

# Workshop on Product Intelligence (Deployment and Practical Issues)

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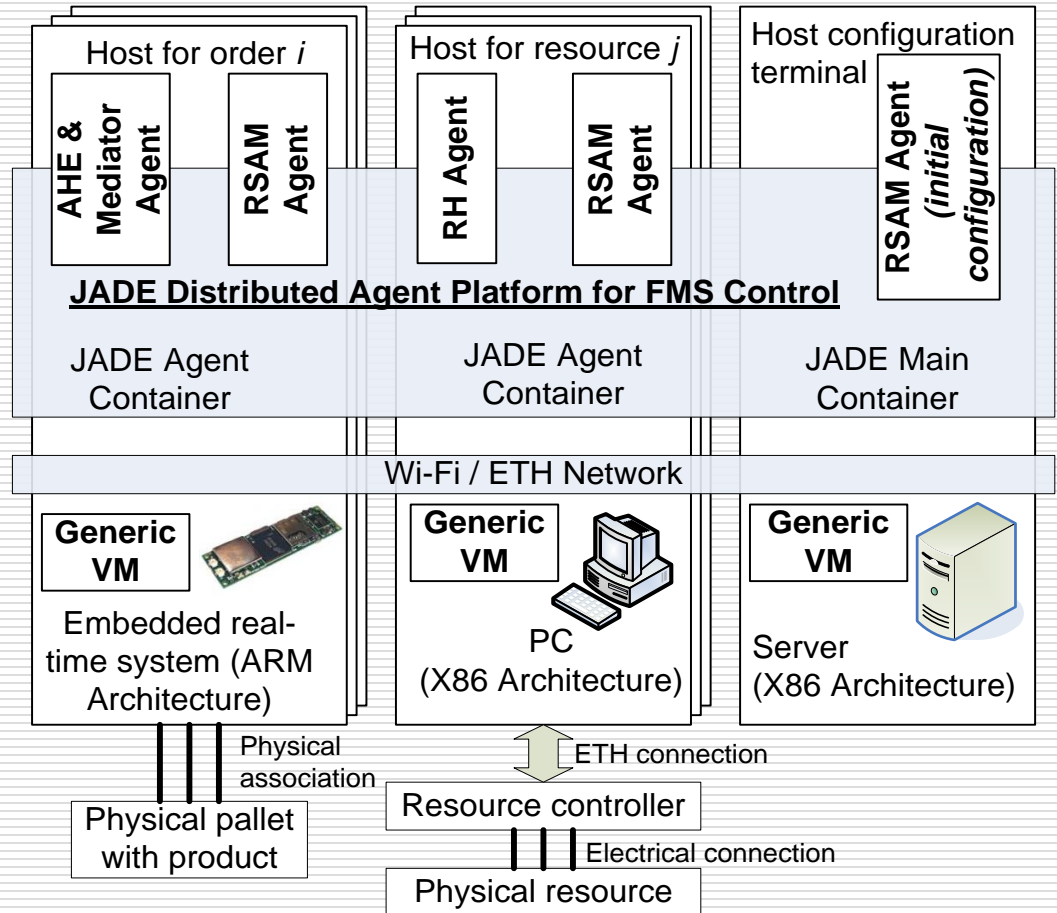
*Cambridge, September 24-25, 2012*

# Implementation of the generic control model

Generic control model: based on JADE framework

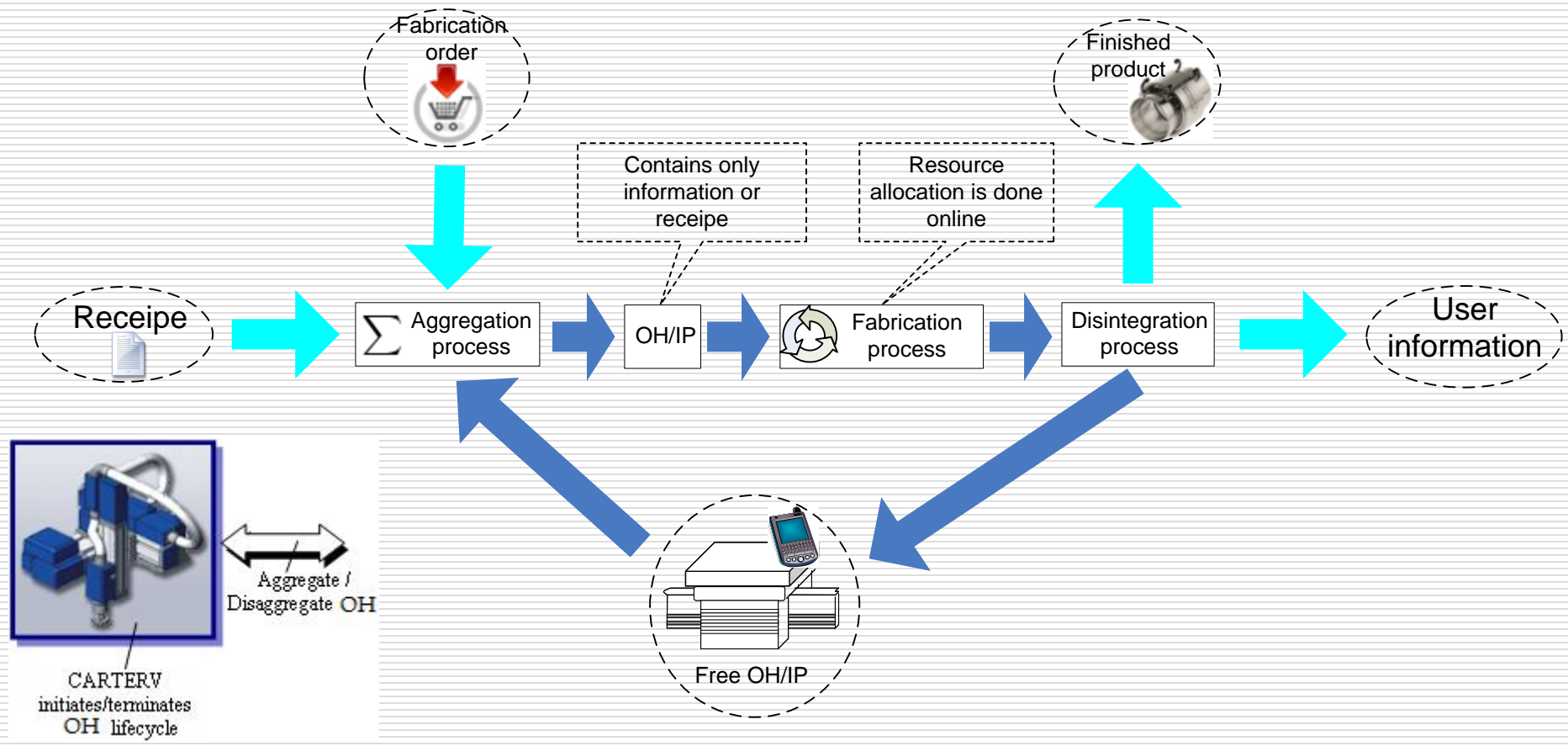
Composing agents

- Active holon entity agent (Overo air)
- Resource holon agent (legacy equipment integration through MAS technology)
- RSAM agent





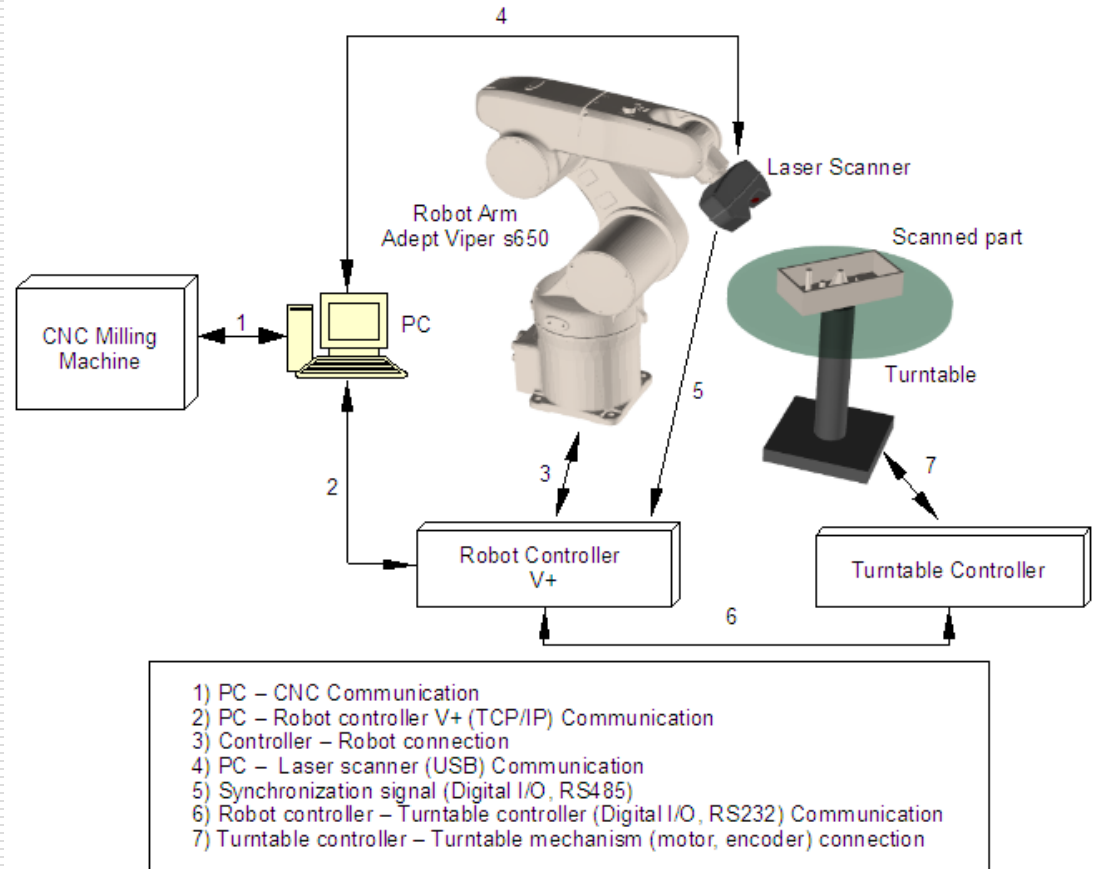
# IP lifecycle



# Deployments and Practical Issues: IP for KBAM, CARE

## The system: 6-d.o.f. arm-mounted laser range finder and robot scan patterns

- **Dual laser probe** measure distances from 70 to 250 millimetres, with an accuracy of 30  $\mu\text{m}$
- The laser probe is **arm-mounted** on a 6-d.o.f. robot
- The **scanning paths** are computed in *real-time* by the robot controller from *predefined* or **adaptive motion patterns**
- The range finder device generates **depth map**-type information describing the **object's surface**, *synchronously* with the motion of the laser scanner probe
- Robot working envelope: spherical, 650 mm radius; resolution of rotary table: 0.03 deg
- **Hardware controllers:** robot-, rotary table-, CNC machine; PC integrated



## Demo → IP from Digital Object

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Sample 3D Scanning  
Movie



# HMES Production Platform with Intelligent Robots



Layout of the manufacturing cell with holonic control  
(Shop floor robot-vision manufacturing platform at CIMR)