SAVE ORCA

Formal Modelling, Safety Analysis and Verification of Organic Computing Applications

DFG SPP 1183

Goal

Integrated design framework for the development of highly reliable and adaptive Organic Computing applications

Scope

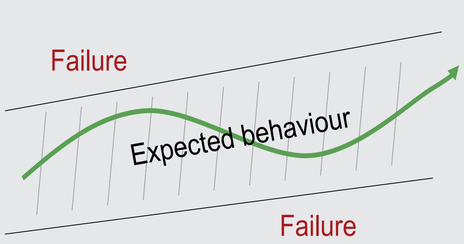
Highly dynamic resource-flow systems with self-x properties

Challenges

- Decentralisation
- Unpredictability vs. Dependability
- Engineering self-x

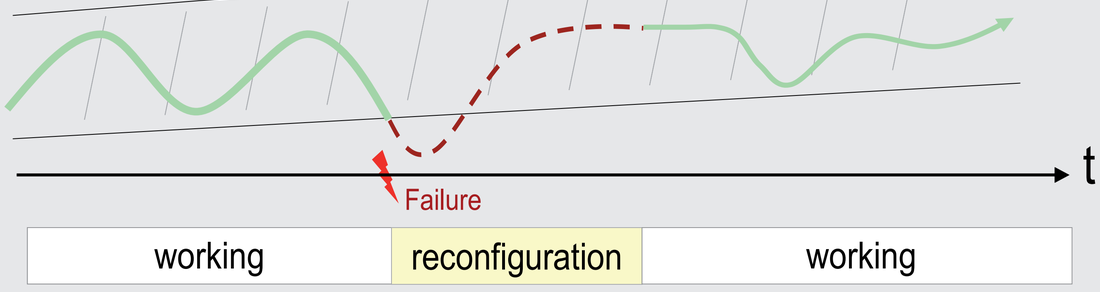
Underlying Theory: Restore Invariant Approach

1. Behavioural corridors are described by a set of invariants. Organic Computing system monitors invariants



2. Temporary violation of invariants triggers self-x phase for restoring the invariants

3. OC system preserves invariants as long as possible



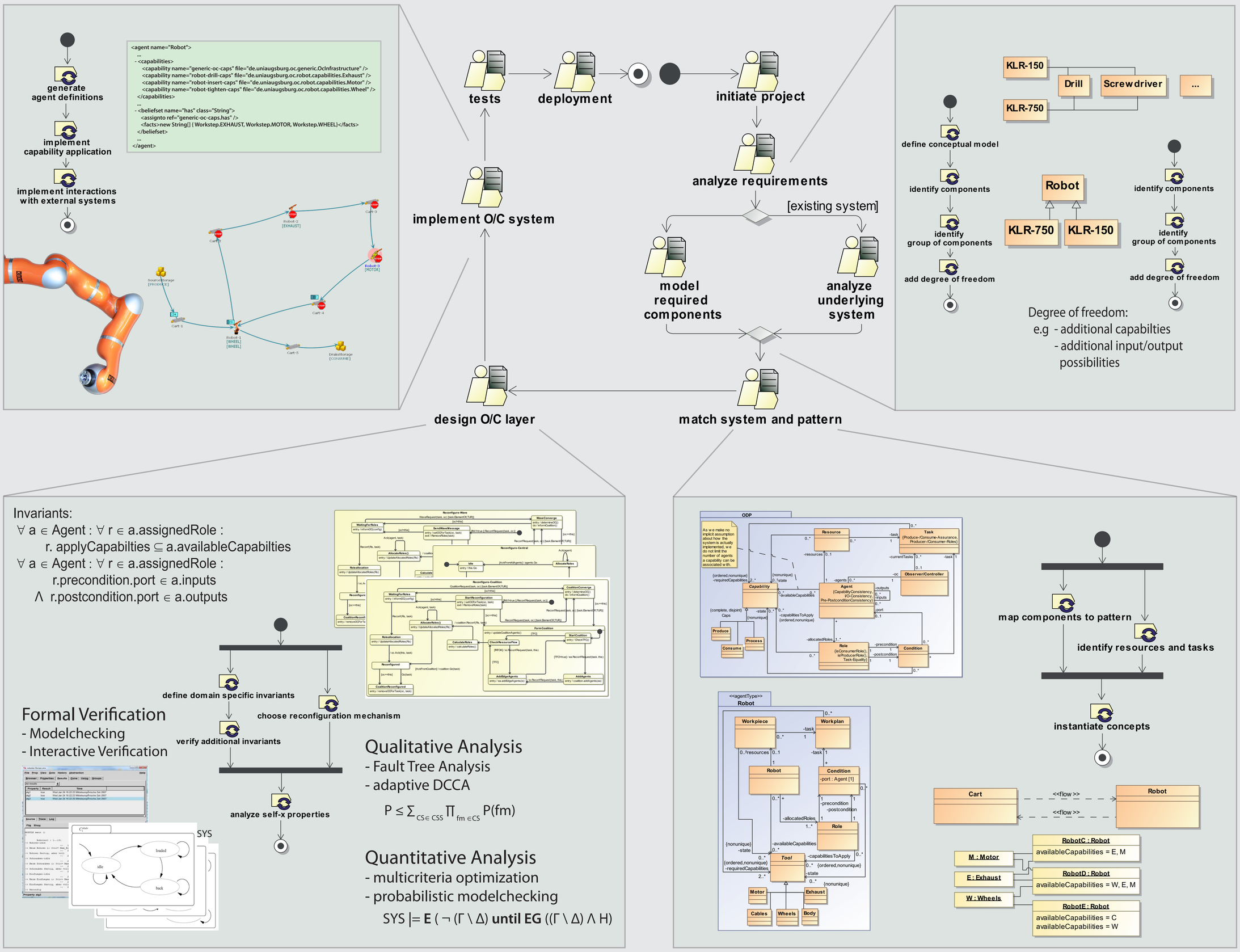
as restoration of an invariant

4. Sometimes necessary:

Restoration of all invariants is no longer possible.

Weakening of the invariants (e.g. priority selection)

8 Steps to an Organic Computing Application



Want to find out more? Contact the Organic Computing team:

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