Consortium Project „Advanced Robotics & Automation“

Key Facts

KEX. Knowledge Exchange®

Fraunhofer IPT

WZL | RWTH AACHEN UNIVERSITY

Fraunhofer IFF

JOIN THE CONSORTIUM

Major outcome of the project

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Tackle the most relevant questions and challenges for **automated production and intralogistics** as well as the **implementation of robotic based solutions to boost your production efficiency**:

- Receive a **detailed, global overview** of the current research **trends** and **best practice applications** in the area of advanced robotics and industrial automation
- Gain a **deep technological evaluation** for **your relevant applications** and **key questions** answered by research experts from RWTH Aachen institutes and Fraunhofer entities
- **Network** with **cross-industrial players** and **RWTH Aachen research experts** to discuss future potentials and benefits for your business
- Evaluate the opportunities for **joined follow–ups** in terms of **demonstrators** and **trials** at RWTH Aachen campus

Framework Conditions

Start: Q3 2019

End: Q2 2020

Up to 20 cross-industrial consortium partners

Partnership Fee: € 29,000

MOTIVATION

Advanced Robotics & Automation

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Initial Situation

Automation and the use of robotic solutions in production is rapidly evolving.

As competitiveness in production industry rises, so does the need for cost reduction. Shorter cycle times combined with error minimization can significantly increase process efficiency. New applications offer large potential for enhanced productivity:

- Smart robotics and cobots
- Cloud robotics
- Process learning
- Intelligent automation
- …

Procedure

The project is divided into three stages to structure and analyze the field of “Advanced Robotics & Automation” along the following aspects:

- Evaluating the individual needs and questions of the consortium partners as well as identifying current developments and applications for “Advanced Robotics & Automation”
- Detailed investigation for selected applications and technologies resulting in roadmaps, demonstrators and/or economical evaluation
- Consolidation of the generated results with user-oriented innovation patterns and tools to support management decisions

Major Outcome

In the systematic approach of the project, the highly dynamic area of “Advanced Robotics & Automation” is structured and individual starting points for e.g. the implementation of solutions are identified:

- A detailed overview of the key technologies and applications
- Technological deep-dives for applications selected by the consortium partners
- Structured workshops for e.g. customer-specific implementation potentials
- Access to a large cross-industrial and interdisciplinary partner network
- Possible realization of demonstrators based on relevant use-cases

TIMELINE & POTENTIAL RESULTS

Advanced Robotics & Automation

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Kick-off
September 18th, 2019

1st Report
December 11th, 2019

2nd Report
2020

Final Meeting
2020

STAGE 1

4 months
Structure & application overview

- Structured overview on industrial robotics, intralogistics and controlling solutions
- Assessment of relevant technology trends and consortium needs
- Suggestion of relevant segments and sub-segments to be assessed
- Scanning & scouting for cross-industrial best practice and research applications

➢ **Applications for deep evaluation in Stage 2**

STAGE 2

4 months
Detailed technology assessment

- Systematic selection of attractive applications and specific technology questions by the project partners
- Detailed technological evaluation of each selected application by e.g. assessing the technological feasibility
- Cross-industrial workshops to identify individual use-cases of robotics or automation solutions

➢ **Information basis for selection of focus cases in Stage 3**

STAGE 3

4 months
Focus assessment

- Different directions for focus assessment:
  - Business cases & cost estimation
  - Derivation of implementation roadmaps
  - Demonstrators for selected applications

➢ **Information basis for partner-specific strategic decisions and bilateral follow-ups**

Questionnaire

Consortium meeting

Optional workshops with partners/experts

Optional network/platform meetings

SUGGESTED PROJECT SCOPE

Advanced Robotics & Automation

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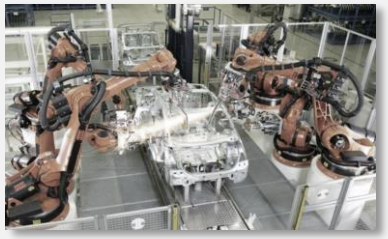
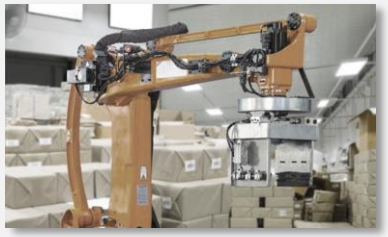
Application Areas



Discrete Manufacturing
(Material Handling, Joining, Assembly, Co-Bots, …)

Process Engineering
(Process Automation, …)



Logistics
(Warehousing, Packaging, AGVs, …)

New Application Areas
(Medicine, Construction, …)

Concepts
(Robot as a Service, …)

Enabling Technologies

Robotic Components & Solutions
(Sensor, Gripper, Joints, …)

Middleware, Protocols & Connectivity

Software
(A.I., Learning Methods, Cloud Robotics, …)

PROCEEDING – EXAMPLE OF A PREVIOUS PROJECT

Stage 1: Segmentation & application scanning

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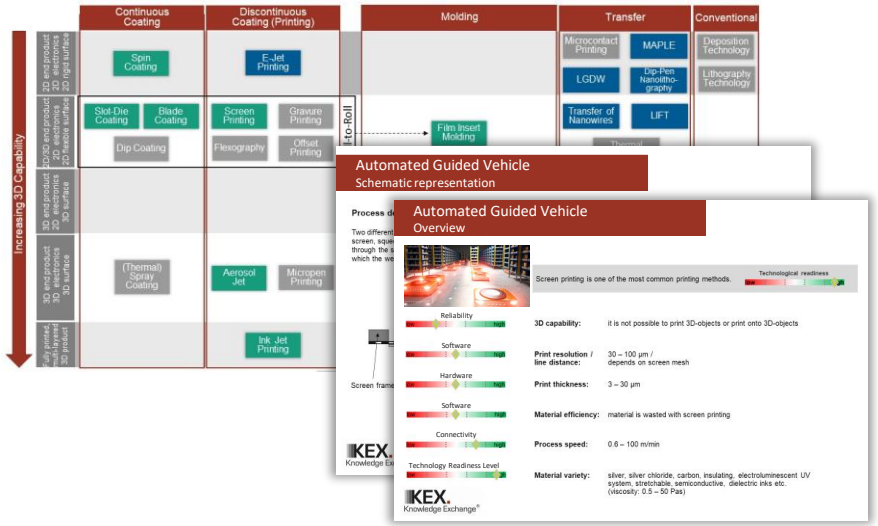
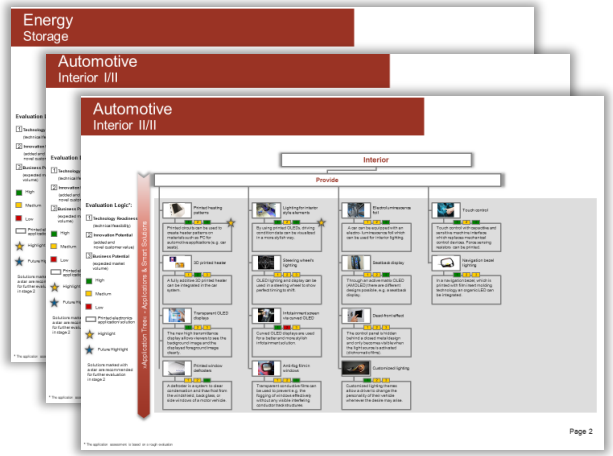




Segmentation

- Evaluation of the **consortium preferences and key questions** (questionnaire)
- Structured overview of **relevant focus areas** and sub-segments within these focus areas
- Aggregation of **market and technology intelligence** for each segment
- Possibility for a **technology landscape** on chosen technological areas

Application trees

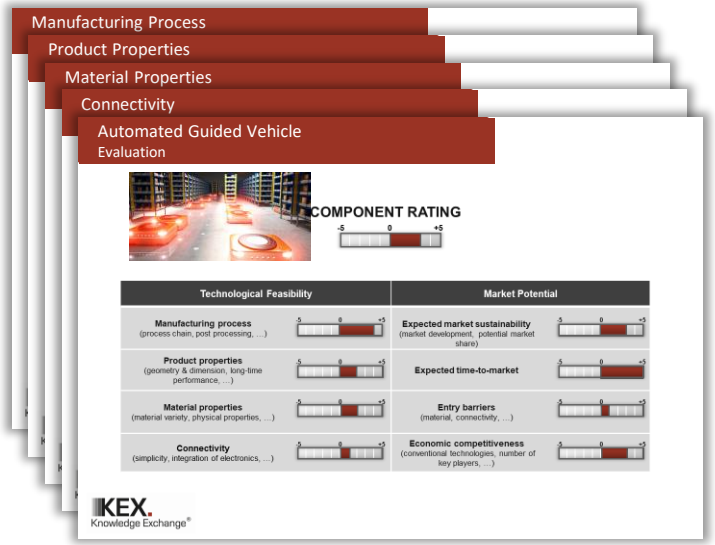
- Pre-evaluation of the most relevant approx. 200 **cross-industrial solutions** to be presented to the consortium during the 1st report meeting
- **Structured overview** of current and future solutions in the context of specific applications fields

➢ **The consortium will vote for applications/solutions to be evaluated technologically in project Stage 2**

Stage 1

PROCEEDING – EXAMPLE OF A PREVIOUS PROJECT

Stage 2: Technology Assessment



Detailed technology analysis

- Assessment of different technological concepts leading to a **technological deep dive**
- Aggregation of relevant **technology- and market-related information**
- Evaluation of current **advantages and disadvantages** of the applications chosen by the consortium and their **technological feasibility**
- Identification of **potential technology partners**
- **Executive Summary** for a quick evaluation of each application

Stage 2

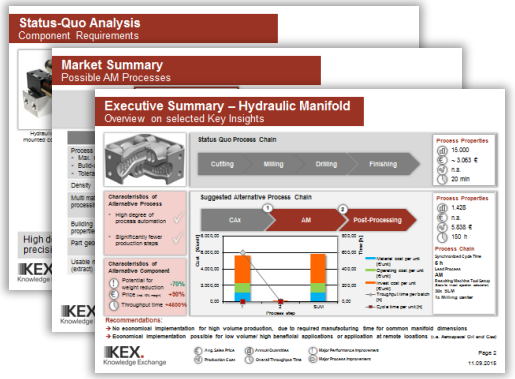
Cross-industrial workshops

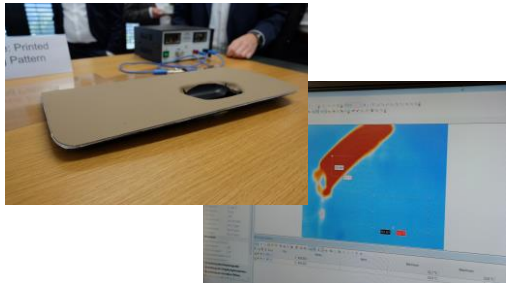
- **Cross-linking** of compatible partners from different industries in a facilitated workshop
- Derivation of clusters of **common problems** and derivation of **possible common solutions**

➢ **The consortium has the opportunity to vote on the most promising solutions for a further and deeper evaluation in Stage 3**

PROCEEDING – EXAMPLE OF A PREVIOUS PROJECT

Stage 3: Business cases/roadmaps/demonstrators





Business case analyses

- Detailed **calculation of business cases** for the selected applications/solutions with possible collaboration of consortium partners
- **Derivation of relevant technologies**, **solutions** and/or **services** to address the highlights voted by the consortium
- Assessment of **chances and risks** for the project partners

Technology/application roadmap

- Analysis on the **research activities** in specific technology fields for the chosen applications or technologies
- Estimate the time of **market maturity**

Demonstrator

- Possibility for the preparation of a **Minimum Viable Product (MVP)** directly from consortium partners

➢**Information basis for partner-specific strategic decisions**

Stage 3

CONSORTIUM STRUCTURE

Advanced Robotics & Automation

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Industrial user

Professionals in production management, technology management, strategy and business development

Representatives of industries affected by advanced robotics and automation

Research partners

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Interdisciplinary consortium

- Approx. 20 consortium partners
- € 29,000 per partner
- 12 month duration
- Four major project meetings
- Networking with the consortium partners at each meeting

Technology providers

- Hardware providers
- Software and platform providers
- System integrators
- …

EXPERT NETWORK

Advanced Robotics & Automation

KEX. Knowledge Exchange®

Professional technology and market information provider founded 2012 as a spin-off of the Fraunhofer IPT
www.kex-ag.com

Fraunhofer IPT

Knowledge and experience in all fields of production technology for optimizing solutions for modern production facilities
www.ipt.fraunhofer.de

WZL | RWTH AACHEN UNIVERSITY

Knowledge and experience in all fields of production engineering and production management
www.wzl.rwth-aachen.de

External partners:

Fraunhofer IFF

Knowledge and experience in all fields of factory operation and automation
www.iff.fraunhofer.de

Campus Melaten

REFERENCE PARTNER

Former KEX Consortium Partners

KEX. Knowledge Exchange®

» More than 250 previous Consortium Partners*

* all mentioned companies are partners of a former consortium project hosted by KEX AG and it´s research partners

YOUR CONTACT PERSON

SMART BUSINESS PROCESSES

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