



Model-driven Embedded Systems Design
Environment for the Industrial Automation Sector



Model-driven Embedded Systems Design Environment for the Industrial Automation Sector

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O3neida Europe

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Project No. FP7-ICT-2007-1-211448



- Motivation and Vision → Why?
- Project Goals and Objectives → What?
- Project Members → Who?
- Automation Components → How?
- Flexible Design Flow
- An Example
- Summary and Outlook

Industrial Automation and Control Systems

- The level of automation and system complexity in factories and plants increases steadily which results in difficult and less-productive system engineering
- A lot of (intelligent) sensors or actuators have to be combined via automation and control systems

Vision of the Project

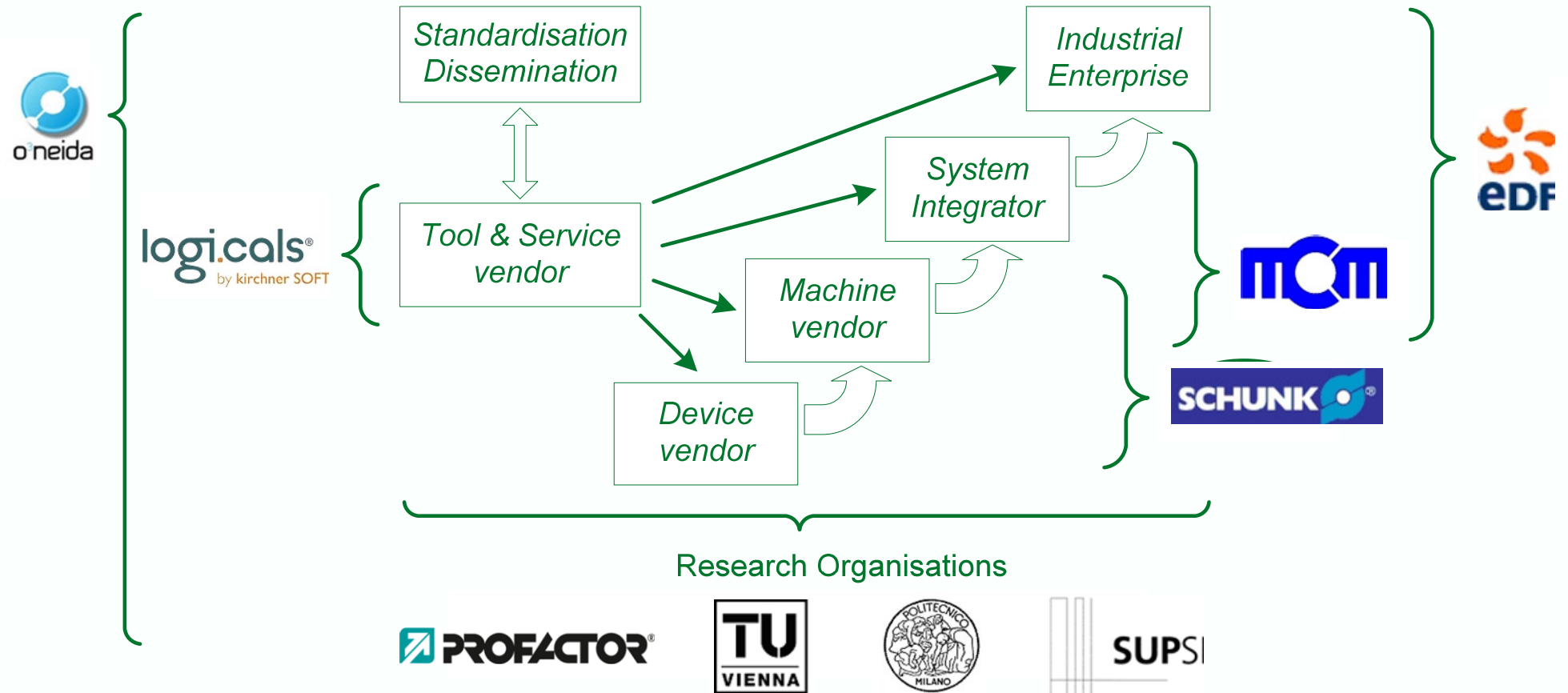
- The vision of the MEDEIA project is to radically improve the development productivity of embedded control systems for the European industrial automation sector.
- The project results will reduce their system design time significantly

Main Goal

- MEDIEA aims to build an environment within which various specialists can work together seamlessly to develop complete solutions without necessarily being aware of each and every specialisation

- MEDEIA will do this by developing a framework supporting a more formal and flexible design approach, including:
 - Integrated design of diagnostics
 - Integration of simulation and verification of control applications
 - Automatic code generation for different hardware platforms

Partners at all levels



Manufacturing

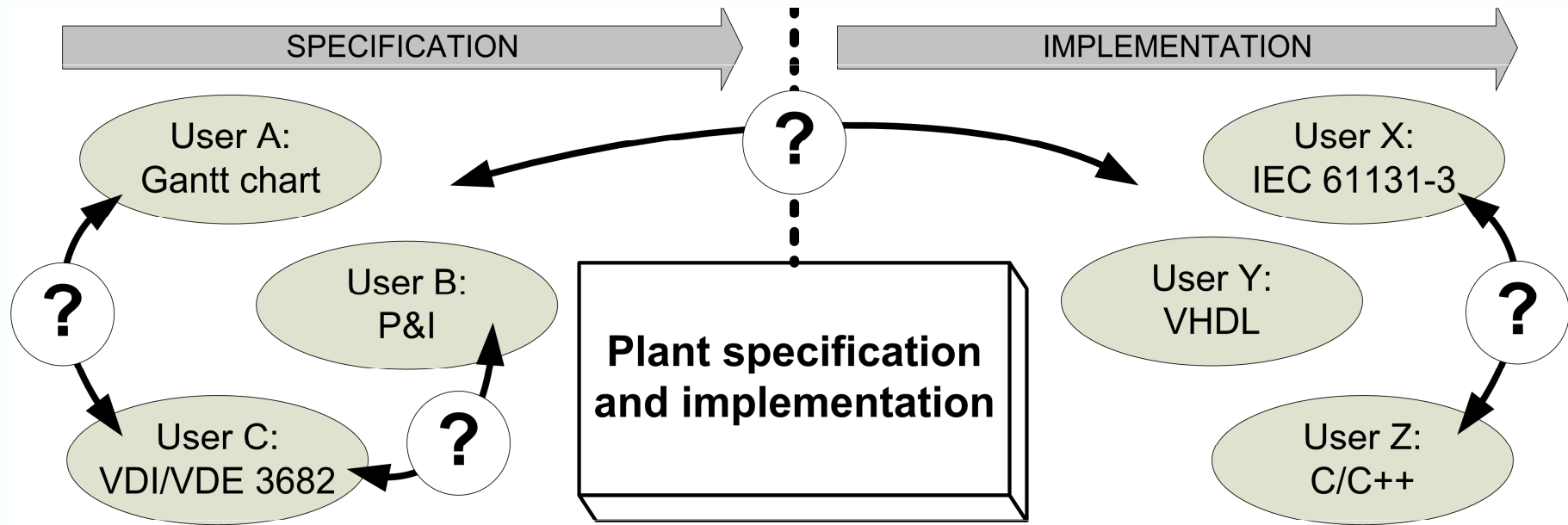
- Machine Tools
- Automatic Packaging Machines
- System Integrators

Robotics

- Industrial Robotics
- Service Robotics

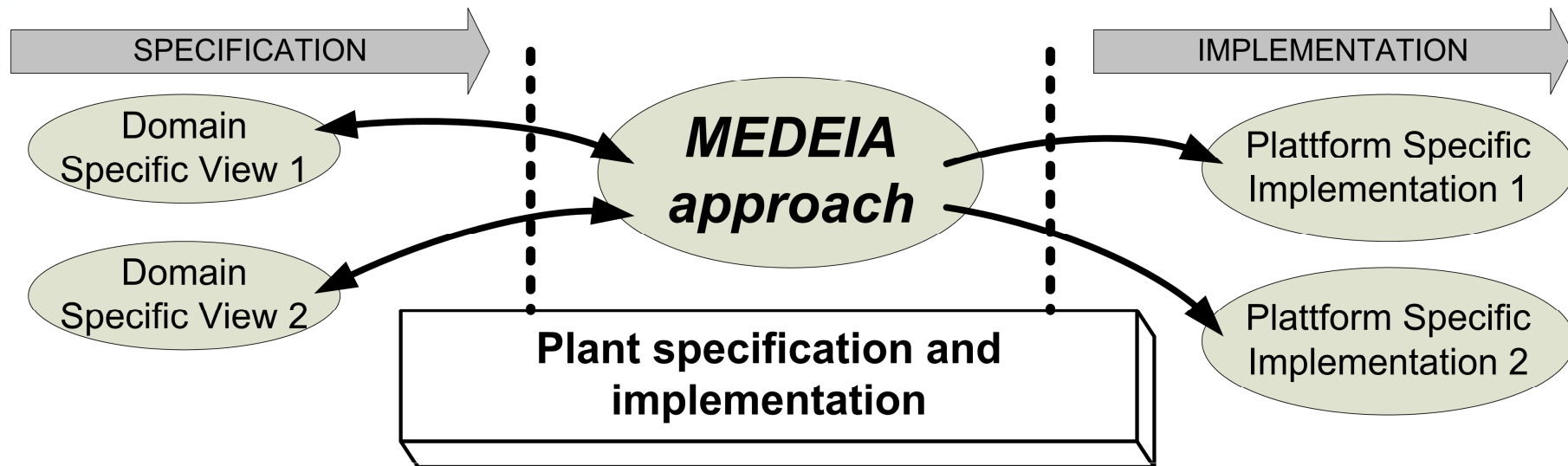
Power Generation and Distribution

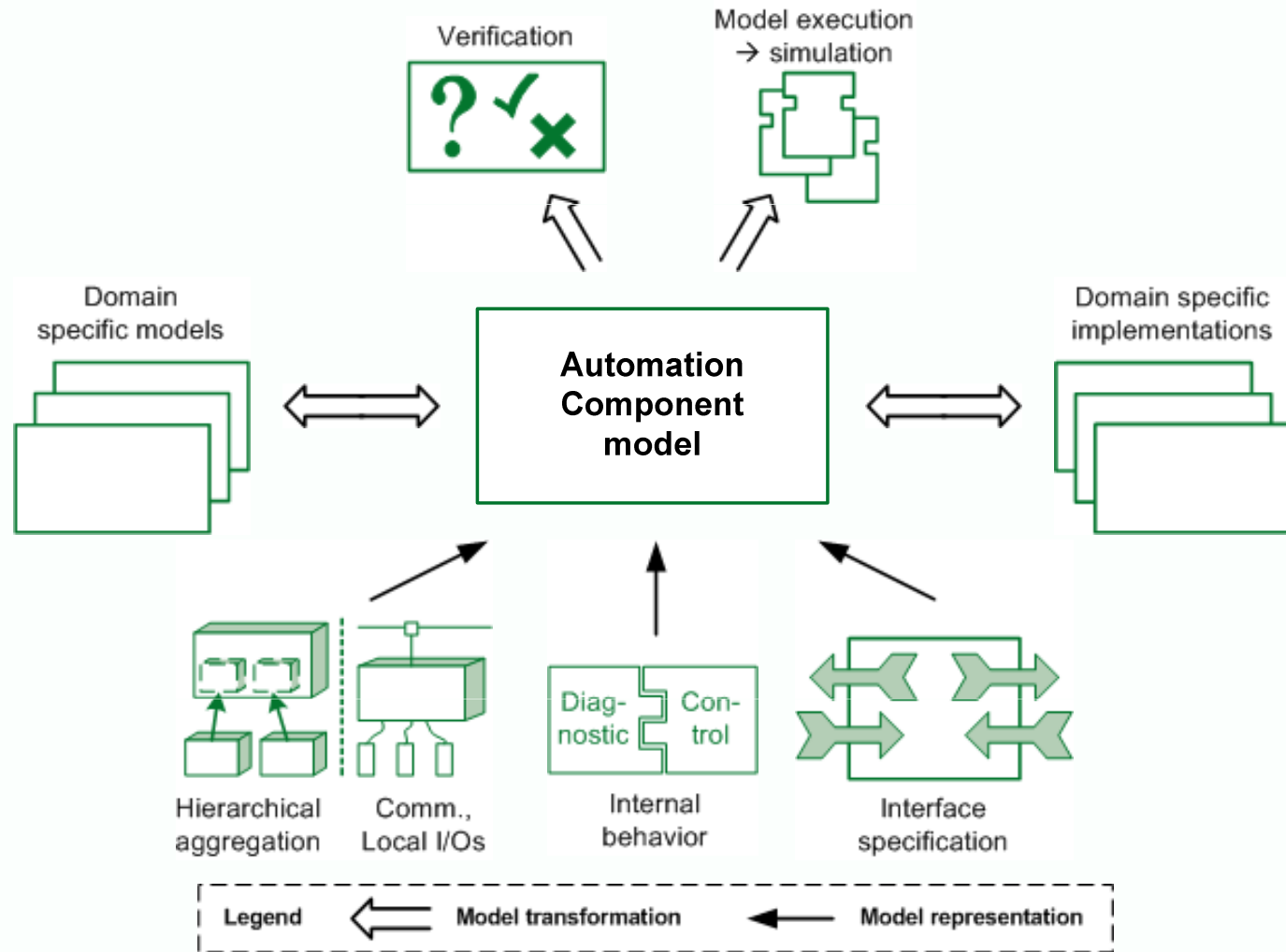
Logistic Systems

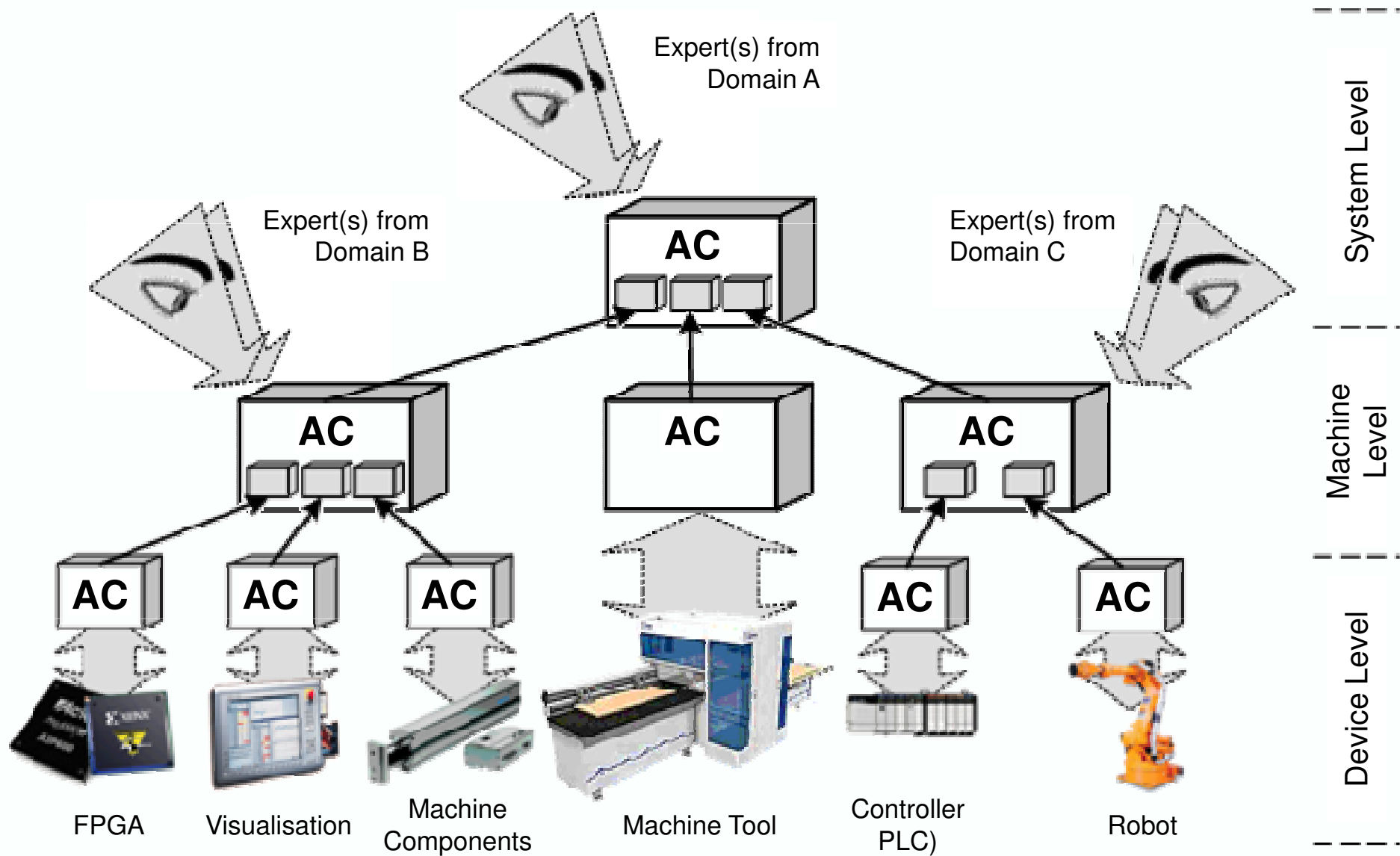


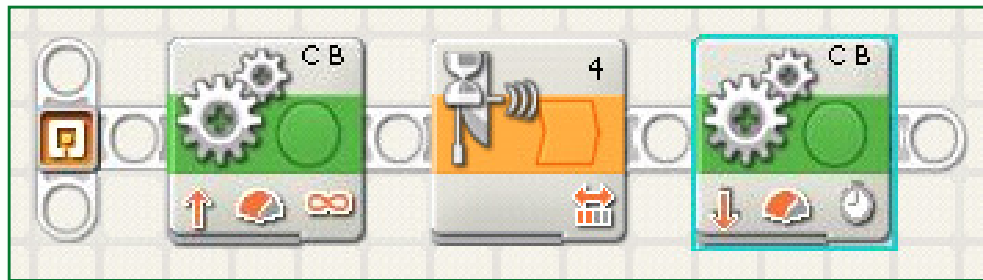
Efficiency should come from removing these question marks!

From specification to code!





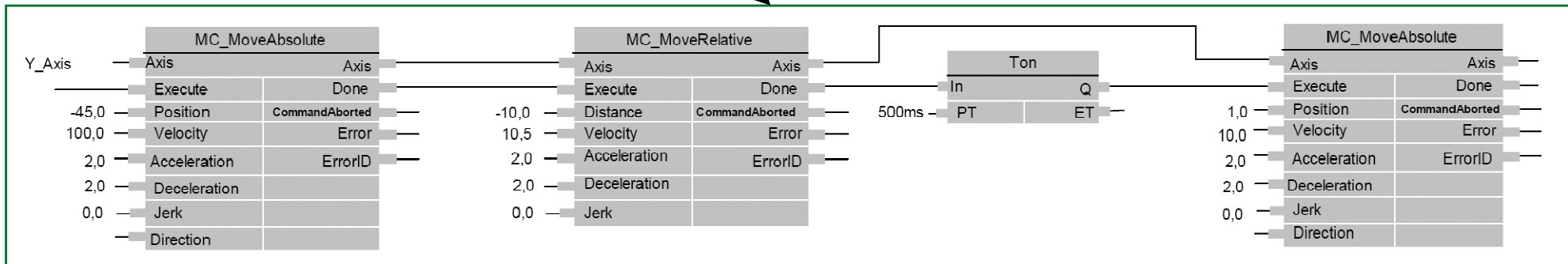
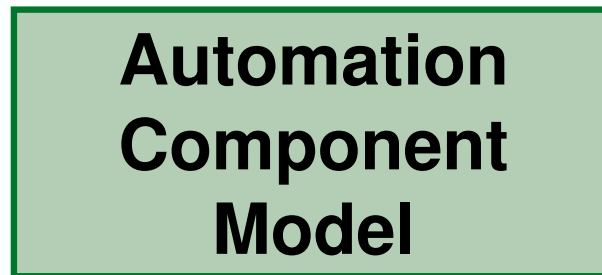
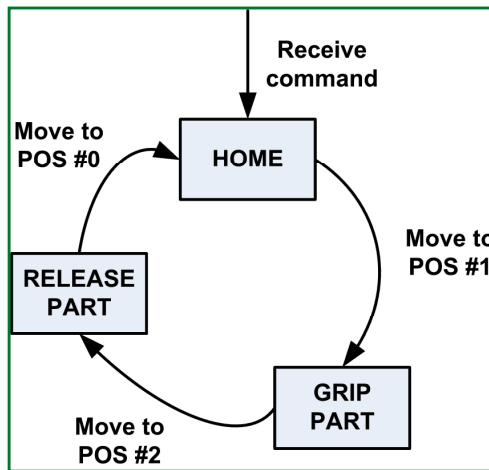


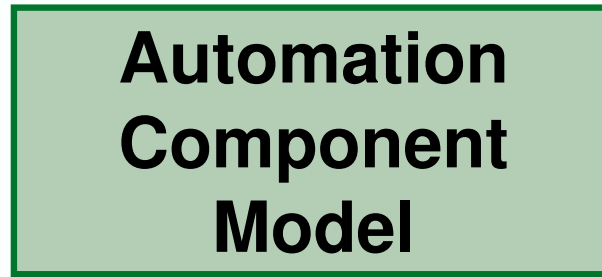
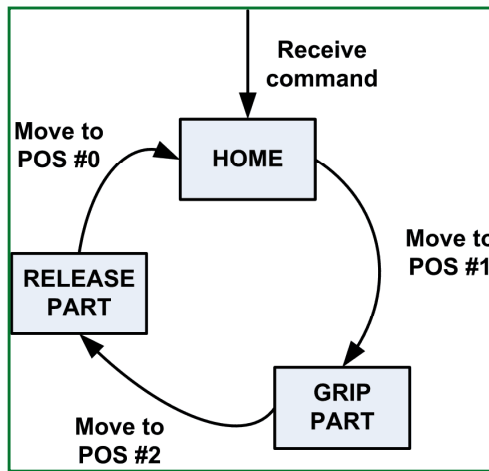
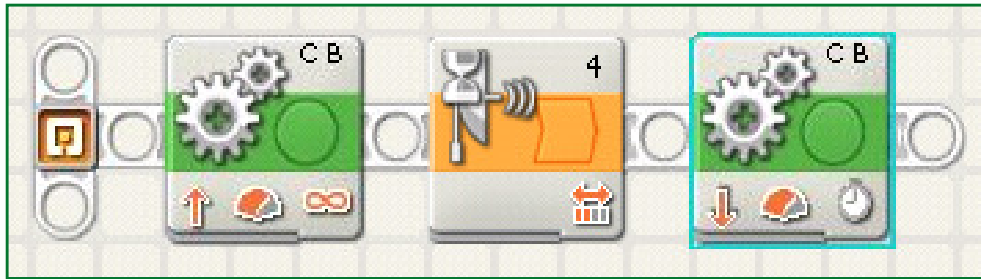


**Automation
Component
Model**

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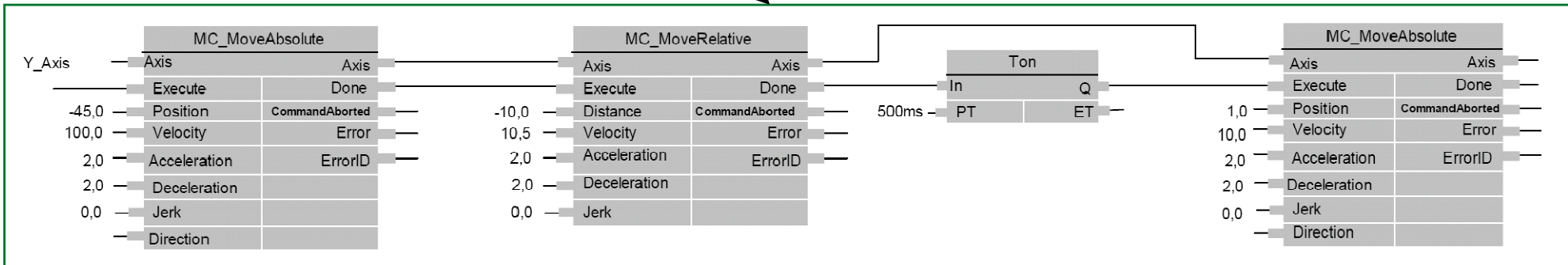
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N29X30.65Y-497.233
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N33X33.037Y-603.853
N35X33.926Y-623.45
N37X35.281Y-656.282
N39X36.912Y-683.784
N41X38.739Y-707.987
N43X40.544Y-725.743
N45X41.283Y-733.655
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N49X44.649Y-758.819
N51X47.914Y-776.945
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```





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%%
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...
    
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Summary

- MEDEIA aims to optimize the engineering flow for the design of industrial automation and control systems
- A formal framework is proposed on basis of the main element “Automation Component”
- A reduction of 25% in the system design time is envisaged
- The MEDEIA approach integrates diagnostics, simulation and verification

Outlook

- A basic design framework will become available for the public as open source solution
- The plan is to have the first version available in Fall 2009

Thanks for your attention!

Contact

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