LNI 4.0 Testbed Edge Management
hosted by BMWi* Mittelstand 4.0 – Kompetenzzentrum Augsburg

Labs Network Industrie 4.0 e.V.
and
BMWi Competence Center 4.0 Augsburg

*Mittelstand-Digital

Mittelstand 4.0
Kompetenzzentrum Augsburg

Fraunhofer ICGV

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*German Federal Ministry for Economic Affairs and Energy
Plattform Industrie 4.0 in Germany

2030 VISION FOR INDUSTRIE 4.0
Shaping Digital Ecosystems Globally

**Autonomy**
Self-determination and free scope for action guarantee competitiveness in digital business models.
- Technology development
- Security
- Digital infrastructure

**Interoperability**
Cooperation and open ecosystems permit plurality and flexibility.
- Regulatory framework
- Standards and integration
- Decentralised systems and artificial intelligence

**Sustainability**
Modern industrial value creation ensures high standard of living.
- Decent work and education
- Climate change mitigation and the circular economy
- Social participation

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Industrie 4.0 Stakeholders

Setup in Germany

Expert community from industry and academia

Digital Transformation

Input

Output

International collaboration

FR, IT, NL, A, CH, PL, DK, SW, FI, ES (UK)

Directive about relevant standards
Transfer of results to standardization
LNI 4.0 testlabs

Use Case testing facilities (Labs)

26 Industrie 4.0 Kompetenzzentren

Mittelstand-Digital

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LNI 4.0 Testbed members & partners
Motivation for testbed *Edge Management*

- **What is Edge Technology?**
  - Computing devices that can be used in the field and on which classic software applications (not necessarily PLC programs) can be executed

- **Why is Edge Technology important from a business perspective of the producing industry (OT)?**
  - Use of latest software technologies (data analysis, models, AI, etc.) in OT, both from a performance point of view (device-cloud communication) and from a data sovereignty point of view

- **Is today’s Edge Technology configuration problematic?**
  - Yes, they are characterized by proprietary configuration mechanisms and capabilities-complex and error-prone integration of the devices into an overall system
  - Lock-in effect of the device suppliers

**Opportunity:** Standardized Edge Management would be a Win-Win-situation!
Methodological approach

<table>
<thead>
<tr>
<th>Objective</th>
<th>Stakeholder</th>
<th>Viewpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why to develop the system?</td>
<td>Management</td>
<td>Business</td>
</tr>
<tr>
<td></td>
<td>Product manager</td>
<td>View</td>
</tr>
<tr>
<td>What is the system</td>
<td>Product manager</td>
<td>Usage</td>
</tr>
<tr>
<td>(black box)?</td>
<td>System architect</td>
<td>View</td>
</tr>
<tr>
<td>What is the system</td>
<td>System architect</td>
<td>Functional</td>
</tr>
<tr>
<td>(white box)?</td>
<td>System developer</td>
<td>View</td>
</tr>
<tr>
<td>How is the system</td>
<td>System developer</td>
<td>Implementation</td>
</tr>
<tr>
<td>implemented?</td>
<td></td>
<td>View</td>
</tr>
</tbody>
</table>

Testbed Descriptions:

- Describes business perspectives for all identified stakeholders.
- Describes use cases and capabilities of an Edge Management System.
- Describes the functionalities within an Edge Management System.
- Describes the system interfaces within an Edge Management System.
Timeline of documents

Published

Usage view

https://www.plattform-i40.de/PI40/Redaktion/DE/Downloads/Publikation/LNI4.0-Testbed-Edge-Configuration_UsageView.html

Business View


Upcoming

Business View V2

Functional View

Implementation View

April 2020  Q1 2021  Q3-Q4 2021