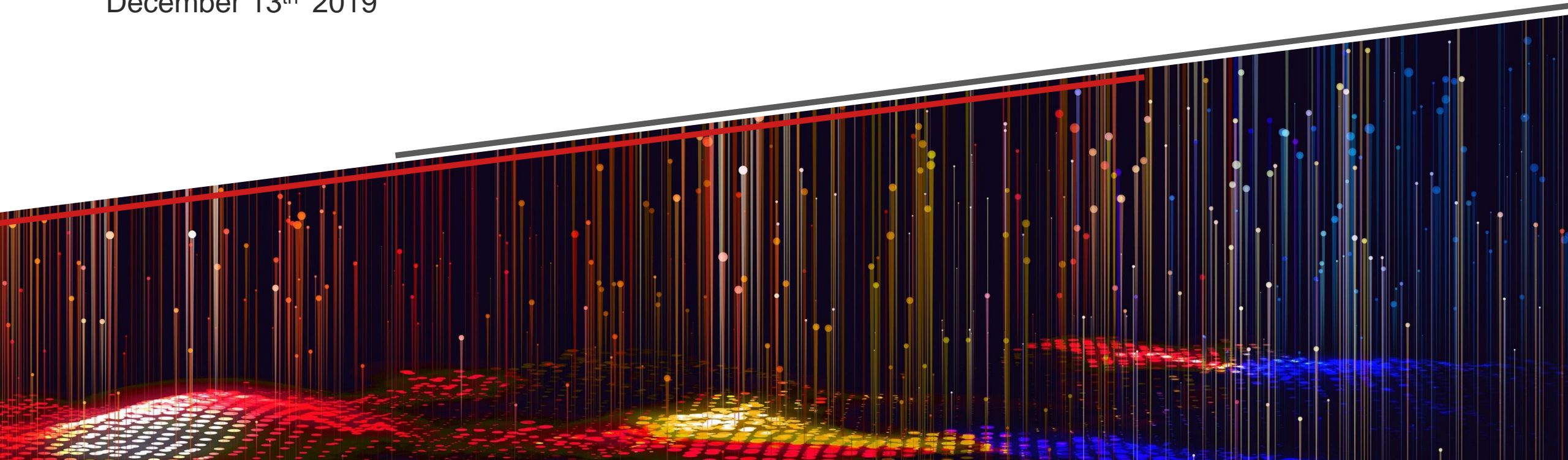




Enterprise IT Architecture for Modeling Systems of Systems CSD&M, Paris

Dr. Michael Pfenning

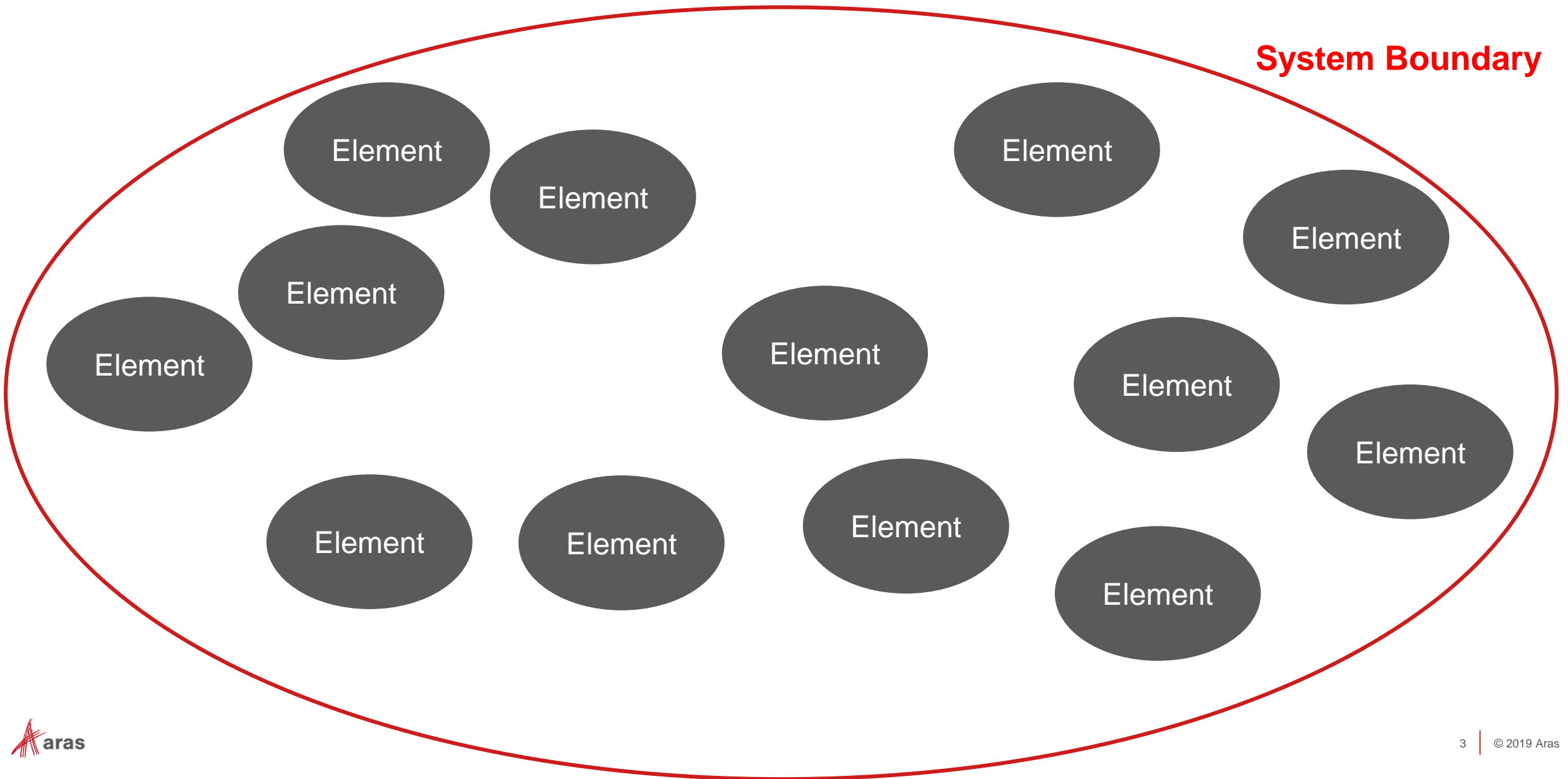
December 13th 2019



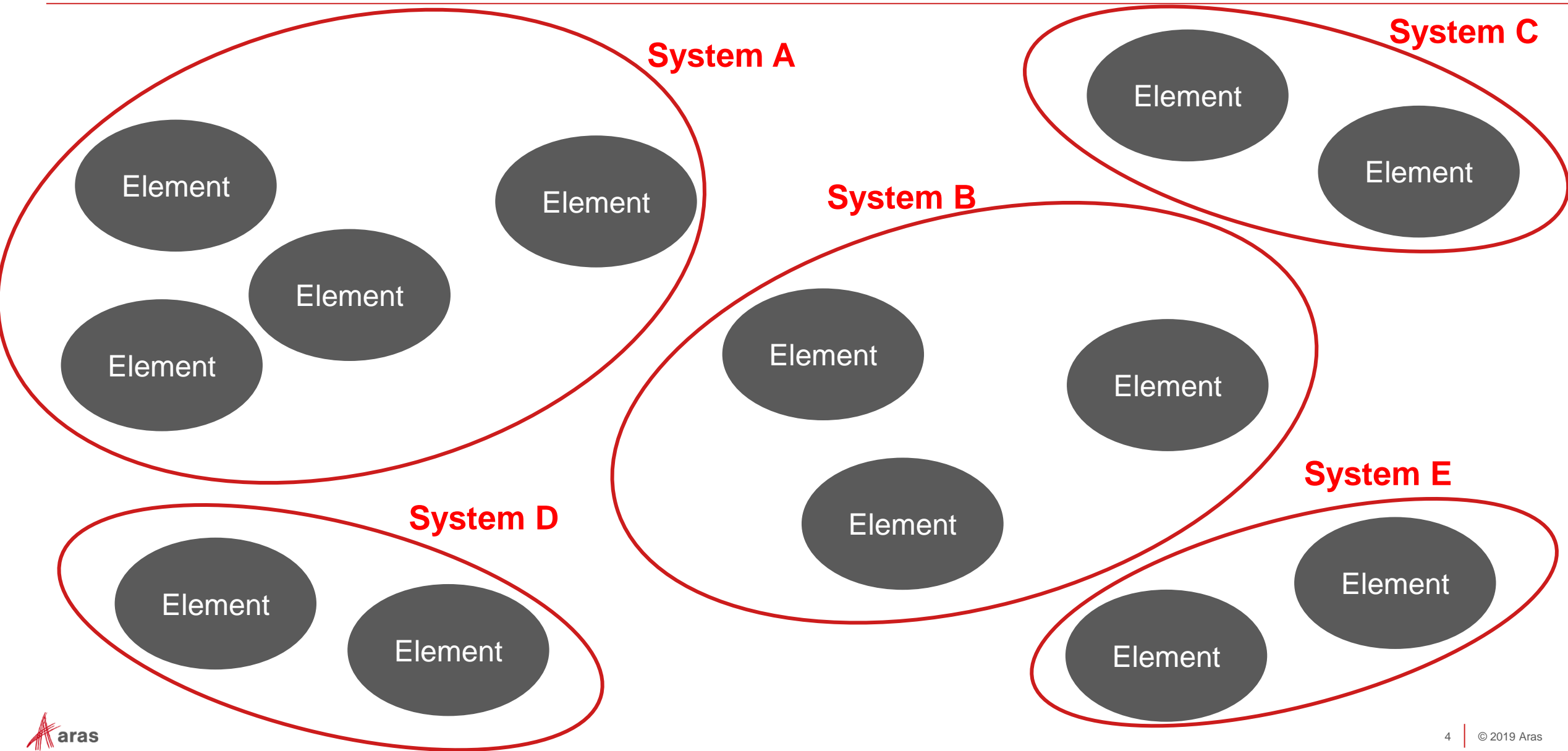
System of Systems



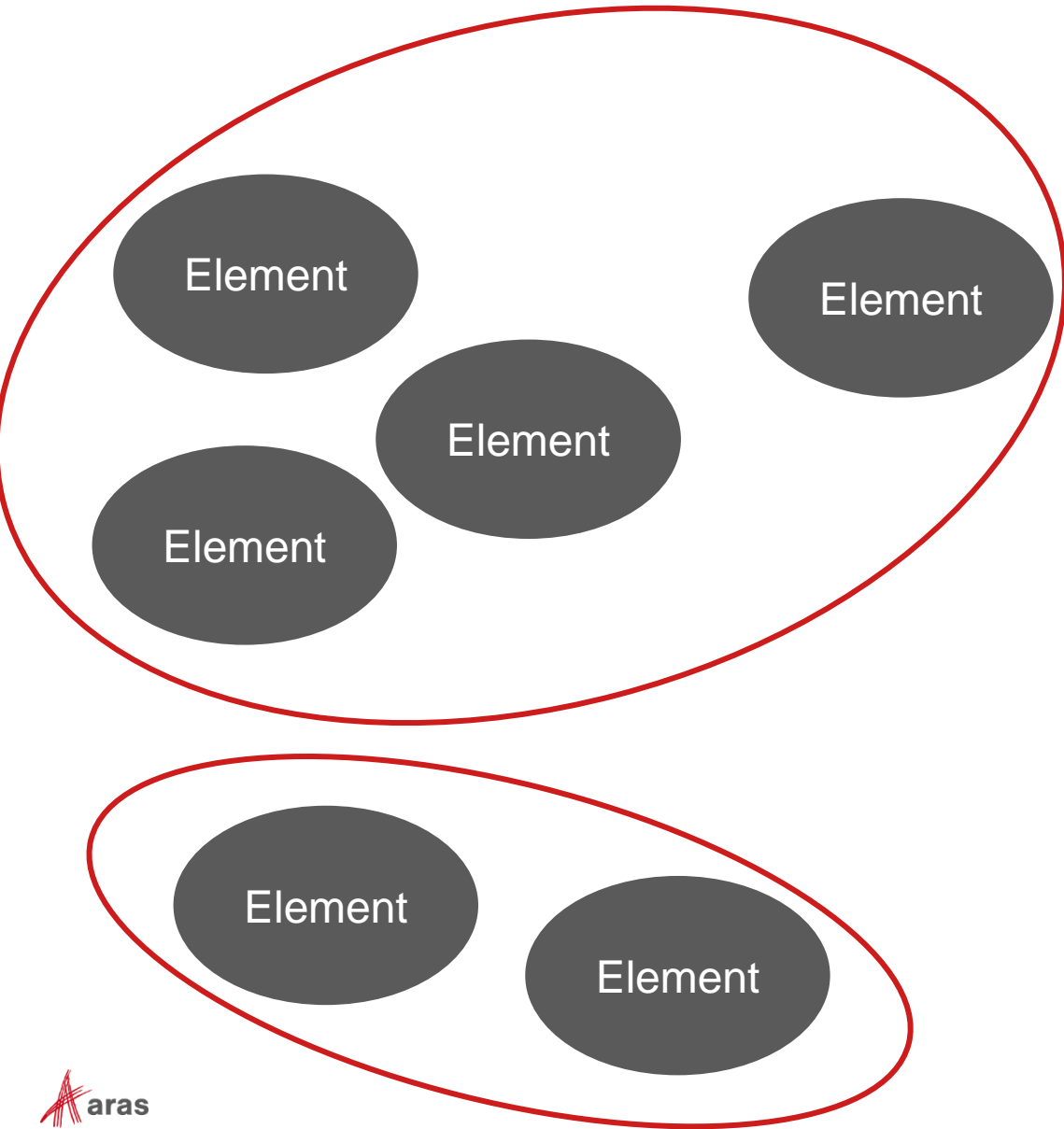
System vs. System of Systems



System vs. System of Systems



System vs. System of Systems



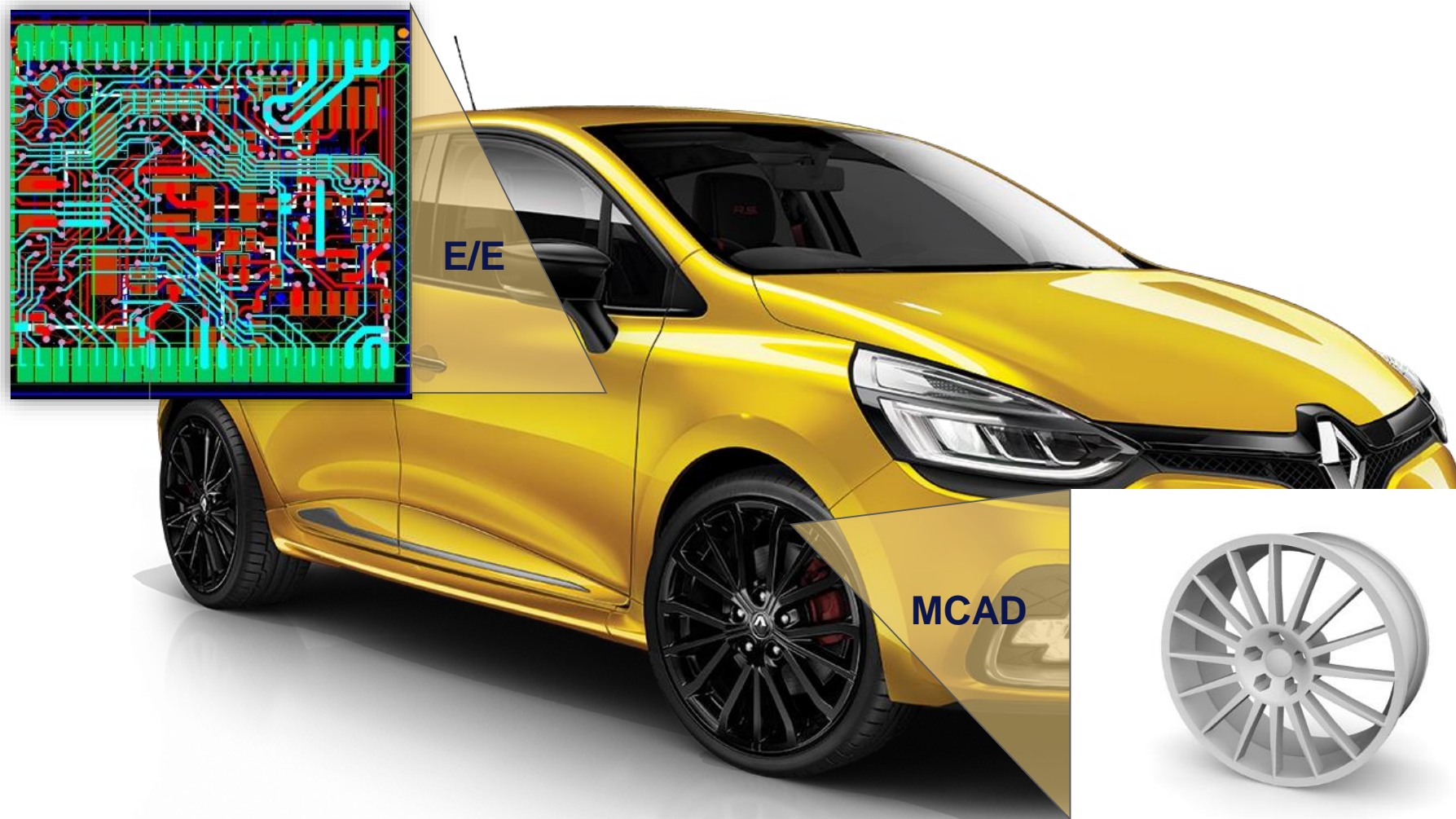
1. Operational Independence
2. Independent Management
3. Evolutional Development
4. Emergent Behaviour
5. Geographical Distribution

What is the challenge for IT?

Product

System

The zoo of models

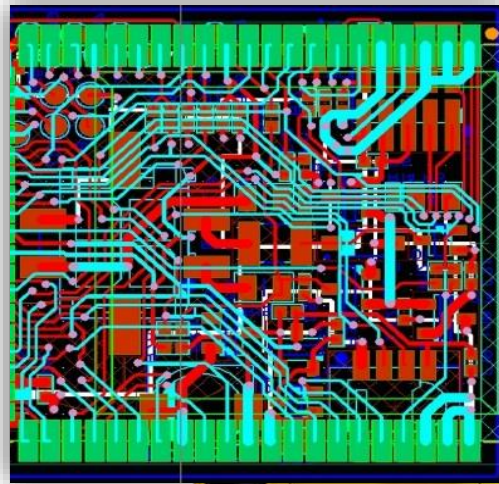


What is the challenge?

Product

System

The zoo of models



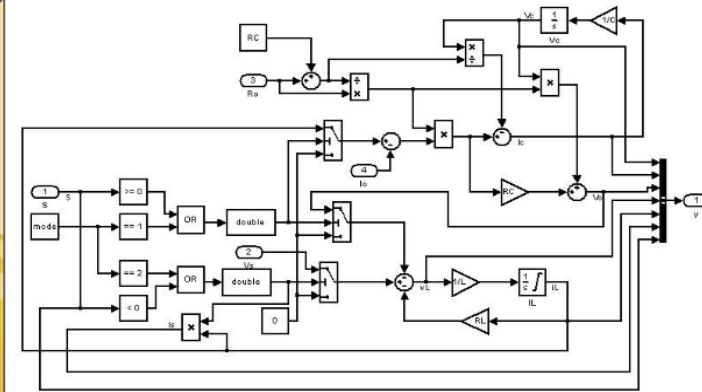
E/E

```
import lejos.nxt.*;

public class Hello
{
    /**
     * The main method is where your program starts
     */
    public static void main(String[] args) throws Exception
    {
        // makes a buzzing sound
        Sound.buzz();
        // shows text on column 3, row 4 of the LCD
        LCD.drawString("I am alive !!", 3, 4);
        // pauses 2000 ms (= 2sec)
        Thread.sleep(2000);
        // makes another buzzing sound
        Sound.buzz();
        // end of program
    }
}
```

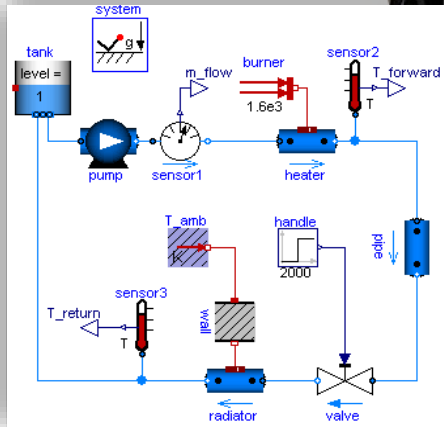
Sourcecode

Control
Flow
Simulation



System
Architecture
Model

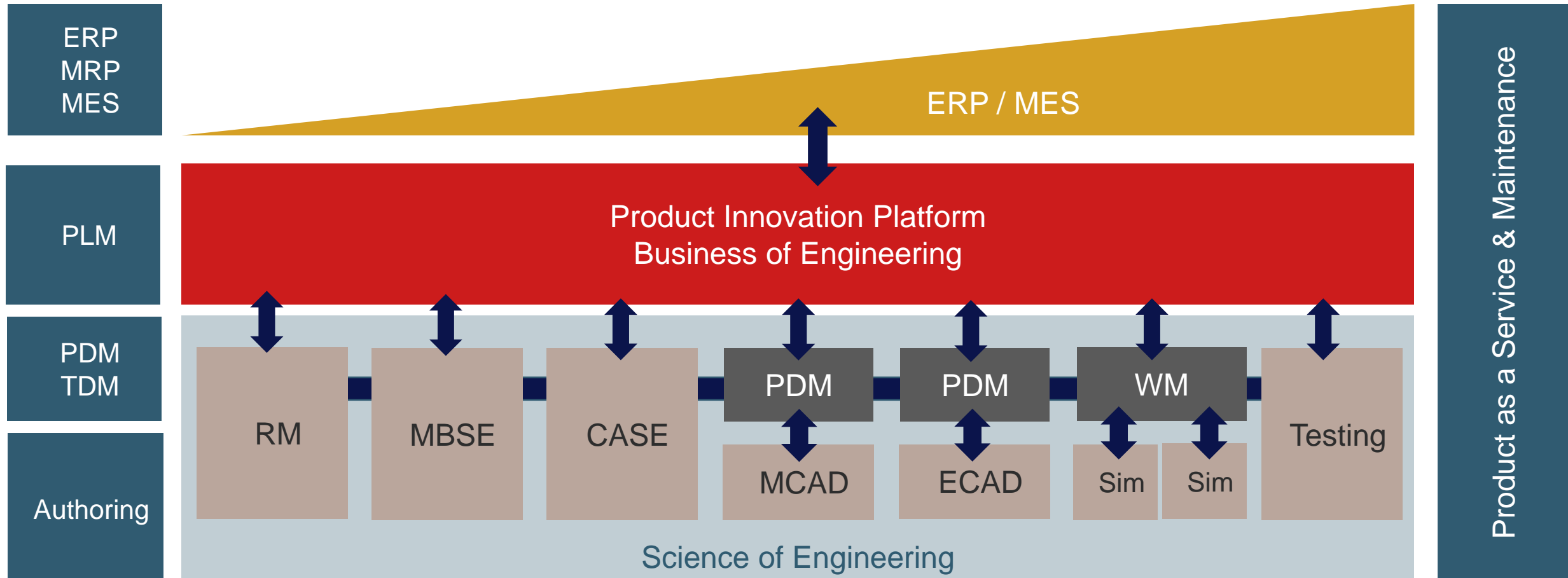
Physical
Interaction
Simulation



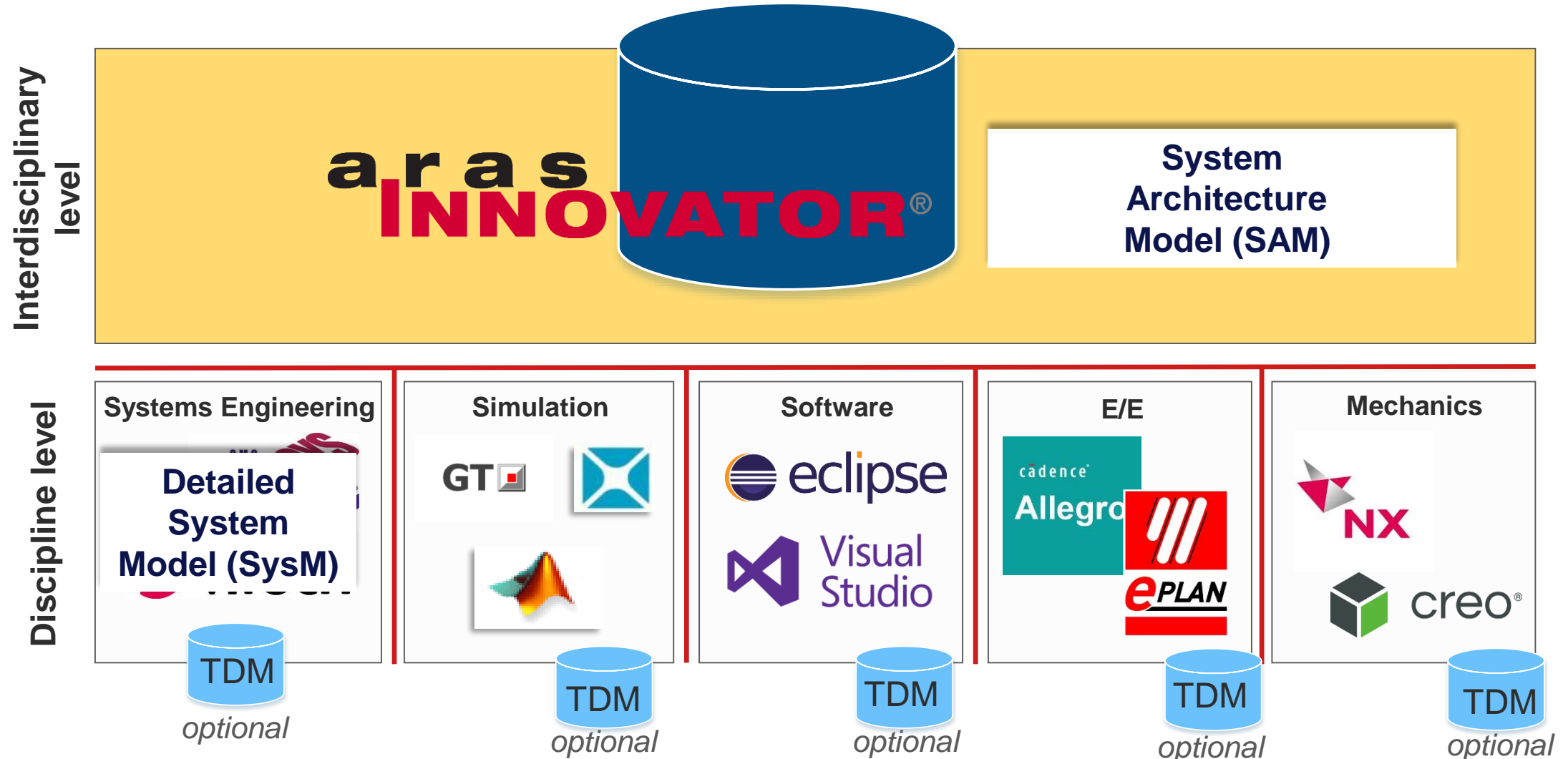
MCAD



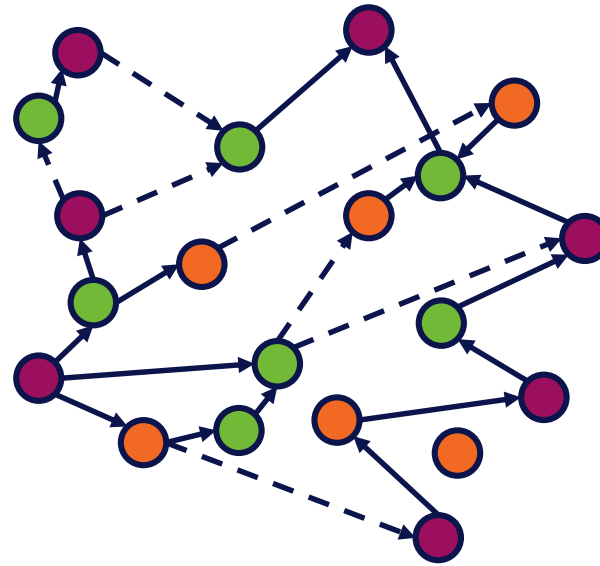
Automotive IT Landscape → Platform



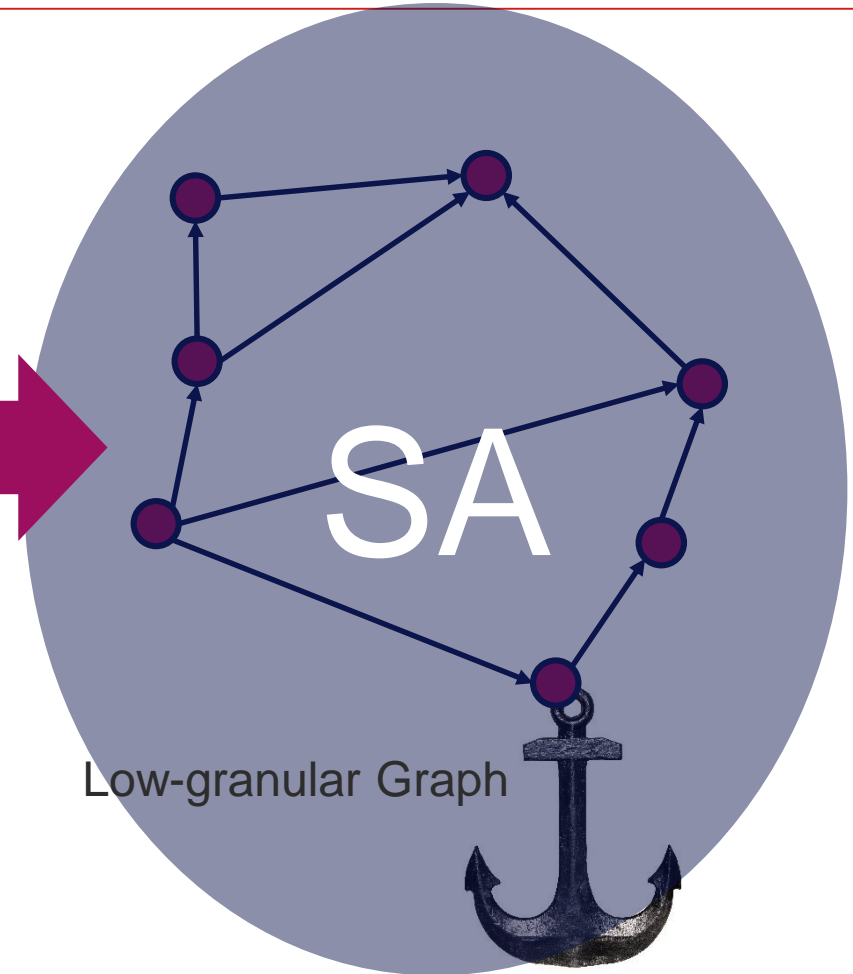
Interdisciplinary Architecture



What is a SA Model?



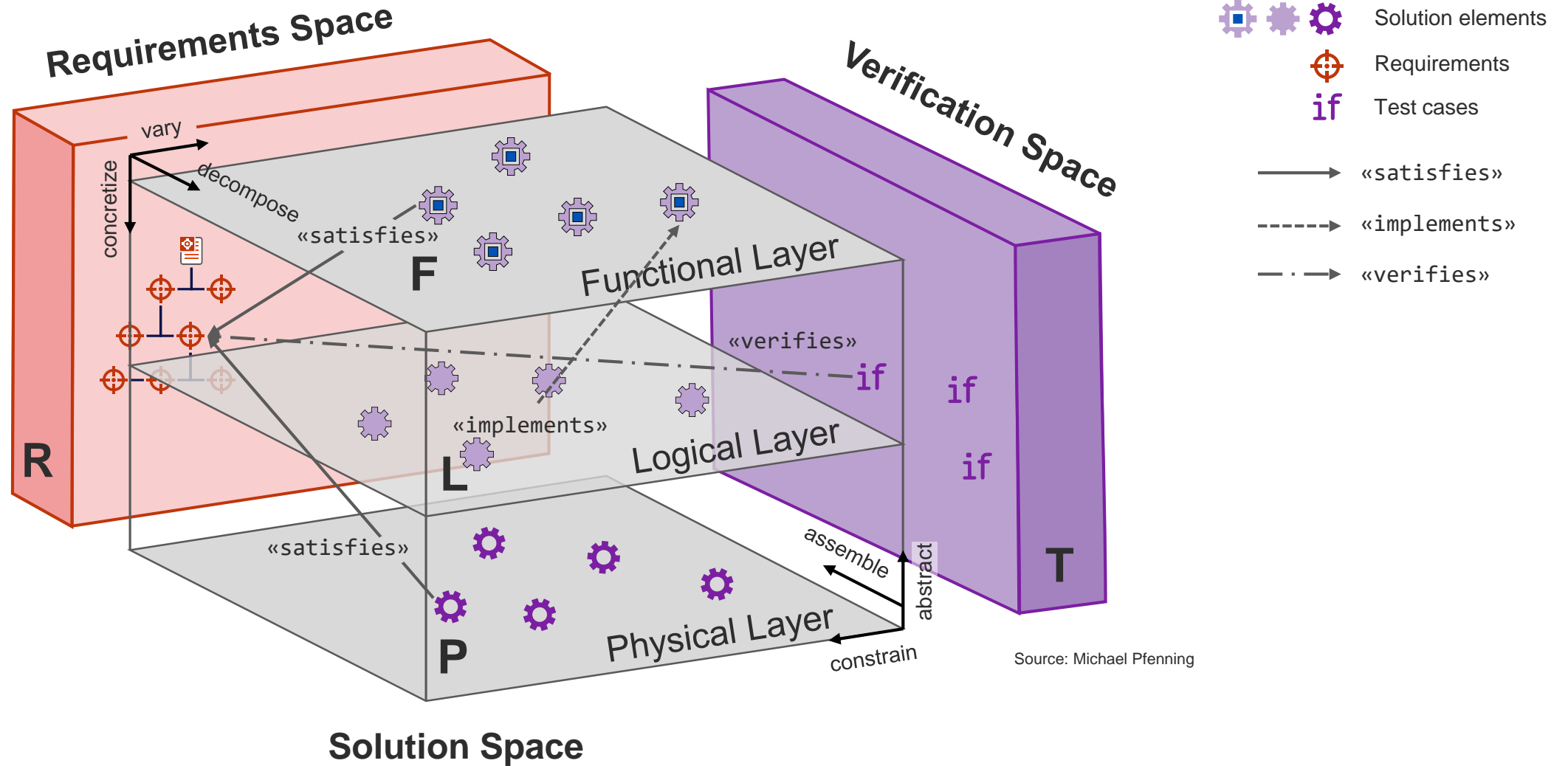
High-granular Graph



Low-granular Graph

System Concretion Model

■ RFLPT

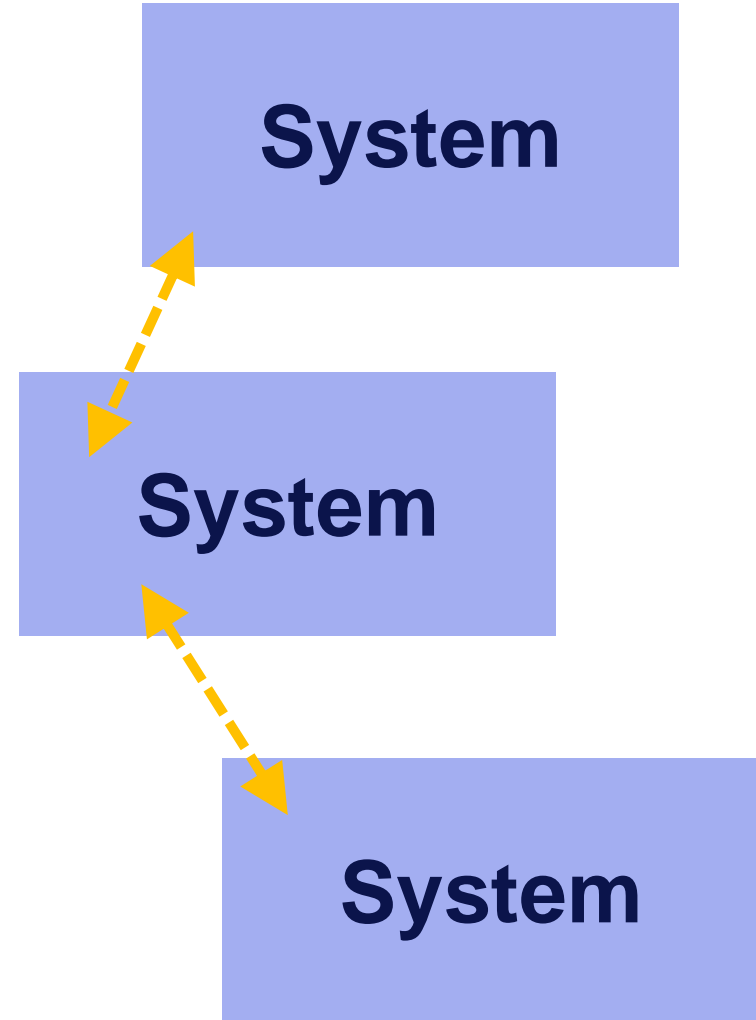


Source: Michael Pfenning

What is the challenge?



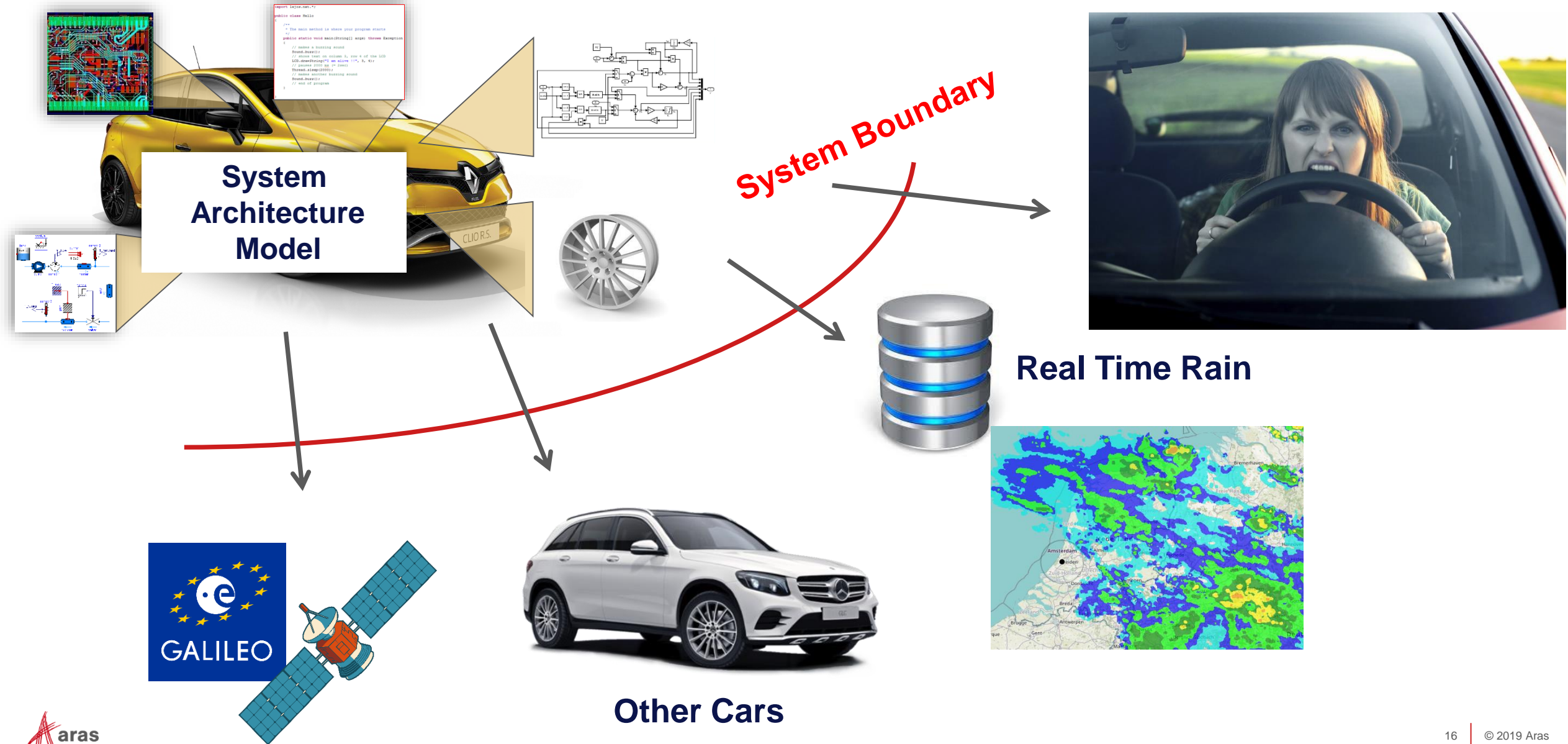
It is mainly about:
1. Connectivity
2. Interfaces



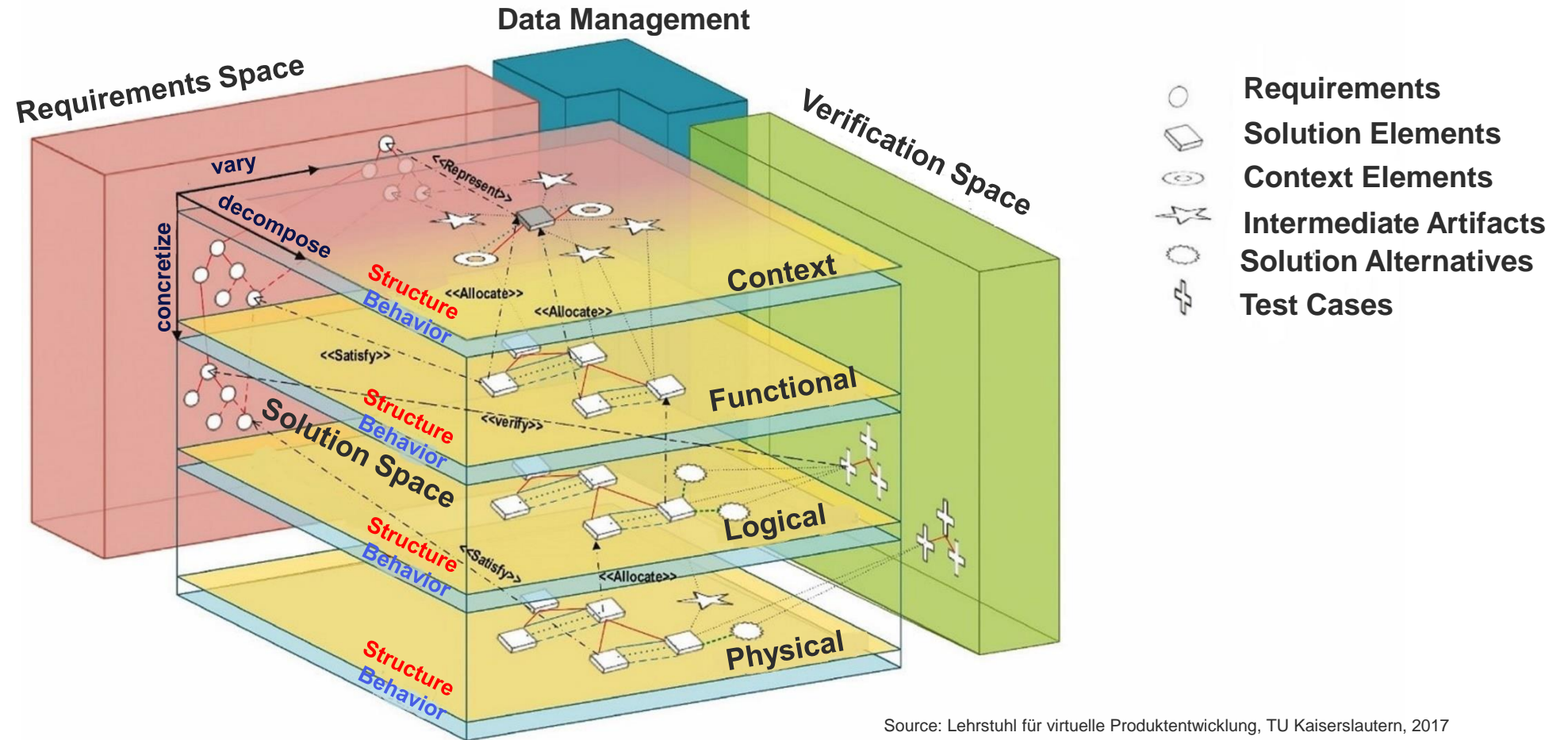
Amazon delivers to your trunk



The System Context



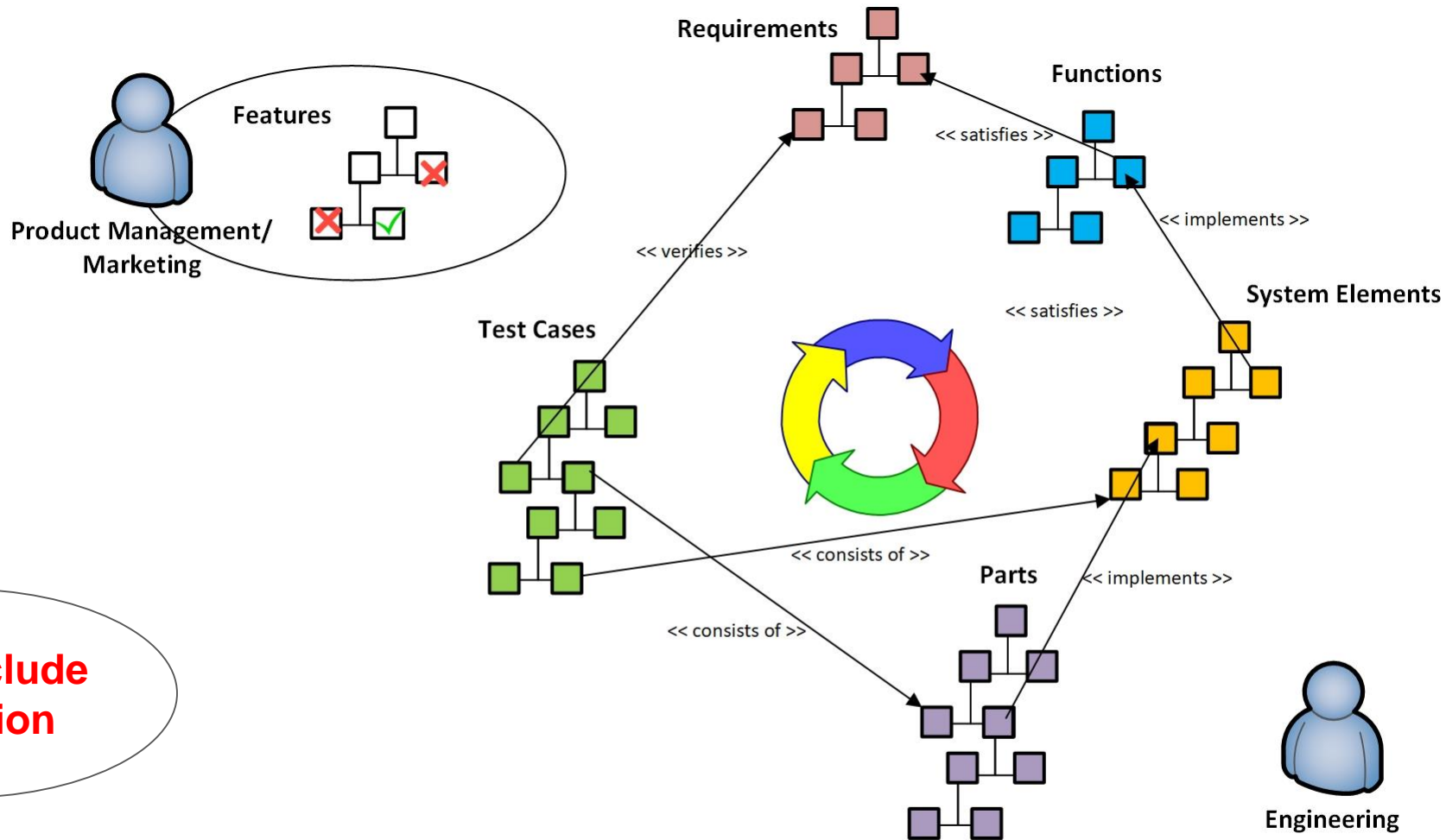
The Kaiserslautern' System Concretion Model



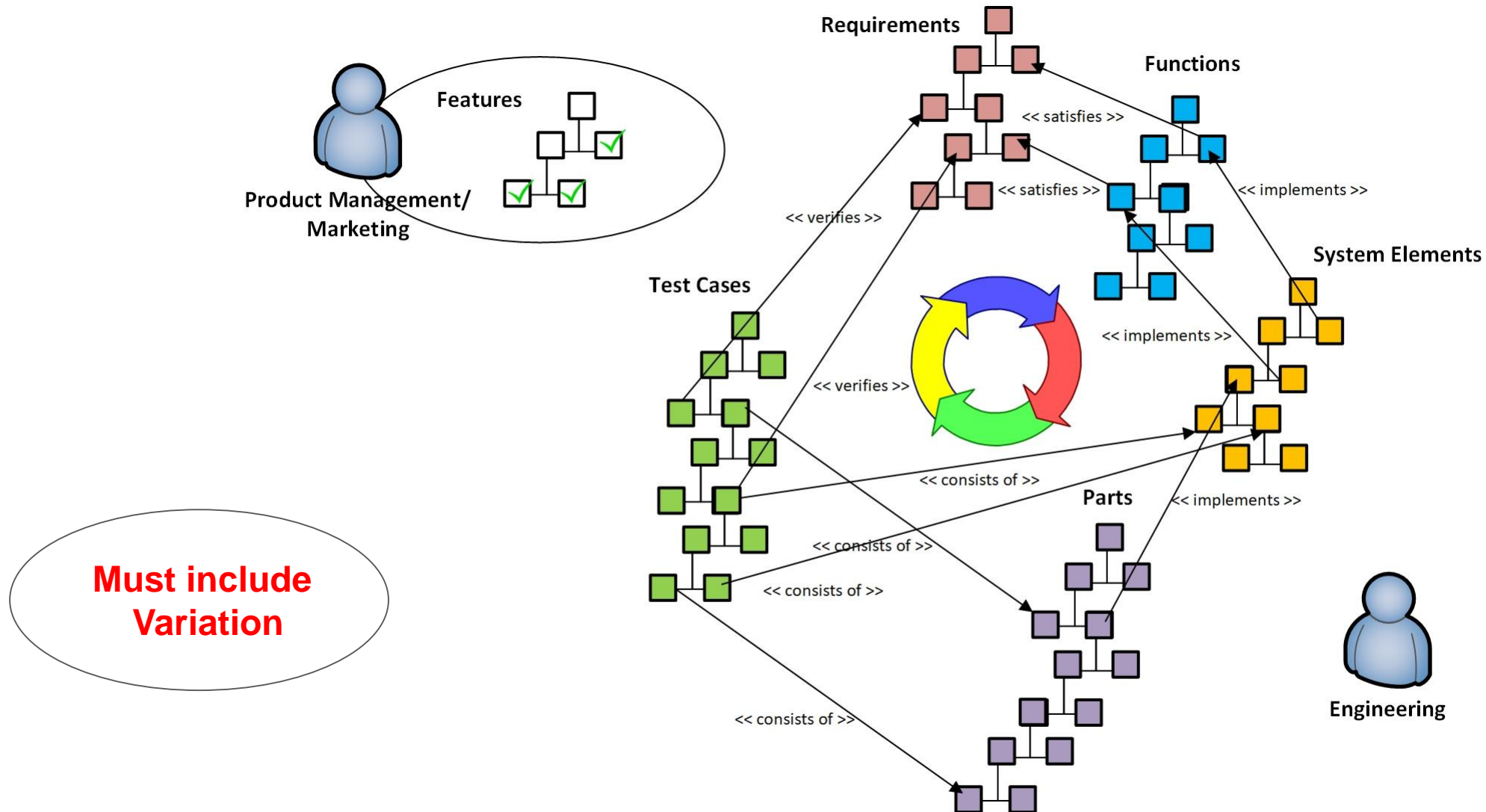
Source: Lehrstuhl für virtuelle Produktentwicklung, TU Kaiserslautern, 2017

For SoS the System Context Layer needs to be added!

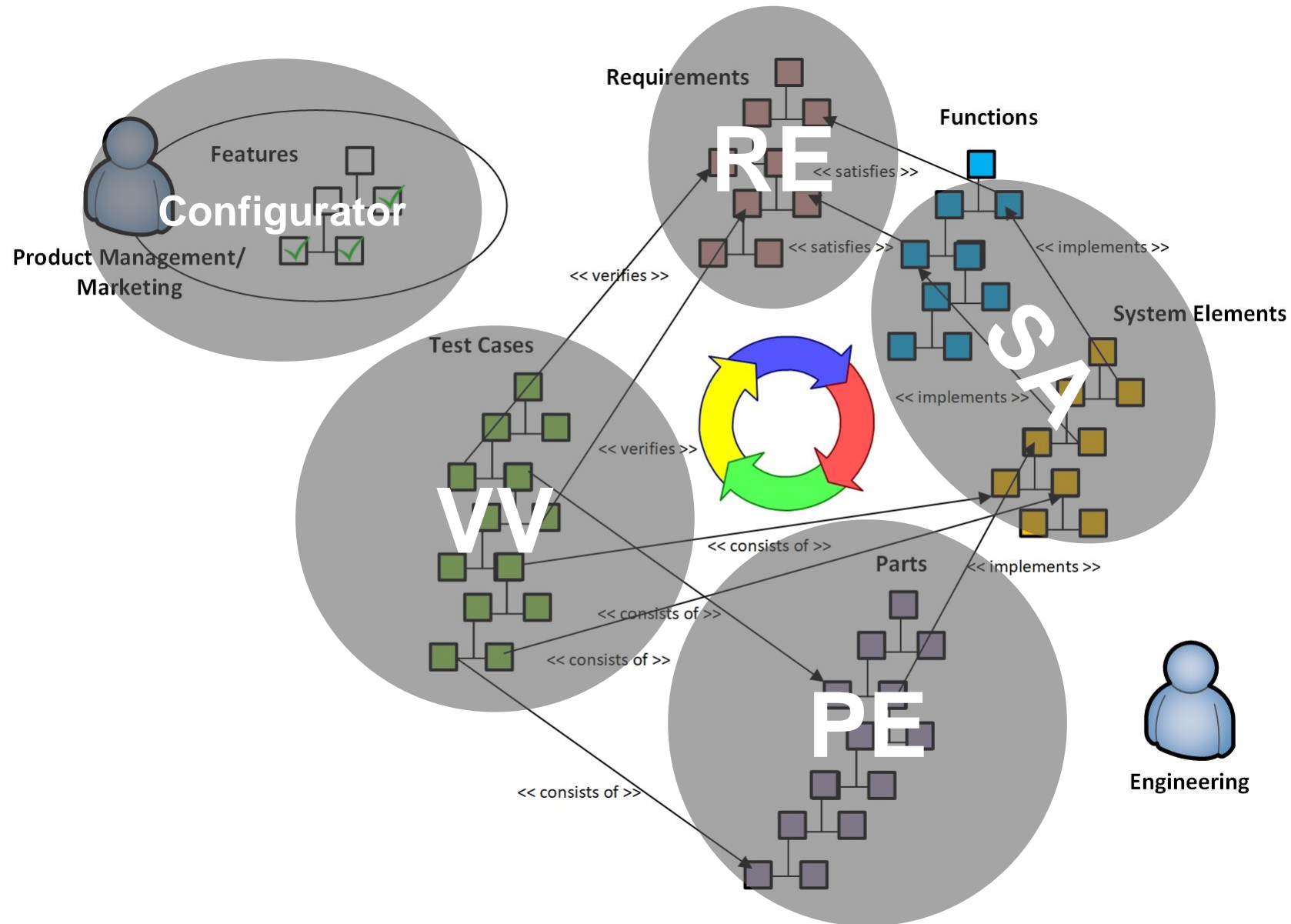
Global Configuration



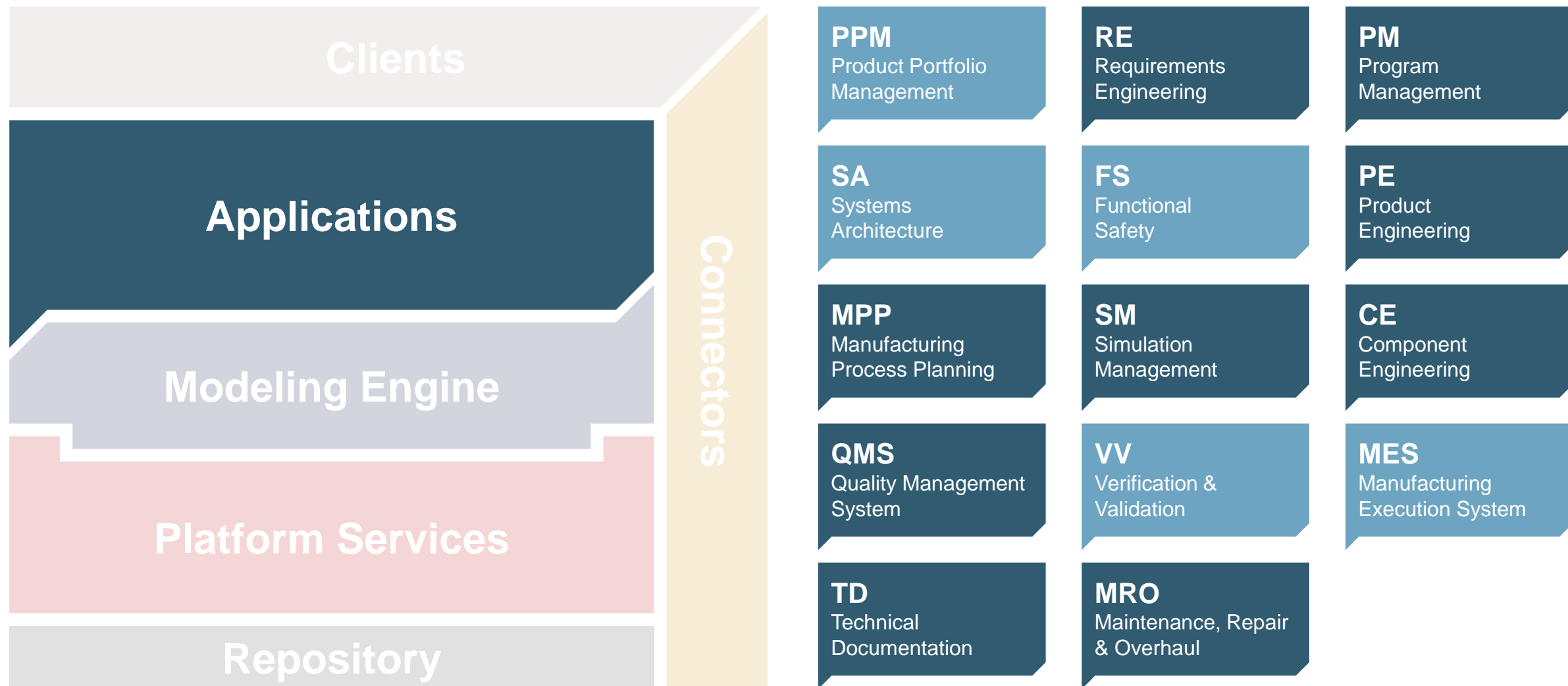
Global Configuration



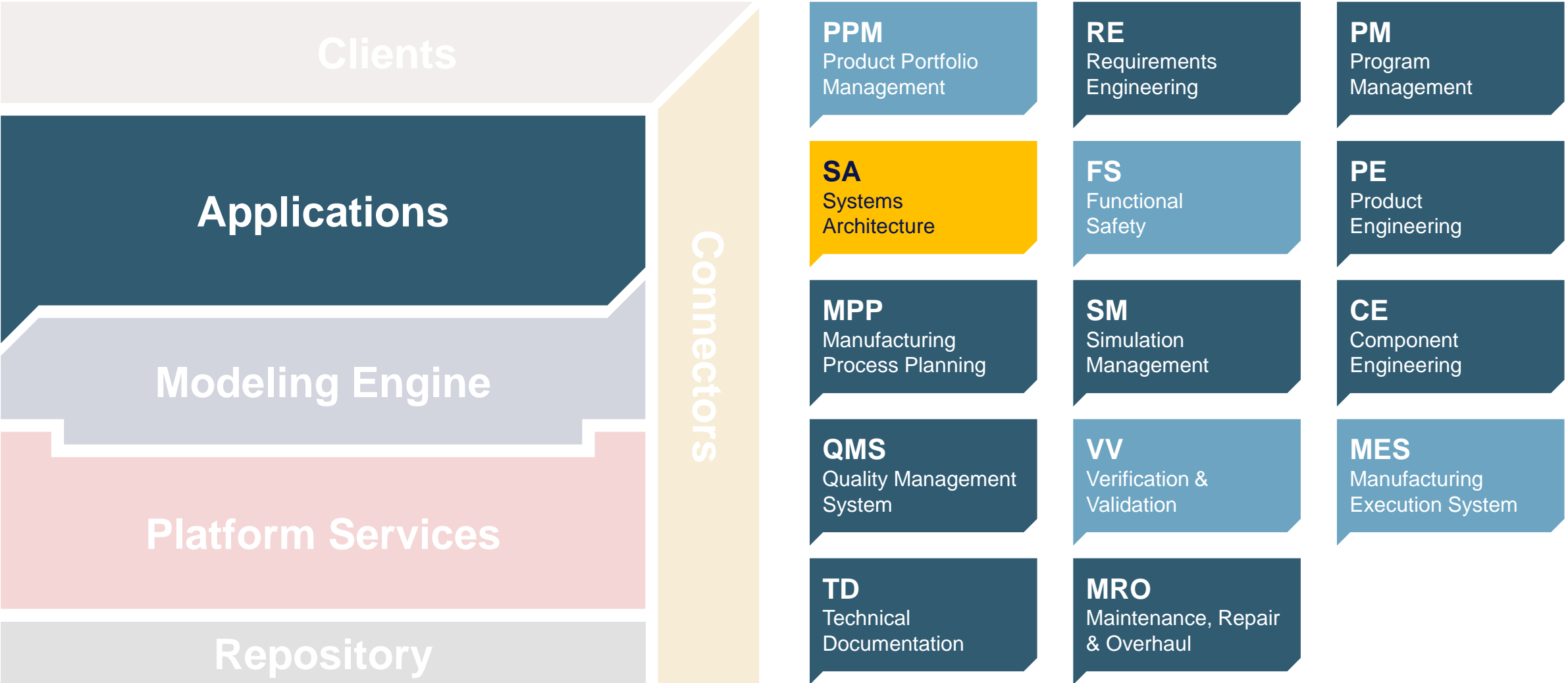
Global Configuration



Platform Applications



Platform Applications



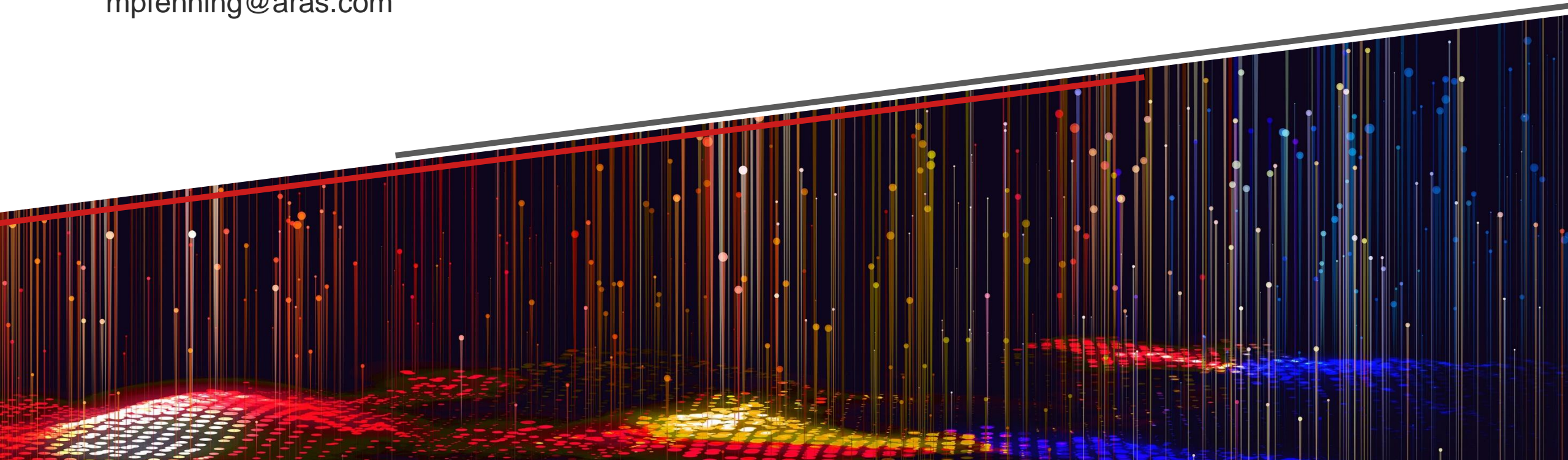
AVAILABLE FUTURE



Thank You

Michael Pfenning

mpfenning@aras.com



MagicDraw (aka Cameo SM) Connector

- ARAS has developed a couple of PoCs in this area already (as shown on the video)
 - With University of Kaiserslautern
(<https://www.youtube.com/watch?v=FlpuCbktYCU>)
 - With NoMagic (before the Acquisition by Dassault)
 - For an automotive OEM
- There is no standard connector on the ARAS Roadmap
- ARAS usually handles connectors in two ways:
 - Project-based development by service resources (ASF)
 - Partners

 **CAMEO**
SYSTEMS MODELER™