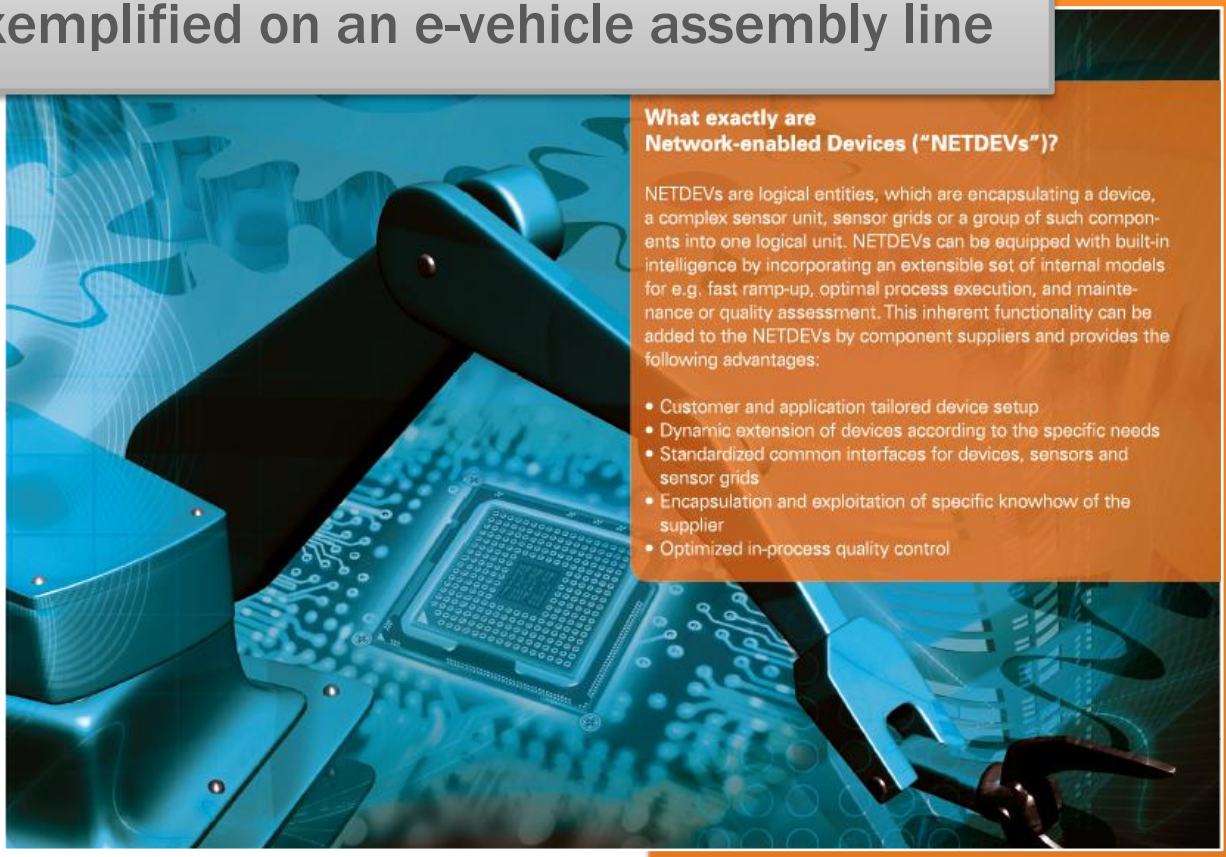
I-RAMP³
Intelligent Network Devices for fast Ramp-up

I-RAMP³ demonstrators – cyber physical solutions exemplified on an e-vehicle assembly line



Final project event,

September 22-23 2015, Harderwijk, NL

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Demonstrator 1: Set-up & ramp-up of a new E-Vehicle assembly line

AWL Techniek, Harms & Wende, INOS Hellas, FEUP, Critical Manufacturing

Robot cell

Facts

Ramp-up scenario:

Initial ramp-up

Derived use-cases

#1 Equipment and sensor auto-detection in production environment

#2 Task-driven manufacturing for flexible and easy-configurable production

#3 Easy interfacing of a MES, material tracking and production optimization

#4 Rapid ramp-up after device breakdown or configuration failure

Application areas:

Welding and handling of vehicle parts

Quality inspection of parts

Functionalities:

Auto-detection of equipment

Task-driven manufacturing

Equipment exchange, data backup and restore

MES interfacing

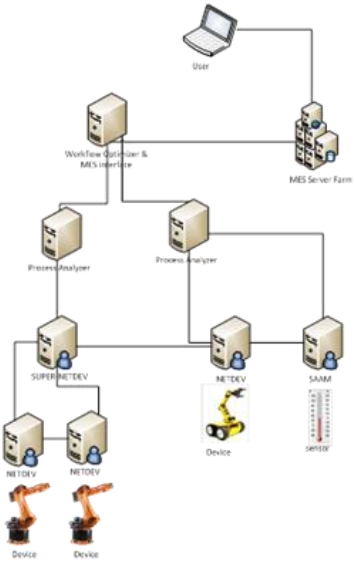
Benefits:

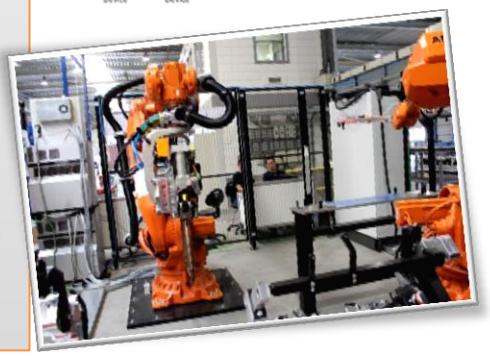
Task descriptions vs. dedicated manual process parametrization

Standardized process data gathering

Auto-detection of equipment and standard interfaces vs. Bit by Bit programming

Time savings for data restore to min: Hours vs. minutes





my notes

Demonstrator 2: Component exchange in E-Vehicle subassembly unit

IEF Werner, Fraunhofer IPA, Critical Manufacturing

Servo Press

Facts

Ramp-up scenario:

Ramp-up after component/product exchange

Derived use-cases

#1 Servo press auto-configuration with recipe database

#2 Plug & produce sub-component exchange for fast re-configuration

#3 Automated rapid high-precision parameter finding and optimization for pressing job

#4 Drag & drop visualization authoring and fast integration of equipment and sensor data

Application areas:

High precision joining & pressing processes

High-precision pick & place tasks

Functionalities:

Auto-detection of equipment, tasks, parameters

Self-descripting capabilities

Parameter finding and optimization

Connection with visualization elements via drag & drop

Benefits:

Automatic discovery vs. manual programming and connecting

Automatic reconfiguration vs. manual programming

Standardized interface

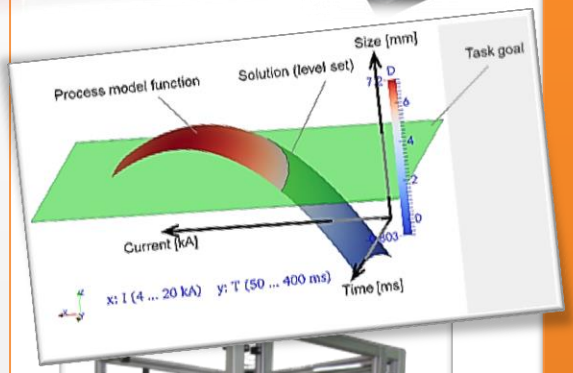
Ease of connection and set-up

my notes

Demonstrator 3: Enhancing devices with re-use & predictive maintenance capabilities

Technax, Harms & Wende, INOS Hellas, IAF, FEUP, Critical Manufacturing

Welding machine



Facts

Ramp-up scenario:

Ramp-up after maintenance

Derived use-cases

#1 Semi-automated parameter finding and optimization for welding job

#2 On-board information system for fast error finding

#3 Smart wireless self-organizing sensors for maintenance support

#4 Preventive maintenance in MES

Application areas:

Micro parts welding and handling

Pick & place tasks

Functionalities:

Fast error detection and fault analysis

Fast ramp-up of welding applications

Production monitoring

Multi-vendor sensor integration

Benefits:

On-board electronic handbooks vs. paper manuals

Reduction of ramp-up: Hours vs. minutes

Preventive maintenance vs. fixed maintenance schedules

Dynamic sensor integration with standard interfaces

my notes

I-RAMP³ – industrial strategies for plug & produce applications

DEMO 1	DEMO 2	DEMO 3
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I-RAMP³ ID

Title
Intelligent Reconfigurable Machines for Smart Plug & Produce Production

Project website
www.i-ramp3.eu

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Project duration
01/10/2012-30/09/2015

Main objective
I-RAMP³ aims at enabling the European manufacturing industry towards **zero ramp-up time integration** of additional capabilities in existing and new production networks, by which a significant reduction of time and efforts is expected. To reach this goal **I-RAMP³** proposes the transformation of conventional production equipment into **Network-enabled Devices (NETDEVs)**.

Partner countries
Germany, Hungary, Portugal, France, Netherlands, Greece

Coordinator
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