Labs Network Industrie 4.0

Germany-wide test scenarios for the efficient way in industry 4.0 innovations

June 2017
Our network feels connected to the entire German industry!
Cooperation partners

- Strategy and recommended actions
- SME mobilization
- International cooperation

- Network of test labs
- Practical testing
- Validated return for standardization

- Initiation of cross-sector standards
- Coordination of standards
- Strengthen the German international collaborations
Involved Stakeholders

Overall “ideal” process

1. Idea of a test scenario
2. Laison with a testlab with suitable test infrastructure
3. Coaching of the user to refine the test scenario
4. Implementation of the test scenario
5. Consolidation of publicly available test results

responsible

company

LNI4.0

test lab

company

LNI4.0

test lab

test lab

involved

company

test lab

company

company

test lab

company

test lab
Our offering along SME maturity

- Conduct Individual Workshops
- Arrange access to appropriate test labs
- Initiate standardization
- Facilitate test scenarios
- Define opportunities
Testlabs

- 30 test lab cooperation
- High availability
- Regional distribution
- Local contacts
- Broad technology mix
- VDMA labs
- International cooperation
Test Scenario Examples

EdBoard – Industrie 4.0 Learning Table

I4Production

Click Day Industrie 4.0

I4.0 Lab Berlin Company Boot Camp

Composites 4.0: Smart Structures for Automotive

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Modularization of Mechatronic Function and Process Modules for Special Purpose Machine Manufacture

Augmented Reality – Innovative Visualization of Prototypes

Big Data Analytics in Electronics Manufacturing

Machine Data Acquisition in Production

FactoryView – Seeing the Factory Digitally and in Real Time

Digital Energy Value Stream for lean & green Process Chains in Production

Production 4.0 - Agile Planning and Flexible Processes

Industrie 4.0 in Mechatronics Education

Validation of the Concept of Industrie 4.0 Components in an Existing Environment

Implementation of the RAMI4.0 Administration Shell

Predictive Maintenance of Offshore Wind Farms

Networking of Medical Devices in the Operating Room
Solution approach
- Investigate whether it is possible in future to modularize individual function modules.
- Create standardized interfaces between process components or between these and the controllers used by the SME.
- M.A.i expects that this will shorten the specific development time from initial customer inquiry through to a production-ready solution.

Project procedure
- Capture customer requirements
- Analysis of existing diversity of solutions
- Categorization based on product requirements
- Reduction of solution space and transfer into generic modules
- Exemplary software tool support
Test Project Example

BIG DATA ANALYTICS IN ELECTRONICS MANUFACTURING

Solution approach

- Minimize disruption and maximize quality through big data analytics.
- Predict and manage maintenance intervals to avoid defects like the
  - tombstone effect
  - solder bridge
  - inaccurate positioning
  - missing component

Project procedure

- Identify defect dependencies.
- Implement a digital twin to simulate and test extreme conditions.
Test Project Example

VALIDATION OF THE CONCEPT OF INDUSTRIE 4.0 COMPONENTS

- Solution approach
  - Implementation of the administration shell for Industrie 4.0 components.
  - Using openAAS to validate selected RAMI4.0 concepts in an existing environment.
  - Browse through the relevant openAAS objects and their contents.

- Project procedure
  - Combines a physical flexible transportation system (Multi-Carrier-System) and a virtualized production plant.
  - Both are connected to a cloud to analyze usage and energy consumption data.
  - Several use cases will result in appropriate standardization activities.
  - Presentation of the results at the 2017 Hannover Fair.
Plattform Industrie 4.0 and IIC

Complementary Domain Focus Areas

Publically available Information:
- Exemplification of the Industrie 4.0 Application Scenario Value-Based Service following IIRA Structure

Detailed model for next-gen Manufacturing value chain

Exemplification of the Industrie 4.0 Application Scenario Value-Based Service following IIRA Structure

- VALIDATION OF THE CONCEPT OF INDUSTRIE 4.0 COMPONENTS
- BIG DATA ANALYTICS IN ELECTRONICS MANUFACTURING
- MODULARIZATION OF MECHATRONIC FUNCTION AND PROCESS MODULES

Link
How can I participate?

As a company

- Discuss your specific requirements with us
- Formulate your test scenario
- We will find a suitable test lab and partners for you

As a test lab

- Inform us about your test environment, cooperation, strategy and application expertise
- Provide information about test scenarios and results

Please contact us!

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www.lni40.de/en/
Thank you!