



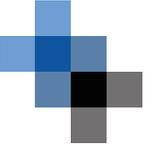
**INC
INVENTION
CENTER**



INC Invention Center
Preview of Program 2021

Overview on INC Projects in 2021 (I/II)

Direct links to project description



Cross Industry Groups

Methodology Focus

| | |
|--|----|
| Technology Management: Resilient Strategy Development..... | 5 |
| Agile Transformation | 6 |
| Digital Transformation: Machine Learning in Production | 7 |
| Managing Collaboration in Innovation Ecosystems | 8 |
| TIMEX – TIM Expert Circle | 9 |
| Product Development 4.0 | 10 |

Technology Focus

| | |
|--|----|
| AI Application Lifecycle Management..... | 11 |
| Horizontal Integration: Digital Applications within and across Organizations | 12 |



Consortium Benchmarking

| | |
|---|----|
| Facing the Technological Transformation..... | 14 |
| Resilient TIM: Innovation Leaders in Times of the Corona-Crisis | 15 |



Consortium Projects

| | |
|---|----|
| AI: Understand – Apply – Benefit..... | 17 |
| Circular Economy for Battery Technology..... | 18 |
| Scaling up the Hydrogen Economy..... | 19 |
| Transforming Health Care: The Smart Hospital of the Future..... | 20 |

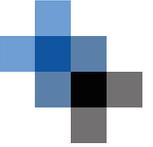


Experience Days

| | |
|---------------------------------------|----|
| Discover 5G in Production | 23 |
| Discover the Hydrogen Economy..... | 24 |
| Discover Artificial Intelligence..... | 25 |

Overview on INC Projects in 2021 (II/II)

Direct links to project description



R&D Projects

Methodology Focus

Scaling of Innovation: From New Business Development to Company Building27

IP-Profiling of the Future: Semi-automated Patent Analysis for Technology Foresight & Innovation.....28

Error Culture Management and the Impact on Innovation..... 29

Gaining Customer Insights: Leveraging Digital Communities through ML based Netnographic Analysis30

Technology Focus

Monitoring the Hydrogen Economy.....31



KEX.net

Knowledge Area Additive Manufacturing33

Knowledge Area Hydrogen Economy.....34

Knowledge Area Artificial Intelligence (Preview).....35



Acceleration

Venture Radar.....36

Innovation Workshops.....37

Venture Projects.....38

Further Offers on RWTH Aachen Campus

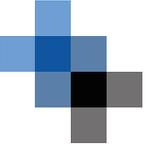


Overview of Trainings.....39

Overview of External Projects.....40

Cross Industry Groups

Project Approach



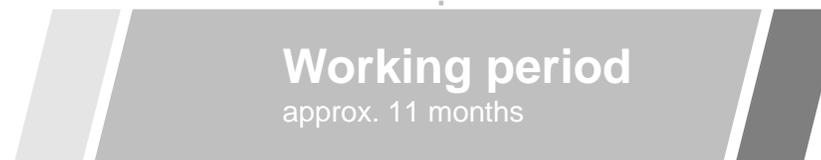
Cross Industry Group (CIG)

- This project format builds on your contributions. Cross-industry know-how transfer and mutual coaching are the primary goal. You select the topics and share your challenges, experiences and questions on specific issues with other partners. In return, you will receive insights from them, occasionally complemented by external experts.
- The INC Invention Center team supports you in identifying best practices and developing the most important recommendations for action. In addition, we design the organizational framework of the individual meetings and take over the moderation and documentation of the results.



Working Approach

~3 Working Meetings
Discussion and elaboration
of defined topics (member visits,
external experts)



Kick-Off
Definition of
project scope & questions
to be answered

Final Meeting
consolidation & discussion
of results; definition of next
year's scope



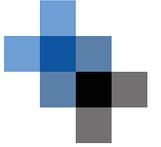
Boundary Conditions

Duration: 12 months
Premium: 5.000 Euro
Business: 5.000 Euro
Basis: 9.000 Euro

*Minimum number of
participants: 6 members*

Technology Management – Designing Resilient Technology Strategies

Cross Industry Group



Source: www.pexels.com

Implementing partner



Overview

Technologies and innovations are a key factors for continuous competitiveness. In turbulent times, however, resilience offers greater competitive advantage than e.g. operational efficiency while opportunities and risks occur at a much higher pace. This requires nimble decision-making under incomplete information opposed to the traditional planning processes in corporations. Hence, we want to explore in this CIG which methodological approaches are suitable to offer greater resilience on a normative and strategic level during these unprecedented times.

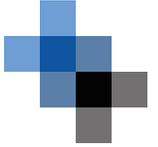
Focus topics

Core questions of this Cross Industry Group could be:

- Which are main challenges resulting from the environmental turbulence?
- How to accelerate decision-making to reap first-mover benefits from quickly emerging opportunities amid chaos and complexity?
- Which processes and tools can promote resilience?
- Are there organizational setups, which are helpful to increase resilience in the VUCA world? What task should be organized in a central function and what in local hubs?

Agile Transformation

Cross Industry Group



| | Initialize | Pilot | Scale | Improve continuously |
|-------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------|
| Normative Level (Goals) | Analyse status quo, develop goals | Synchronise operating systems | Define scaling-structures | Establish continuity |
| Strategic Level (Focus) | Generate knowledge | Select pilot project | Determine transformation strategy | Measure success |
| Operative Level (Implement.) | Develop self-concept | Adapt new roles, tasks and values | Transform culture | Strengthen new culture |

Source: Fraunhofer IPT

Implementing partner



Overview

Agile development methods are increasingly used in hardware development. Pilot projects provide the opportunity to gain first insights and to introduce agile methods to the company. However, restricted to certain projects or departments, the benefit of agility is limited. Within this Cross Industry Group, possible approaches of spreading agile ways of thinking and acting across the entire company are discussed and elaborated.

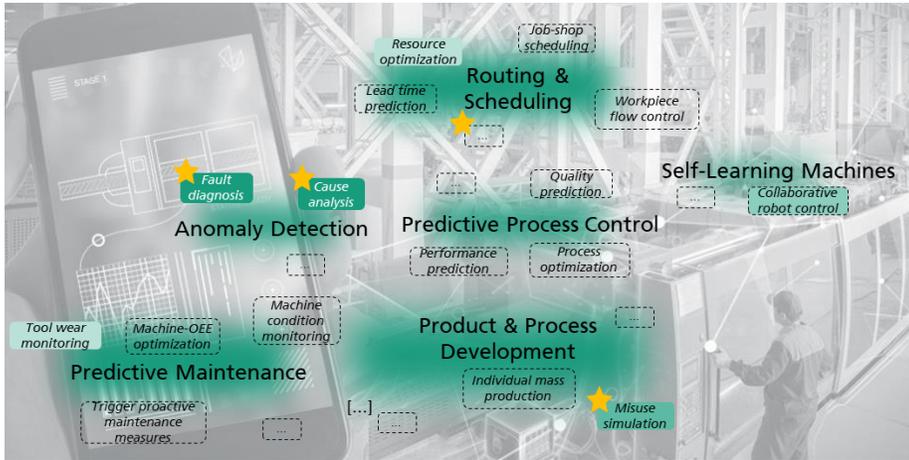
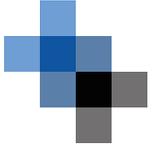
Focus topics

Core questions of this Cross Industry Group could be:

- How can agile projects efficiently be managed across different corporate locations?
- How can the success / progress of a company's agile transformation be measured?
- How does the agile transformation effect the requirements placed on the management in the future? What is expected from the employees?
- How do agile development process fit with established standards?

Digital Transformation – Machine Learning in Production

Cross Industry Group



Source: Fraunhofer IPT

Implementing partner



Overview

The increasing digitalization creates large amounts of data. When analyzing these data to extract information, traditional data analysis technologies easily meet their limits of performance. Conversely, machine learning (ML) promises to be a versatile tool for solving highly complex data-related tasks. Yet organizations fail to identify relevant applications of the technology. In this Cross Industry Group we identify and discuss existing strategic approaches and best practices for a successful application of ML systems.

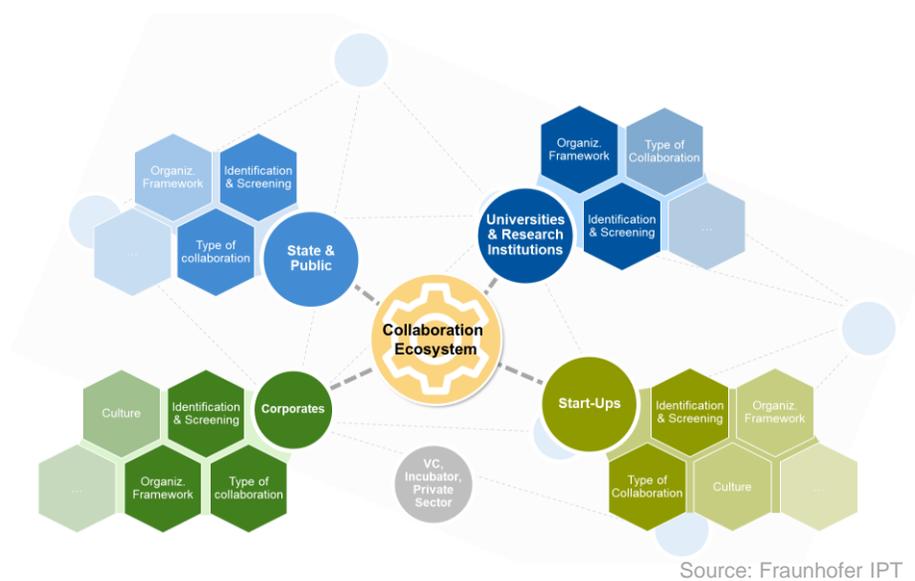
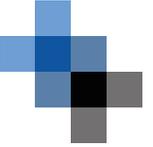
Focus topics

Core questions of this Cross Industry Group could be:

- How does ML technology work and how can it be distinguished from traditional data analysis?
- What are the characteristics for the application of ML?
- Which application possibilities for ML exist in the production environment of the future?
- How can we start? Which use cases are suitable for pilot projects?
- How can use cases be successfully validated and implemented?

Managing Collaboration in Innovation Ecosystems

Cross Industry Group



Implementing partner



Overview

Collaboration is key for innovative companies. Especially the cooperation with startups, research institutes and tech companies, targeting systemic innovations move increasingly into focus. However, the identification and screening of suitable partners and the structuring of long-term cooperation is usually associated with major challenges. Various types of collaboration to choose, different corporate cultures, the allocation of resources and capabilities as well as the organizational anchoring are only some of the many aspects that make cooperation challenging. In this Cross Industry Group we discuss major hurdles and share best practices for successful collaboration with all stakeholders of innovation ecosystems.

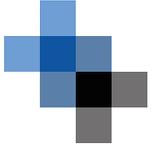
Focus topics

Core questions of the TIM-Cross Industry Group could be:

- How can I choose a suitable form of cooperation for my problem?
- How can cooperation be initiated and how can it be designed consecutively?
- How can cooperation in ecosystems be monitored and controlled?
- What are best practices to handle IP related issues?
- How can I adapt my culture to successfully participate in a cross-functional development network?

TIMEX – Technology and Innovation Management Expert Circle

Cross Industry Group



Source: TIME Research Area

Implementing partner



Overview

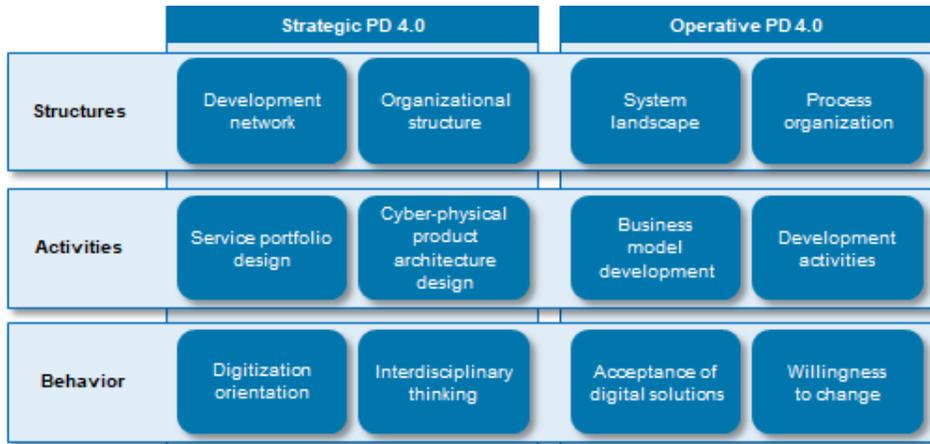
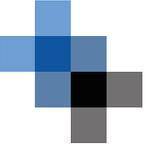
In the TIM Expert Circle (TIMEX) under the direction of Prof. Frank Piller, innovation and R&D managers from established companies meet to discuss current topics from their innovation activities with each other and with invited experts in a mutual exchange. Focus topics will be collected and selected together with the participating partners. Intensive exchange and networking, interactive learning of innovation methods and joint projects take place in an open atmosphere. Additionally: Visit of one of our conferences. Past and future topics: Innovation culture, business model innovation, idea selection, TRIZ, futurology and much more.

Focus topics

- The TIMEX focuses on strategically relevant news, trends and knowledge in technology and innovation management.
- In the field of technology and innovation management new trends and "buzzwords" are constantly circulating. Many of these have already been well researched theoretically and scientifically or are already being used in niches. However, practical implementation in established companies is often challenging and can often only be realized through targeted, moderated exchange with external experts.

Product Development 4.0

Cross Industry Group



Source: WZL RWTH Aachen University

Implementing partners



Complexity
Management Academy

Overview

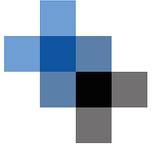
Both, from a product and process perspective, Industry 4.0 and digitization have a variety of effects on research & development. However, there is a lack of understanding across companies and industries regarding existing implementation approaches. A shared understanding of the fields of action that need to be considered to develop products successfully is not given. Therefore, this Cross Industry Group aims to identify best practices, methods and tools for the use of Industry 4.0 in research & development.

Focus topics

- Identification of best practices, methods and tools for the use of Industry 4.0 in development
- Exchange for experience within the cross-industry network to challenge your solutions and discuss new approaches in product development with different companies
- Joint development of new solutions and best practices for the future design of product development

AI Application Lifecycle Management

Cross Industry Group for Implementers



Source: KEX Knowledge Exchange AG

Implementing partner



Overview

This group is targeted at partners who develop, deploy and operate AI and Data Analytics applications across departments or companies (e.g. Product Owners, DevOps Teams, internal AI-as-a-service providers). Professional exchange of best practices at implementation level is the goal of this expert circle. Accordingly, the target group consists of technical experts who are themselves entrusted with the support and programming of AI applications.

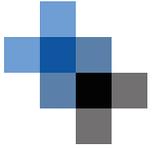
Focus topics

The focus for the discussions will be set on the operational challenges of a data science or AI DevOps team in the fields of:

- Data labeling
- Model development & retraining
- Model / flow component registration
- AI flow deployment
- Result monitoring
- Result verification

Horizontal Integration – Digital Applications within and across Organizations

Cross Industry Group for Implementers



Source: img1.wsimg.com/isteam

Implementing partner



Overview

Industrie 4.0 visions have predicted the transformation of rigid supply chains into dynamic and agile supply networks. However, the necessary exchange of data between different players in supply chains is still stalling if there is not one dominant player orchestrating the whole supply chain. Even within companies, heterogeneous systems and governance often prevent smooth integration between divisions and departments. This group will explore trends, ways and current practices to establish the necessary trust, safety and security through organizational and technical means to drive the potential of horizontal integration forward.

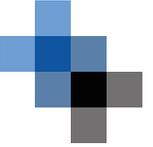
Focus topics

Focus of the CIG will be technological and organizational enablers and barriers for data sharing for the purposes of integration between companies or organizational units

- Data ownership and governance
- Company secret and privacy protection through aggregation, protection from unwanted tracing and model reverse-engineering
- Technology for access roles and rights management for AI models and analysis modules
- Technology for platforms, API standards, “EDI 4.0”

Consortium Benchmarking

Project Overview



Consortium Benchmarking

- International empirical study of existing industrial approaches in TIM – learn from the best in class!
- Companies from different market segments form a consortium to identify successful practices in different industries.
- Questionnaire based on the consortium input is developed and distributed. Results are examined.
- Consortium selects 5 successful practice companies which present their approach within 5 company visits.
- Successful practice companies are awarded in the final conference.



Working Approach

Screening Phase

Development & distribution of a questionnaire. Assessment of the results.

Company Visits

Visit the 5 successful practice companies



Kick-Off

Definition of the project focus by the consortium

Review Meeting

Presentation of the results and selection of 5 successful practices

Final Meeting

Consolidation of the results and the company visits



Boundary Conditions

Duration: ~ 10 months

Premium: 22.500 €

Business: 23.750 €

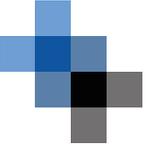
Basis: 24.250 €

External: 25.000 €

Approx. Number of partners: ~10-15

Facing the Technological Transformation

Consortium Benchmarking



Source: Fraunhofer IPT

Implementing partner



Overview

Our world is shaped by rapid technological change, compelling established industries to radical transformation. To successfully face these changes, companies nowadays more than ever must prove their ability for transformation and innovation.

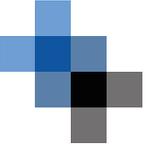
In this Consortium Benchmarking, we evaluate existing approaches and identify best practices to manage this transformation while keeping the existing core business running successfully.

Potential focus topics

- How to interpret changes appropriately?
- How to identify technologies helping me to meet economical as well as ecological requirements?
- Which organization is necessary to enable the fast implementation of large technological innovations?
- Which technological or organizational conditions ensure a high degree of adaptability and thus increase my resilience?
- ...

Resilient TIM: Innovation Leaders in Times of the Corona-Crisis

Consortium Benchmarking



Source: unsplash.com/jeshoots

Implementing partners



Overview

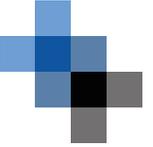
A virus that paralyzes the global economy and affects the whole world - what sounded like science fiction in 2019 became a bitter truth in 2020. A reality that will accompany us in the following years and will probably surprise us with a new irritation, for which companies must get prepared now. Against the background of this immanent risk, we search for the winners of this crisis, analyze the ways they cope with irritations and learn how to improve resilience in the future. On the other hand, understanding the crisis as a great chance besides the challenges reveals the true nature of the innovator.

Potential focus topics

- Who are the winners of this crisis and who suffer most from its impact?
- What are dominant designs amongst the SPs regarding people, organization, processes and tools? What are patterns of innovation that arise?
- What impact does this crisis have on future customer requirements and how can we anticipate them?
- What impact do disrupted supply chains have on technology and innovation management?
- What makes companies resilient and more robust to change?

Knowledge – Consortium Projects

Project Overview



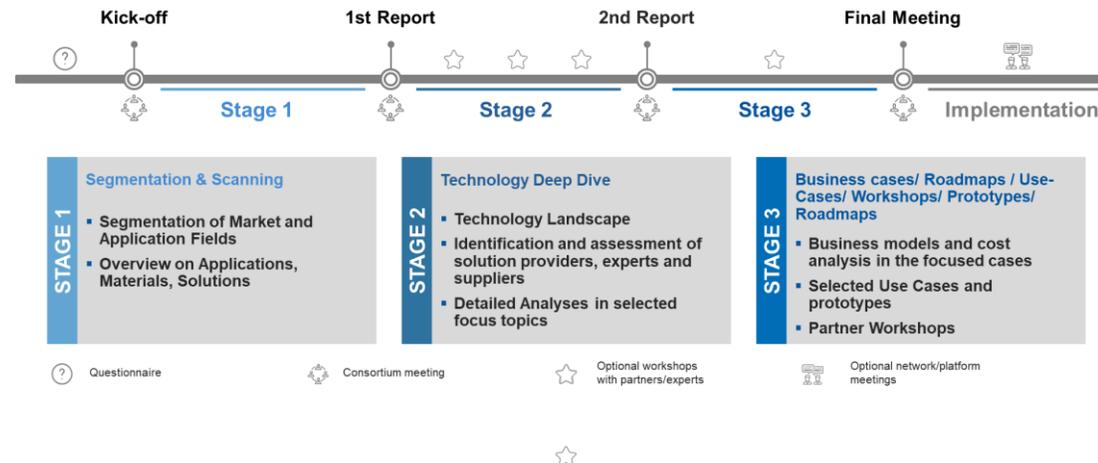
Consortium Project

- Consortium projects enable you to tackle potential disruptive changes of your business by providing:
 - Overview and structure of a complex and dynamic technology field with technological & economical deep dives
 - Access to a network of cutting-edge research entities and experts
 - Connection to solution providers and thought leaders
 - Utilization of synergies between partners for faster & cheaper implementation
- Subsequently we support you to make informed and swift decisions on how to effectively address the trends and challenges at hand



Working Approach

- Overview on all existing and future technological solutions and providers addressing your specific challenges
- Clarification of partner-specific questions & approaches as well as partners for implementation issues
- Analyses on selected applications, technologies & markets, business cases, roadmaps and technical demonstrators



Boundary Conditions

Duration: 6 - 10 months

Premium: 25.000,- €

Business: 27.000,- €

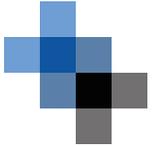
Basis: 28.000,- €

Minimum number of participants: 6-15 depending on topic

AI: Understand – Apply – Benefit

Consortium Project

Just started,
participation still
possible



Source: sdecoret/Fotalia.com

Implementing partners



Relevance of the Topic in 2021

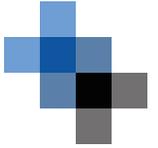
Everybody knows about the promising value propositions from AI-hyping press releases and industrial fairs. But how do you approach your main challenges regarding the identification, selection and implementation of data-driven AI projects? In which areas is it worth building up own competences and where is it better to cooperate with external partners from the industry and research? Gain a deep understanding of the relevant solution building blocks like computer vision, language processing, machine data analytics, knowledge representation or smart information and control systems and find out how to apply them in your business.

Added value

Learn how to utilize the groundbreaking potentials of artificial intelligence for operational processes, new product features and services - also for small and medium sized companies. We will structure the technical terminology for you, provide comprehensive overviews of current research topics and market-ready solutions and organize a self-reinforcing ecosystem of industrial users, research experts and commercial solution providers to evaluate the real benefits supported by prototypical implementations of selected focus applications.

Circular Economy for Battery Technologies

Consortium Project



Source: iStock/who_I_am

Implementing partners



Relevance of the Topic in 2021

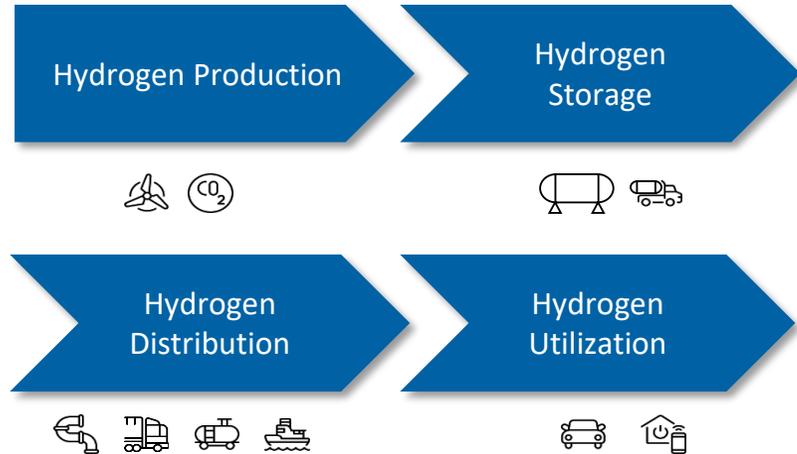
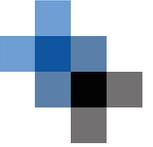
Batteries are omnipresent in everyday life and it is hard to imagine life without them. The most advanced everyday battery, lithium ion batteries, power mobile phones, cars and many other mobile devices. However, they partly consist of the rare material lithium, which is mined under high environmentally harmful conditions. In terms of sustainability, the topic "Circular Economy of Battery Technologies" is gaining in importance and will be examined in more detail in this project. In order to get a complete picture on this topic, alternative battery concepts as well as the latest developments in the field of charging technologies will be investigated.

Added value

The benefit of this project for you derives from the fact that you receive a current and structured trend and technology overview about battery lifecycle management (battery monitoring, performance prediction, recycling, etc.) as well as a technological and economic analysis of the most promising technologies. Network with our research partners and other industry participants to jointly find solutions for your company.

Scaling-Up the Hydrogen Economy

Consortium Project



Source: KEX Knowledge Exchange AG

Implementing partners



Relevance of the Topic in 2021

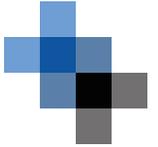
Hydrogen is one of the most heavily discussed trend topics in recent years. Fuel cell and electrolyzer technologies are heavily subsidized with several billion euros. However, prices of components and systems are still not widely competitive. The industrialization of the related technologies is highly dependent on upscaling effects like production, norms, standards and infrastructure. Missing component innovations and material standards prevent the expansion of a hydrogen economy. This can only be established through cooperation between companies and the exchange of innovations.

Added value

A detailed market and technology overview of the hydrogen value chain focused on upscaling effects for technical components and H₂ infrastructure. Comprehensive component overviews for electrolyzers, fuel cells and infrastructure components, as well as evaluated production and product technologies (costs and innovation potential) will enable you to identify new business opportunities and define your company's business strategy within the hydrogen economy. In addition, you will learn how and why hydrogen will serve as a central building block in the energy transformation for sector coupling.

Transforming Health Care: The Smart Hospital of the Future

Consortium Project



Source: metamorworks (adobe.stock.com)

Implementing partners



*Research Partners in discussion:
IRT, Cluster Biomedizintechnik*

Relevance of the Topic in 2021

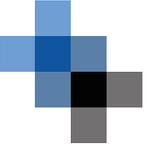
Hospitals, treatment stations as well as other healthcare centers are still rarely utilizing the opportunities of modern technologies such as digitalization, artificial intelligence, distributed ledgers or blockchains. However, the potential for faster and broader diagnostics, more effective and high-quality treatments, better process preparation and optimization of internal cost structures is huge by making use of the advantages of new technologies, particularly after the health care system has experienced a tough time during COVID-19 crisis.

Added value

We will analyze the hospital processes together with experts and identify opportunities for process and quality improvements (hospital process analysis). We will identify new technologies which can be applied in the identified improvement areas of the hospitals. We will train healthcare staff to better understand new technologies based on specific use cases. We will help solution providers to focus on the right implementation areas. Network with our research partners and other industry participants to jointly find opportunities for your company.

Knowledge – Experience Days

Project Overview



INC Experience Day

- During the Experience Days you will get a comprehensive overview of selected technology or market trends, industrial use cases and best practices.
- Gain insights into the current state of research and industry and discuss with experts as well as other industry partners in interactive sessions whilst working on use cases.
- Elaborate white spots and identify potentials for your business.
- Experience selected use cases on-site in our lab tours around the RWTH Aachen Campus



Working Approach

- Keynote on trends and future technological solutions addressing your specific challenges
- Up-front analyses on selected applications, technologies & markets, business cases, roadmaps and technical demonstrators

Preparation Phase

Development of the case study and engagement of experts



Kick-Off

Definition of the focus by the participating partners

Experience Day

Experience technology and market trends on-site



Boundary Conditions

Duration: 1-Day Event with digital Kick-Off in Advance

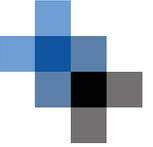
External Participants:
From 1.000 € to 1.500 €
depending on topic

The usual discounts for INC-Members of 3% Basis, 5% Business and 10% Premium apply

Min. Number of participants: ~10

Discover 5G in Production

Experience Days



Source: Fraunhofer IPT

Implementing partners



Motivation and Relevance of the Topic

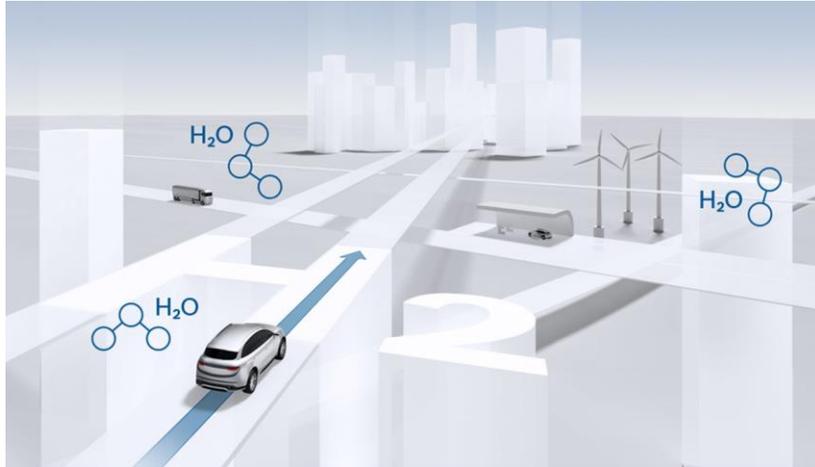
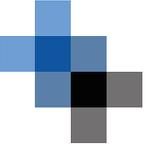
Being the next generation of mobile networks, 5G was also developed with the intention to make it the next standard for connectivity within the industry. Considering the most relevant factors for manufacturing companies, digitalization in general and 5G in particular can mean great leverage for economical success. However, most manufacturing companies face the challenge to identify possible applications and use-cases. Besides the challenges in the identification of primary fields of application, companies are insecure regarding the cost-to-build, the cost-to-buy, regulations and standards as well as security and privacy issues.

Added value

- Experience inspiring keynote speeches from proven experts
- Discover new technologies and trends in application that support you in coping with 5G
- Raise your questions and discuss them with experts and the other participating companies
- Real-live use case and transfer into specific fields of action in your company
- Leverage potentials of digitalization in production and learn from state-of-the-art research on the 5G-Industry Campus Europe at RWTH Aachen

Discover the Hydrogen Economy

Experience Days



Source: zukunftsmonitor.de/wp-content

Implementing partners



Motivation and Relevance of the Topic

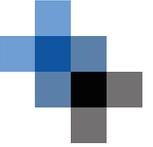
Hydrogen Economy in general as well as fuel cell & electrolyzer technologies are current hype topics in industry, politics and research. However, the basic technology is more than 150 years old. Hydrogen has been promised to revolutionize clean mobility in the 1960s, 1980s, 2000s – it did not. What has changed so significantly that this topic is now more relevant than ever? Basically, technological maturity and economic competitiveness have made big leaps in the past years and bring hydrogen back to the forefront of clean energy and mobility. However, there are still several industrialization and innovation white spots.

Added value

- Discover the value chain from production, storage, distribution to utilization and see how global markets form and develop
- Let experienced partners from our industry and research network introduce you to key technologies and latest developments driving fuel cell and electrolyzer technology now and tomorrow
- Explore structured component overviews and innovation white spot analyses and define, where your company's sweet spot can be
- Bring your questions to the table and discuss them with our experts and other participants in order to speed up implementation

Discover the Potentials of Artificial intelligence

Experience Days



Source: www.alphagamma.eu

Motivation and Relevance of the Topic

Artificial intelligence is becoming more and more powerful. Many things we take for granted in our daily lives are already supported by AI, especially in topics like driving assistance, translation, route planning, targeted advertising and many more. On the other hand the overall sentient AIs in popular mindsets are far away to never feasible. But in fact the line between currently feasible applications and applications which may remain science fiction is very small. This day is targeted at giving you the right tools to determine where you can already apply AI to improve your daily business.

Implementing partners

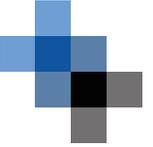


Added value

- Experience inspiring keynote speeches from proven experts
- Discover new applications and trends that make benefits of AI available to you already now
- Raise your questions and discuss them with experts and the other participating companies
- Learn from our international partners and ecosystem on their current topics and potentials for cooperation
- Get to know a real-live use case and transfer it into specific fields of action in your company

R&D Projects

Project Approach



R&D Projects

- This project format focuses on specific questions on individual topics which are analyzed and processed together with research partners of the INC Invention Center.
- Within this project framework, the participating research entities contribute mainly to the outcome - however, the INC partners are asked to be involved with their insights and experiences in regular discussions.
- There will be consortia as well as bilateral activities in the individual topics.
- However, there is no harmonized approach in as the project setup depends very much on the individual topic.



Working Approach

~1-3 Working Meetings
Working meetings to discuss the interim results



Kick-Off
Develop common understanding & definition of focus topics

Final Meeting
Final meeting to consolidate the project results and discuss lessons learned



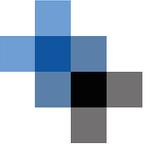
Boundary Conditions

Duration: ~ 12 months
Premium: 6.000 Euro
Business: 8.000 Euro
Basis: 9.000 Euro

Minimum number of participants: 5-10 members depending on project

Scaling of Innovation: From New Business Development to Company Building

R&D Projects



Source: images.unsplash.com

Implementing partners



Overview

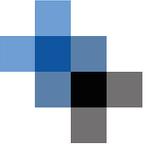
Moving from first successful market entry to scaling a disruptive product or service raises many challenges. While creating a new profitable business is difficult for startups as well as corporates, corporates face the additional challenge of having to create a new mindset and new structures for the new venture.

The goal of this project is to learn about topics such as data-driven sales and marketing, product release planning, organizational setup, staffing and success controlling from real use cases and our experts.

Added value

- Different best practices and methods from real use cases of successfully scaling innovations outside the core business
- Common pitfalls will be identified, and recommendations offered how to avoid them and how to use a data-driven approach to track the success of your venture.
- Learn about the capabilities of rapid industrialization.
- Access to our expert network of venture builders and innovators.

IP-Profilung of the future: Semi-automated Patent Analysis for Technology Foresight and Innovation *R&D Project*



Source: TIMEX

Implementing partners



Overview

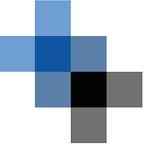
The timely monitoring and corresponding valuation of patents is indispensable and of strategic importance for every company that holds patents itself or is dependent on them. However, the mass of patents and the length of patent specifications make this an expensive undertaking. The main problem is the lack of tools to pre-select relevant patents from the masses in order to then subject them to a precise, manual examination. The aim of this project is to create a metric for assessing novelty or innovativeness of patents, which can be used to pre-select relevant patents from the masses.

Added value

- An active exchange between the partners on methods for identifying relevant patents and existing patent monitoring procedures
- The partners' active participation by manually assessing patents to train text mining methods via an IT-supported, survey-like system is required
- Each partner will receive an exemplary analysis of large numbers of patent specifications to identify relevant patents for defined patent classes

Error Culture Management and the Impact on Innovation

R&D Project



Source: TIMEX

Implementing partners



Overview

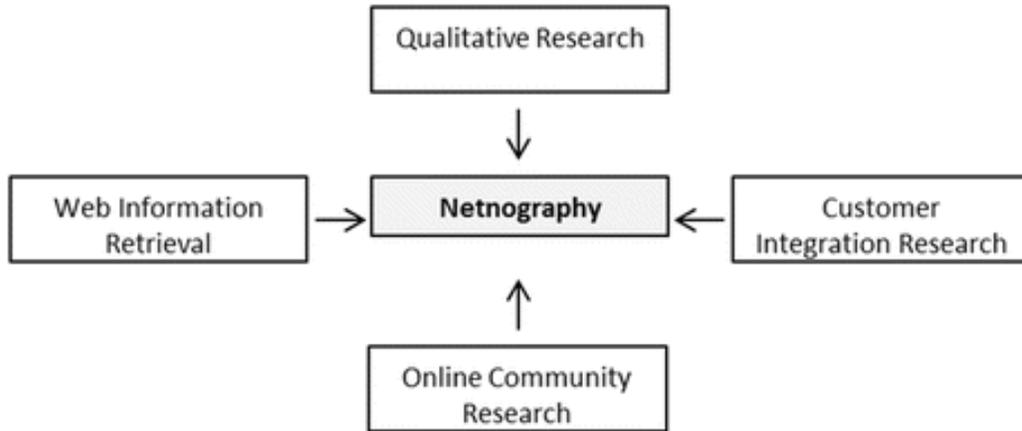
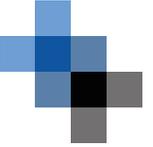
The digital and agile Transformation base on a different way of working – discovery through experiments implies making mistakes and learning from them. Therefore employee error reporting is an important prerequisite for organizational learning. Especially the innovative ability of an organization is influenced by the tension between error prevention and learning from mistakes. In practice, an adequate error management can contribute to the optimization of the operational process and avoidance of structural and operational errors at different stages of the value chain.

Added value

- Different types of errors, and the dynamics of error reporting by employees and its effects, will be identified and demonstrated.
- Best Practice examples will be given to the participating partners.
- Each participating company will be given the opportunity to carry out a bilateral survey on error management and innovative strength of projects.
- Furthermore, the participants receive an anonymous bench-marking report to analyze the differences and their causes between the participating companies

Gaining Customer Insights: Leveraging Digital Communities through ML- based Netnographic Analysis

R&D Project



Source: TIMEX

Overview

Netnography is a market research method to identify consumer needs on the Internet. By observing and analyzing online communities, the needs, wishes, motivations and routines of consumers are derived. Thus, innovation opportunities can be identified, and innovation processes can be initiated. Currently, this analysis is done manually by coding procedures of qualitative research. The analyses are therefore time-consuming and personnel-intensive. This problem is to be countered with current developments in machine learning, more precisely machine language processing.

Implementing partners

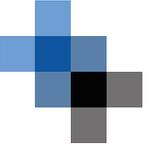


Added value

- Introduction to the netnography method and overview of previous procedure widely used in the area of ideation/foresight of trends
- Within the scope of the project, the possibilities for the partial automation of netnography using machine learning methods are being explored with the aim of making the method cheaper in the medium term
- An exemplary netnographic analysis will be carried out individually for each participating company

Monitoring Opportunities within the Hydrogen Economy

R&D Project



Source: www.h2-view.com

Implementing partner



Overview

After being at a comparatively low implementation pace within the last 25 years, hydrogen-related technologies such as fuel cells, electrolyzers as well as storage and distribution systems seem to be at a bearing point of innovation.

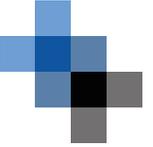
Based on the current hype it is necessary for players who are new to this technology field to monitor technology and market developments efficiently in order to evaluate upcoming business opportunities that match company-specific competences.

Added value

- Staying in touch with the established research and expert network and boost discussion with content from external speakers
- Providing support to select most relevant monitoring criteria for your relevant business fields
- Utilizing synergies to efficiently monitor relevant core KPIs
- Providing access to the innovation ecosystem of the RWTH Aachen Campus in order to quickly assess new ideas within the partner network and potentially launch common projects

Knowledge – KEX.net

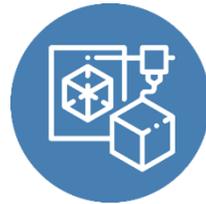
Digital Technology and Market Information Access



KEX.net

Our digital platform offering:

- Well structured and continuously updated information on selected technology areas like additive manufacturing, hydrogen economy or artificial intelligence
- Our online service enables you to easily identify new business opportunities and application areas of technologies
- Full-service portfolio to efficiently reduce inhouse monitoring costs on trend and deep technology level



knowledge area
additive manufacturing

3D-printed components,
materials, machines &
processes

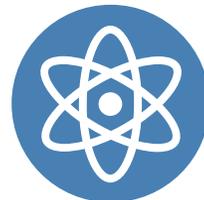
Available



knowledge area
hydrogen economy

The value chain of hydrogen
(storage, production,
distribution & utilization)

Planned in 2021



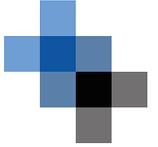
knowledge area
artificial intelligence

Applications, solution providers,
opportunities and limitations
of AI technologies

Planned in 2021

KEX.net – Knowledge Area Additive Manufacturing

Digital Technology and Market Information Access



Framework

- Available: Q1/2020
- Duration: 1-year subscription
- User Accounts: 2 per subscription
- INC Members: 2.400 € p.a.

Implementing Partners

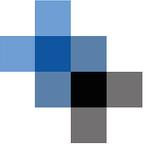


Value Proposition

- Evaluate your potential to apply Additive Manufacturing processes in your future manufacturing value chain
- Do not miss any relevant developments by receiving monthly updates from our near-time technology monitoring service
- Exchange and validate with relevant industrial players and experts from industry, research and academia

Content

- News: Daily, curated additive manufacturing news from multiple highly relevant sources
- Dashboard: Get a weekly, comprehensive overview of relevant developments in the AM industry and the R&D activities.
- Applications: Find your potential application of 3D printing in hundreds of pre-evaluated components
- Technology & Material Landscape: Detailed and frequently updated knowledge database with more than 5.000 profiles in terms relevant manufacturing technologies, machines and materials
- Near Time Monitoring: Frequent monitoring service for major technologies and materials based on external data base access, frequent expert interviews and fair visits



Under development

***Please feel free to let us know
your interests and feedback***

Implementing Partners

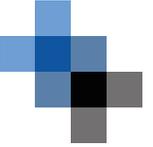


Value Proposition

- Learn about the hydrogen production, storage, distribution and utilization markets and technologies
- Discover links between your portfolio and the hydrogen technologies and become part of the hydrogen value chain
- Exchange and validate with relevant industrial players and experts from industry, research and academia

Content

- Market Assessment: Global overview of relevant products, pilot activities and concepts, as well as a market forecast for different applications
- State of the art technical solutions: Overview and structure of fuel cell and electrolyzer stack and balance-of-plant components as well as an overview of hydrogen infrastructure components regarding safety and inspection
- White-Spot analysis: Identification of unsolved technical requirements and recent trends with a strong view on industrialization potential
- Research overview & outlook: Outlook of relevant reference designs for fuel cell and electrolyzer types and an expert and research view on future hydrogen infrastructure layout



Under development

***Please feel free to let us know
your interests and feedback***

Implementing Partners



Value Proposition

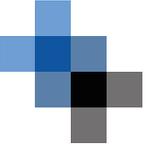
- Learn about the applications, solution providers, opportunities and limitations of AI technologies
- Discover where existing AI solutions can support your business and where it is worthwhile to adapt solutions to your own needs
- Exchange and validate with relevant industrial players and experts from industry, solution providers, research and academia
- Find partners who share similar needs to save on development effort

Content

- Solution catalogue: Structured directory of solutions including providers and compatibility to infrastructure for currently available value-adding applications
- Competence map: Landscape of partners, tools and components to build AI solutions for company-specific problems based on common AI building blocks
- Trend monitoring: Up-to-date information on emerging developments in applications, frameworks, tools, models and major players
- Research Overview & Outlook: Outlook of relevant technological developments as well as new and breakthrough applications and an expert and research view on future possibilities with AI

Acceleration – Venture Radar

Developing disruptive ideas - a data-driven approach

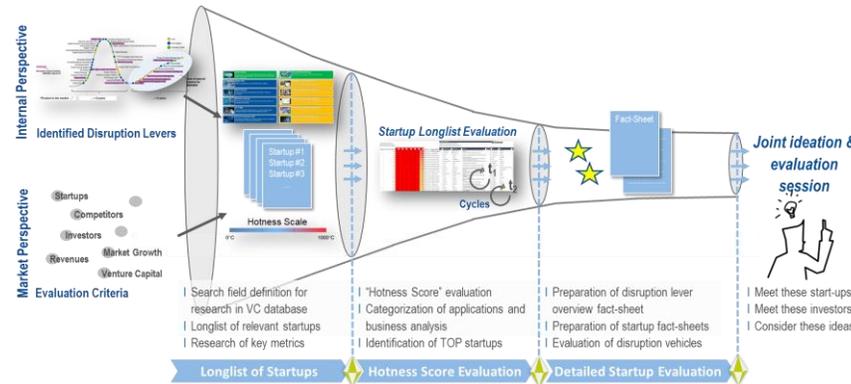


Added value

1. A balanced innovation portfolio includes innovations from 3 horizons: innovations in core business, close to the core business and in completely new disruptive topics (defense and diversify).
2. To cover horizon 3 “disruption” trends and start-ups are a valuable source, but screening and evaluation needs time.
3. The Venture Radar focuses on VC data and helps to spot ventures / disruption early, regularly and efficiently.



Approach



The Venture Radar uses a 3-step approach

Step 1: Based on relevant trends a longlist of ventures is created by using VC databases.

Step 2: Ventures will be ranked according to their hotness score by applying key metrics.

Step 3: The hottest ventures will be analyzed in more detail to assess on how the venture could change the current business.



Framework

1. Evaluating the results by considering the disruptive impact of an idea / venture on a business using 4 disruption levers and the unfair advantage a company has against others when realizing the idea using 4 unfair advantages patterns
2. Recommending immediate actions
 - Meet these start-ups
 - Meet these investors
 - Consider these ideas

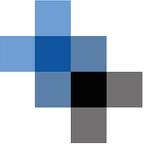
1 trend field: 15.000 €

3 trend fields : 30.000 €

Yearly update per trend field: 5.000 €

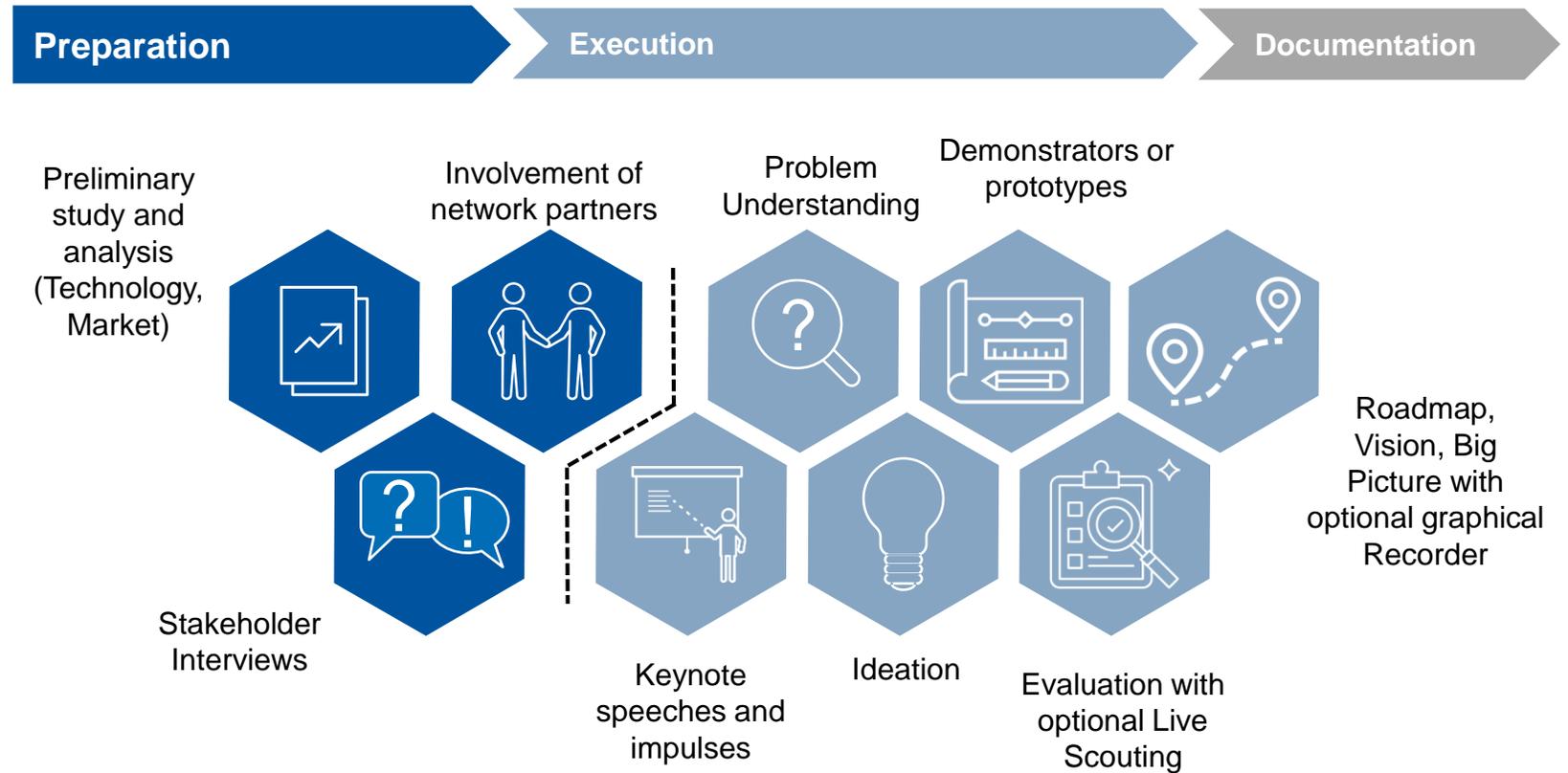
The usual discounts for INC-Members of 3% Basis, 5% Business and 10% Premium apply)

Acceleration – Innovation Workshops



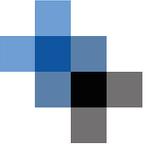
Acceleration

- Our workshops constitute the modular framework for a methodically supported innovation process – from ideation to concept specification up to prototyping of services, products or business models.
- Apart from day-to-day business, we create the perfect environment for you to awaken the innovative power of your employees and challenge your ideas with experts.
- We support you in understanding your customers and realizing breakthrough product and service innovations.



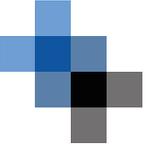
Acceleration – Venture Projects

Opportunities to participate



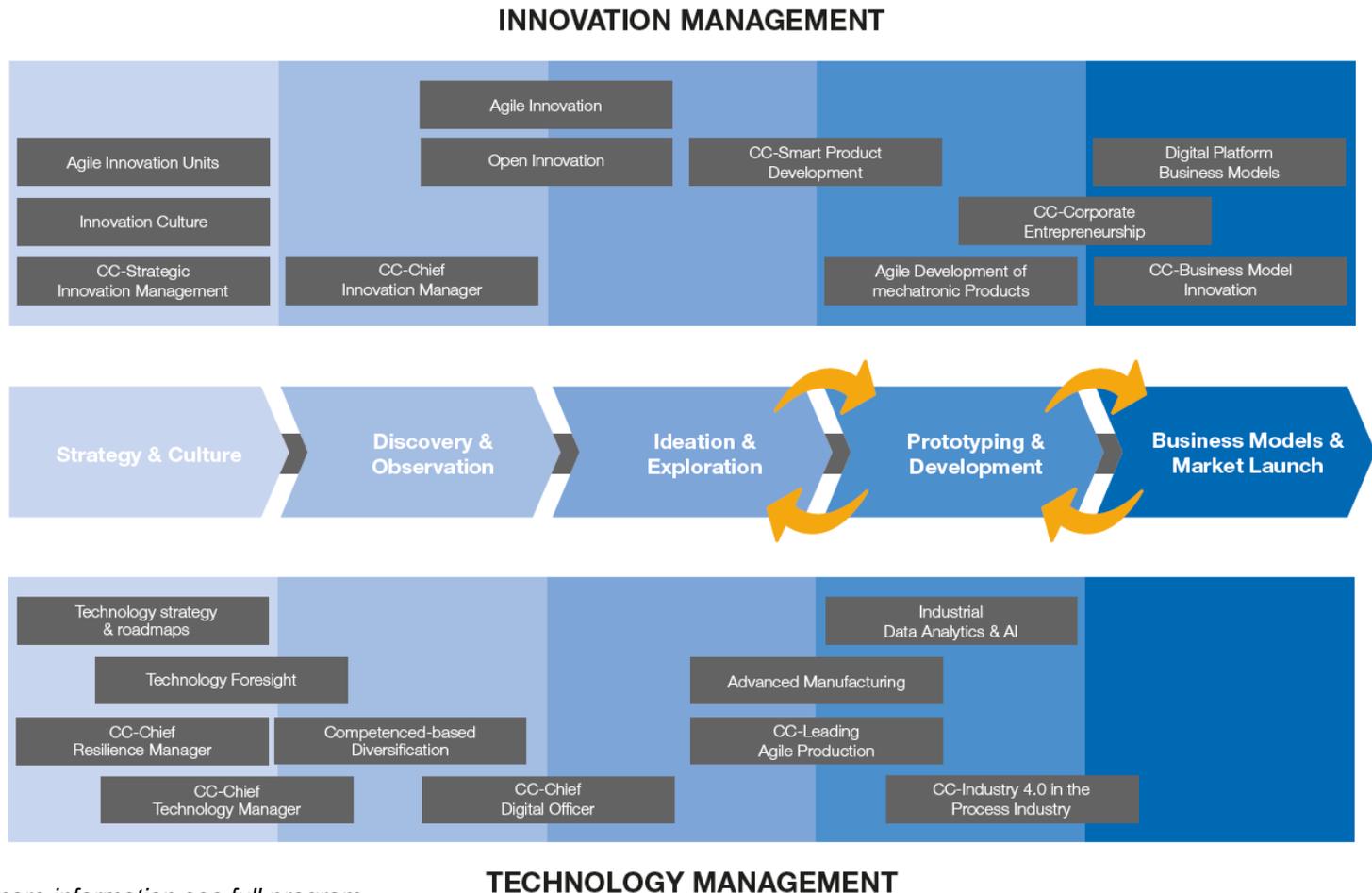
Our venture projects we started in spring 2020 with the beginning of COVID-19 Crisis offer several opportunities for cooperation. Be it for protective gear in your company, support in production or quality control for protective equipment or your individual solution in the company canteen, please contact us if you are interested in one of the initiatives!

Education – RWTH Program Overview



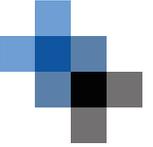
Education

- In addition we offer an overview of continuous education programs at the RWTH Aachen Campus Ecosystem. Focus: Technology and innovation management
- With our program overview we combine the best trainings on technology and innovation management on the RWTH Aachen University Campus.
- A distinction is made between formats that focus on the topic of innovation and formats that have a technology management focus.
- You can choose from a wide range of different entities and research partners



For more information see full program
(coming soon on www.invention-center.de)

Other Activities @RWTH Aachen Campus



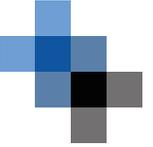
Good to Know

You can use your flexible Invention Center budget for projects and services of other Centers at RWTH Aachen Campus. A selection of topics can be found here, please contact us for more information about the individual projects.

| Title | Project Format | Campus Center |
|--|--------------------------------|-------------------------------|
| Pricing of Digital Products | Consortium Project | Center Smart Services |
| Smart MedTech Development | Consortium Project | Center Smart Services |
| Intelligent Products - Learning from usage data and implementing value-added services | Consortium Benchmarking | Center Smart Services |
| Digital Product Development | Consortium Benchmarking | Complexity Management Academy |
| Product Lifecycle Management | Consortium Benchmarking | Complexity Management Academy |
| Industry Focus on Medical Technology | Focus Group | Complexity Management Academy |
| Product- and Portfolio Management | Focus Group | Complexity Management Academy |
| Lean Innovation | Focus Group | Complexity Management Academy |
| Start AI in R&D | Case Study-based Working Group | R&D Intelligence Center |

More projects to be announced by Jan 2021. You will find the latest information in our INC Virtual Community.

Questions, Feedback, Remarks?



Susanne Aghassi

Director, INC Invention Center
Partner, KEX Knowledge Exchange AG

Tel.: +49 241 51038 611

Mobil: +49 151 5444 8601

Mail: susanne.aghassi@invention-center.de



Beatrice Karoliny

Community Manager, INC Invention Center

Tel.: +49 241 51038 654

Mobil: +49 157 8578 9284

Mail: beatrice.karoliny@invention-center.de