ProcessIT.EU CoIE

A European Centre of Innovation Excellence

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ProcessIT Innovations & ProcessIT.EU
ProcessIT.EU

- Originates from RDI Needs for Embedded Systems, Electronics, ICT & Automation for Process Industrial Applications
- Promoting RDI enabling Smart Production in Europe
  - Industrial Automation Systems & Components (Artemis-IA & ECSEL)
  - Industrial ICT & Automation (SPIRE, ESTEP, FoF)
  - Industrial Robotics (euRobotics)
- IoT & Cyber-Physical Systems are a Key Enabling Technology for Industrial Leadership in Automation in Europe
- Expected Impact
  - Customer Relationship Business Models Adopted by Industry
  - Improved Production Flexibility, Efficiency, Intensification & Availability
  - New Business Opportunities for European Automation Industry
- ProcessIT.EU Roadmap Presents Industrial Trends & Needs Summarized in 9 Ideal Concepts
European Roadmap for Industrial Process Automation

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Roadmap
Industrial Needs & Trends

**Research and Development Areas**
- Distributed production
- Safety and security
- Competence and quality of work
- HMI and M2M communications
- Sustainability
- Productivity, platforms, products and services

**Top Level Needs**
- Competence management
- Sustainable production
- Improved OEE

**A Selection of Targeted Goals**
- Orchestration of production systems
- Agility and scenario handling by prediction methods
- Certification process
- Risk management
- Encryption
- Information assurance
- Efficient automation engineering process
- Awareness of the automation profession
- Open RDI environments
- Cross-layer holistic integrations
- IP convergence
- Service oriented architectures
- Smart city integration
- Urban mining
- IoT based recycling
- Well developed virtual factory
- Integration by plug and play
- Application distribution platform
- Distributing big data
- User friendliness
Ideal Concepts

IC1 Instant access to virtual dynamical factory
IC2 Increased information transparency between field and ERP
IC3 Real-time sensing and networking in challenging environments
IC4 Process industry as an agile part of the energy system
IC5 Management of critical knowledge for maintenance
IC6 Automation service and function engineering
IC7 Open simulator platform
IC8 Automation system for flexible distributed manufacturing
IC9 Balancing of System Security and Production Flexibility

Productivity, platforms, products and services
Efficient resource usage
HMI and M2M communication
Competence and quality of work
Safety and security
Distributed production
Project examples overing parts of ProcessIT.EU roadmap

- Arrowhead (Artemis)
- Mantis (ECSEL)
- Arrowhead (SPIRE)
- DISIRE (SPIRE)
- Arrowhead CAP (ECSEL Proposal)
- AeroWorks (euRobotics)

Impact: S M L

- Productivity, platforms, products and services
- Efficient resource usage
- HMI and M2M communication
- Competence and quality of work
- Safety and security
- Distributed production

DISIRE (SPIRE)
‘New’ Applications for Process Industrial Automation

- **Updating, managing, and distinguishing between the real, digital and virtual factory (Automation Services)**
  - Automatically updating of virtual factory when CPS, CPS systems, and CPS SyS are changed modified or replaced
  - Automatic identification & implementation of possible control loops in CPS factory clouds
  - Production Modeling (including product quality) of large production facilities based on CPS

- **Safety and Security**
  - Demonstration of Remote Production concepts based on CPS backbone
  - Principles for stress testing of digital factories with CPS clouds
  - Multi stakeholder operations in one or several plants
  - Distributed production chains

- **Industrial Analytics**
  - Creation and Validation of Production Knowledge
  - Product and Production tracing including LCA
  - Maintenance
  - Etc.

- **Intelligent Machines, Robots, & Cobots**
- **Business Models** – How to use CPS to be successful (CAS Action?)

Welcome to Artemis Technology Conference, Turin, 7 Oct
Identified Enabling Technologies

- IoT
- Cloud service
- Virtual world
  - Digital Factories
  - Virtual Factories
- Big data
- System of systems
- Autonomous, adaptive and predictive control,
- Computing (multicore)
- Mobility,
- Connectivity,
- Complex event processing
- Real-time data analysis
- Forecasting of complex scenarios
Vision for Smart Production in Europe

Reliable, Secure, and Customised Automation functionalities that are provided as services in the Cloud will contribute to a Paradigm Shift for Production in Europe.

Distributed and collaborative automation services are provided to the Production Industry by small and large enterprises providing IoT products in Collaboration with Vendors of Production Equipment.

Thank You