Concept: questionnaire

Pilot/learning factory competency and infrastructure survey as part of Testbed Exchange; October 19, 2021.

Introduction

Testbed Exchange is a project funded by the INTERREG V-A Austria-Czech Republic cooperation program, which aims to create a functioning network of pilot factories, also called "testbeds" in the Czech Republic, in the program region (Vienna, Lower Austria, Upper Austria, Brno and Jihlava). Within the network, intensive communication, mutual learning and an ongoing exchange of experience are to take place. Furthermore, impulses for specific research or development projects in the areas of decentralized process control, intelligent cyber-physical systems and other Industrie 4.0 relevant topics shall be set. This cooperation will take place in the form of seminars, discussions and workshops within the three fields of action (1) best practices for SMEs, (2) research and development and (3) education and training, in the cooperating pilot factories. The project consortium includes the Jihlava Polytechnic (project management) and the association Industrie 4.0 Austria - the platform for smart production.

In the course of work package 2 "Creation of a new testbed network", in a first step we will create an overview of the offers and services of the pilot factories. Subsequently, further services, special infrastructures, target groups, etc. can be elaborated in a personal conversation in order to make them visible at a later point in time on the website specially created for the project, in the form of an electronic catalog. The creation of this overview is based on this questionnaire.

This electronic catalog is intended to help companies in the program region, especially SMEs, research and development institutions, continuing education institutions, and other pilot factories and testbeds to identify the appropriate facility for innovative projects and also provides a basis for future projects by identifying possible content interfaces.

It takes no more than 20 minutes to complete the survey.

Note: the collected data will **not** be used **anonymously.** The data of the question categories will be published on the public project website with your consent.

Do you agree that your data of the question categories will be published?
(x) Yes
( ) No

Question category: Purpose of the facility

What is the focus of your facility? (Multiple answers possible)
(x) Teaching (x) Training (x) Innovation/Research ( ) DIY (x) Networking ( ) Other: _____

Describe your testbed (projects, research, main focusing)
Technikum Digital Factory (TDF) is committed to providing an important contribution to the industry and economy by developing future-oriented and modern production processes and manufacturing technologies. Concepts for the industry are developed and investigated within the framework of a wide variety of research projects. Using state-of-the-art technologies and industrial robots, miniaturized robots are produced to illustrate concepts of smart manufacturing according to the motto 'Robots made by Robots'.

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What type of manufacturing is practiced or modeled at your testbed/Pilotfabrik? (Multiple answers possible)
(x) Discrete manufacturing (e.g. electronics, machine tools, vehicles and vehicle components) ( ) Process manufacturing (e.g. chemicals, paints, fuels, biochemical products)

In which phases of the product life cycle do the focal points of your testbed lie? (Multiple answers possible)
(x) Product development/product design (x) Prototype construction (x) Manufacturing/Production (x) Assembly ( ) Logistics ( ) Service ( ) Recycling/upcycling/repair

What software do you use for virtualization, data acquisition and communication?
Solidworks, Unity, Unreal Engine, Visual Components, Siemens NX, Robo DK

Do you already have experience with these communication technologies? Do You use them in practical applications?
(x) OPC UA ( ) OPC UA TSN (x) MQTT (x) Industrial Ethernet (Profinet, PowerLink, EtherCAT, Ethernet IP, ...) ( ) Other

What kind of architecture do you use in your systems or projects? Please write a small description
( ) Hierarchical with gateways ( ) Pyramid with industrial Ethernet (x) Decentralized

What specifications of the digital twin do you use?
WIP

Do you use the Asset Administration Shell? What specification do you use (ZVEI, VDMA, VDI/VDE, other)?
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What is the focus of current research and development activities?
Entirely functioning, reliable and robust robot-based automation and manufacturing alongside creating prerequisites and necessary interfaces in order to ensure representative foundation for the digitalization of the test bed.

What is the focus of future research and development activities?

Digitalization of the production processes and digital twin

What are the technologies and approaches that set your facility apart, or that differentiate you from competition?

High product and production complexity

Which equipment (investment sum >30.000,-- €) is available in your testbed?

15 different robot systems from different manufacturers
ABB GoFa
Kuka Agilus
Kuka KR16
ABB IRB2400
Wittmann Gantry robot systems
Fanuc (green)
Beckhoff XTS
Festo Delta

Which target groups have active access to your infrastructure? (Multiple answers possible)

() Startups
(x) SME
() Large enterprises
(x) Students/Pupils
(x) Researchers
( ) Makers
( ) Other:

Interreg Austria-Czech Republic
European Regional Development Fund
European Union
College of Polytechnics Jihlava
VŠPJ
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Question category: Courses and workshops

Does your testbed offer workshops or continuing education courses, if so which ones? (Multiple answers possible)

(x) Standardized courses
(x) Individual programs for companies
(x) Individual programs for educational institutions
( ) Publicly accessible continuing education
( ) Other:

Which of these formats are increasingly being used? (Multiple answers possible)

(x) Standardized courses
( ) Individual programs for companies
( ) Individual programs for educational institutions
( ) Publicly accessible continuing education
( ) Other:

Are there any plans to expand the range of training and further education courses, if so which ones and for which target group?

no plans in that regard currently, because of space capacities

To which target group(s) are your training programs available? (Multiple answers possible)

( ) Startups
( ) SME
( ) Large enterprises
(x) Students/Pupils
(x) Researchers
( ) Makers
( ) Self-employed
(x) Pilot & Learning Factories
( ) Other:

Question category: Offers for companies/startups

What opportunities do you offer companies to support them in product development? (Multiple answers possible)
(x) Consulting regarding prototyping and product development
(x) Testing of external developments/products in existing infrastructure of the testbed
( ) Access to production data
(x) Networking with investors
( ) Other:

Please rank the following groups of companies according to the intensity of their cooperation with you (ranking)
( ) Large companies (> 250 employees)
( ) Medium-sized companies (>50 employees)
(x) Small companies (<50 employees)
( ) Startups
( ) Self-employed

Are there one or more specific target groups that increasingly use your offer? (Multiple answers possible)

( ) Startups
( ) SME
( ) Large enterprises
( ) Self-employed
( ) Other:

Are there special offers for small and medium-sized enterprises, if so which ones?

Not really, as we are in a build-up phase

For which events can companies use your premises? (Multiple answers possible)

( ) Product presentations
() Networking events
( ) Corporate events
( ) Other:
(x) None

What dissemination and communication activities are you currently undertaking to address companies?

(x) Events and functions
(x) Partnerships (if yes, which ones) mainly with sponsors
( ) Media cooperations
(x) Word of Mouth
( ) Other:

Interreg
Austria-Czech Republic
European Regional Development Fund

VŠPJ
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Do companies in your region know about your offerings and services?

( ) Most companies are well informed
( ) Some companies are well informed
(x) Few companies are well informed
( ) Most companies are not well informed

What activities are you currently engaged in to motivate companies to work with you?

No particular activities because of us currently being preparing for getting a new space

Question category: Cooperations and project work

Do you already cooperate with other similar institutions, if yes with which one or do you plan a cooperation / collaboration and if yes, with which institution
No particular cooperations

Are you part of one or more project consortia related to regional, national or large international EU research framework or cooperation programs (e.g. Horizon2020, Interreg, etc.), if yes which, or do you plan to participate in such programs and if yes, in which ones?
no

Which Industrie 4.0 topics are you most interested in for a possible cooperation with one or more project partners?
Robotics and digital win

Thank you for participating in the survey.