

# SmartSoft SmartMDSD

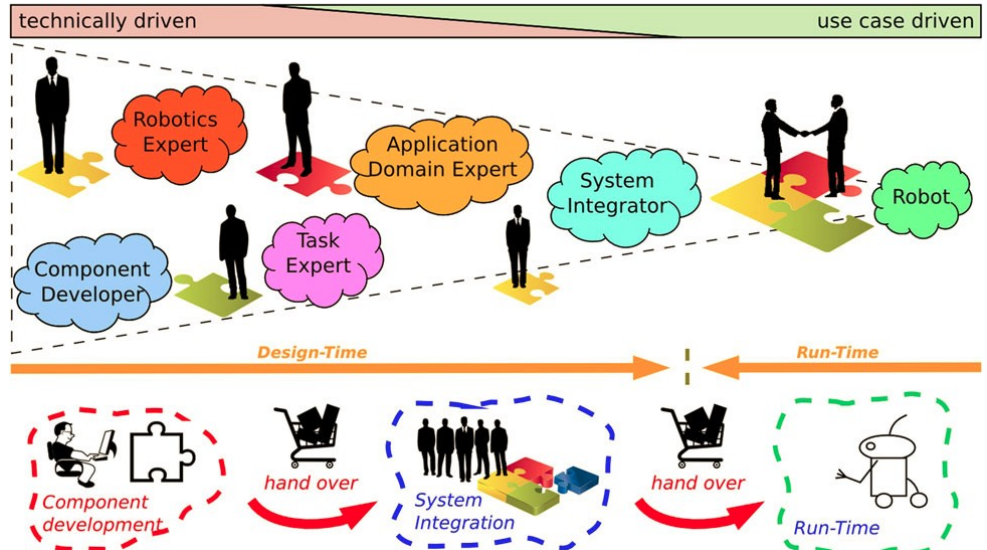
## Open Source Integrated Model-Driven Development Environment for Robotics Software

**Vision:** Create a business ecosystem for robotics software. Customers, lead producers, competitors, and other stakeholders are nodes in networks of relationships and are constantly co-evolving. Participants range from researchers over robotics professionals to system integrators and application domain experts as well as end users.

**Approach:** Service-oriented software component model and model-driven toolchain to support separation of roles and composability.

**Tools:** Model-driven tools for component developers, system integrators and professional end users. Automatic generation of component hulls for wrapping your algorithms and ensuring system level composability. Component selection guide for system integrators.

**Component Repositories:** Navigation, Vision, HMI, Task Coordination, Manipulation, and many more



- A **structured approach** (separation of roles) to manage software efforts and system complexity in building your real world robotic applications  
(The SmartSoft Approach)
- An **integrated toolchain** (model driven software development) that realizes this approach and supports your system development  
(The SmartMDSD Toolchain)
- A **set of reusable software components** for localisation, navigation, mobile manipulation, task coordination, human robot interaction, object recognition and many more for immediate reuse in your applications  
(Components)

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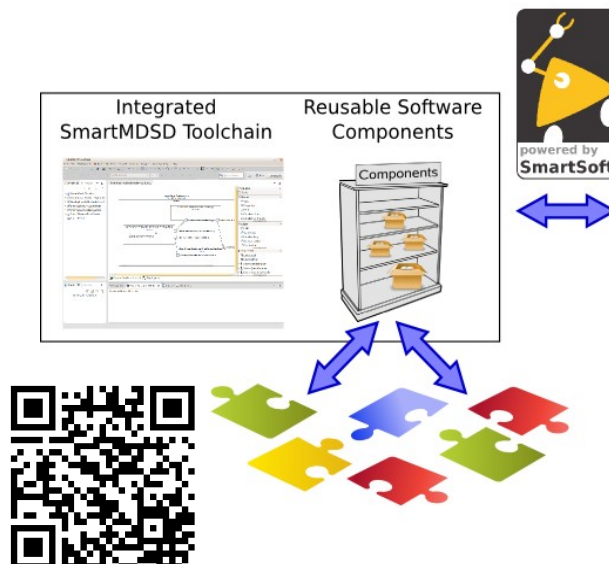
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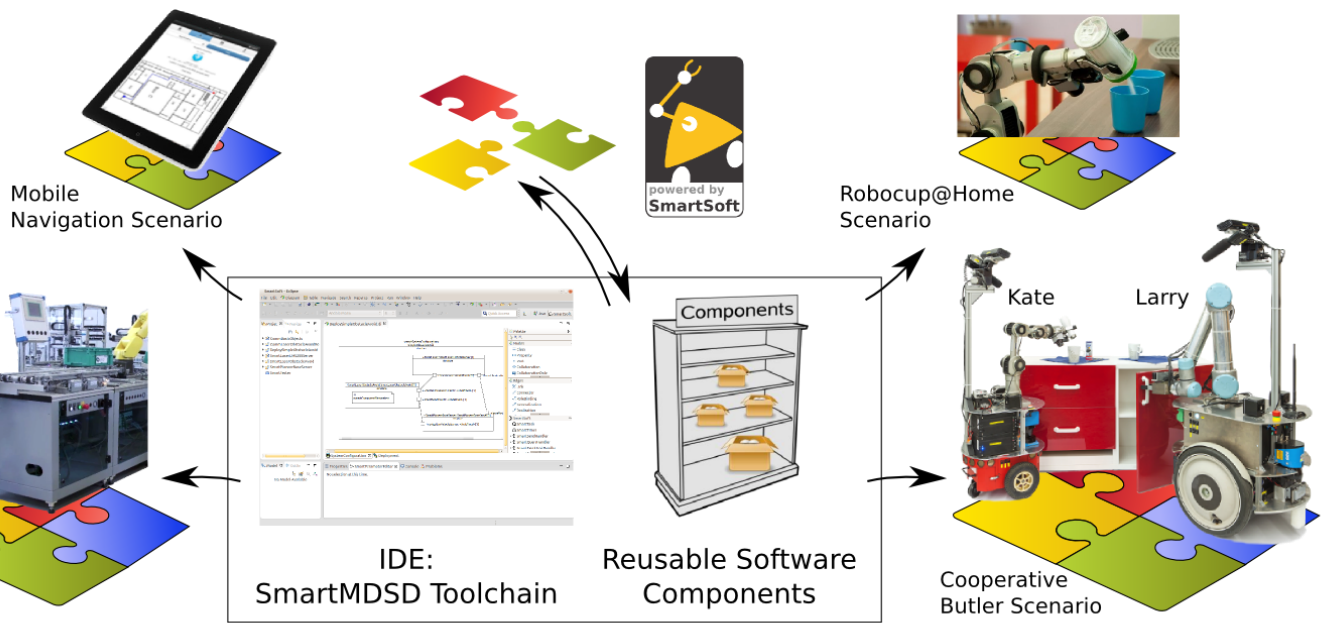
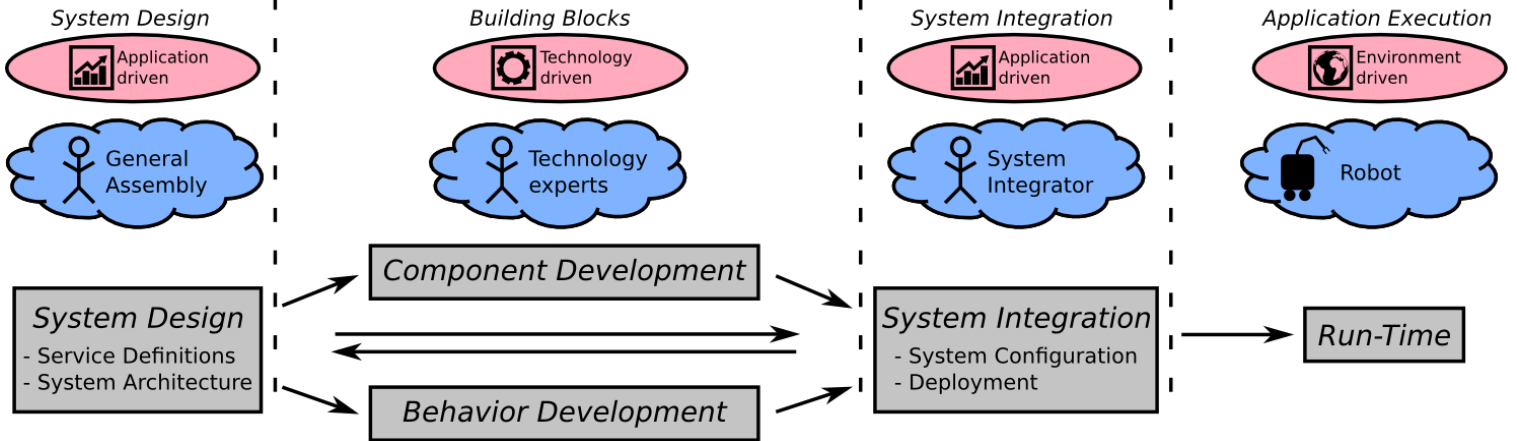
## Open Source Integrated Model-Driven Development Environment for Robotics Software

### Design and Development

### Run-Time

#### Whiteboxes to developer

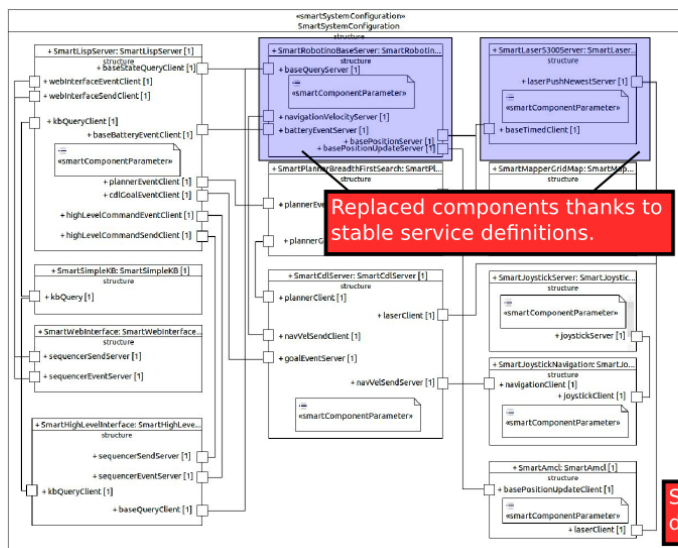
#### Blackboxes to Integrator



#### Robotino3 (intra logistics)

Robotino3 base  
Conveyor Belt  
SICK S300

Deployment diagram showing an excerpt of navigation components. Components in blue have been exchanged due to different hardware. All others were reused. Since the architecture can rely on stable service definitions, it is possible to reuse, replace and add components.



#### Robot Kate (Coffee delivery)

Pioneer 3DX/P3DXSH  
Katana 5DOF Manipulator  
SICK LMS200

#### Robot Larry (Open cupboard)

Segway RMP50  
UR5 6DOF Manipulator  
SICK LMS100

Same services can be aggregated differently to components.