

QUESTIONNAIRE

**CONSORTIUM BENCHMARKING  
AGILE INVENTION 2018**

Initiators







At regular intervals, the Fraunhofer Institute for Production Technology IPT collaborates with the Laboratory for Machine Tools and Production Engineering WZL of the RWTH Aachen, the KEX Knowledge Exchange AG and the INC Invention Center to undertake consortium benchmarking projects with a range of key priority areas. The Consortium Benchmarking in Agile Invention 2018 is linked to a series of research activities around this topic. Participate in this benchmarking project to take a critical look at the early stages of your innovation process and benefit from the outcomes of this study, which will reveal current trends. If you are identified and awarded the distinction of "Successful Practice Company", you will win the opportunity to participate directly in an exchange of experience and in visits to other companies. All other participants will be entered into a draw from which the ten winners picked will each receive an assessment of their technology or innovation management conducted by our technology experts on the basis of the results of the study.

You are cordially invited to fill in this questionnaire, thereby helping us to compile the benchmarking study.

Univ. Prof. Dr.-Ing. Dipl.-Wirt. Ing.  
Günther Schuh

### Benefits for you

- All participants will be entered in the draw from which 5 will be picked to receive a free pass for the 12th Aachen Technology and Innovation Management Conference each worth of 1.400€
- You will receive a copy of the anonymized study results free of charge
- The five most successful companies will be awarded the distinction of "Successful Practice Company"
- Participation in the company visits of the "Successful Practice Companies" and exchange of experiences with the consortium (only if selected as a "Successful Practice Company")

### The Consortium

**AIRBUS**



**ZH**  
Endress+Hauser  
People for Process Automation

InfraServ  
**KNAPSACK**



**KNORR-BREMSE**



**Miele**



**SAURER.**

**SIEMENS**

**SMS** **group**

**thyssenkrupp**

### Subsequent Procedure

If your approaches are identified as successful, we will contact you in order to conduct a telephone interview. Subsequently, anonymized case studies, from which the consortium will select five "Successful Practice Companies" will be drawn up on the basis of the telephone interviews. The "Successful Practice Companies" will then be visited by members of the consortium and by the other companies selected and will, in return, have the opportunity to take part in all company visits.

The "Successful Practice Companies" will present their most highly lauded approaches in the early phases of their innovation process. Finally, all findings from the study and the company visits will be presented at the closing event in November 2018, published as an anonymous study and the "Successful Practice Companies" publicly awarded.

## Consortium Benchmarking »Agile Invention« 2018

Fraunhofer Institute for Production Technology IPT  
c/o Technology Management Department  
Florian Vogt, M.Sc. M.Sc.  
Steinbachstraße 17  
52074 Aachen  
Germany

Your business card/contact details

Company

Title, Name, First name

Function within the company

Phone number

E-mail

Street, House number

ZIP code, City

State / region

Phone: +49 241 8904-564

Fax: +49 241 8904-6564

E-mail: [florian.vogt@ipt.fraunhofer.de](mailto:florian.vogt@ipt.fraunhofer.de)

Reply template: You can fill out the questionnaire online at  
**<http://invention.konsortial-benchmarking.de>**  
or  
return it scanned by e-mail to **[florian.vogt@ipt.fraunhofer.de](mailto:florian.vogt@ipt.fraunhofer.de)**  
or  
send it **by post** in original form to the above-mentioned address.

This questionnaire covers the following topics:

- |  |         |
|--|---------|
| 1. General information about your company or business unit | Page 2  |
| 2. Organizational structure                                | Page 3  |
| 3. Identification & evaluation of ideas                    | Page 6  |
| 4. Agile processes & methods                               | Page 9  |
| 5. Culture & mindset                                       | Page 15 |

Goal of the study is to identify the success factors for a successful invention process. In the context of the present study, the development of radical innovations in the early development phases, from the generation of ideas to the implementation of a first small series at real customers, will be looked at.

## Scope of consideration

To ensure a **comparable evaluation**, we ask you to fill in the questionnaire, either for your **entire company or for a selected business unit**. To which scope of consideration do you refer? (only one option possible)

- Company                       Business unit: \_\_\_\_\_

**Definition:**

**Invention:** What is meant by an invention is a great idea. This could either belong to a product-, process- or business model invention. It can be the origin of an innovation. In the context of the present study, the early development phases, from the generation of ideas to the implementation of a first small series for real customers, will be looked at.

**Innovation:** If the invention is successfully implemented in the market, then this is called an innovation. **Radical innovations** are thereby innovations with the aim of long-term growth through comprehensive changes of existing markets and technologies, as well as the creation of new ones.

## 1. General information about your company or business unit

### 01. What was the number of employees in your company or your business unit in 2017?

Total number of employees: \_\_\_\_\_

Employees in R&D: \_\_\_\_\_

### 02. Which sector is your company or business unit mainly part of?

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Plant & mechanical engineering | <input type="checkbox"/> Energy                     | <input type="checkbox"/> Defense               |
| <input type="checkbox"/> Automation                     | <input type="checkbox"/> IT                         | <input type="checkbox"/> Telecommunication     |
| <input type="checkbox"/> Automotive                     | <input type="checkbox"/> Plastics                   | <input type="checkbox"/> Textil industry       |
| <input type="checkbox"/> Construction                   | <input type="checkbox"/> Food                       | <input type="checkbox"/> Transport & logistics |
| <input type="checkbox"/> Chemical & biotechnology       | <input type="checkbox"/> Aerospace industry         | <input type="checkbox"/> Other: _____          |
| <input type="checkbox"/> Services                       | <input type="checkbox"/> Medicine & pharmaceuticals |  |
| <input type="checkbox"/> Electronics                    | <input type="checkbox"/> Commercial vehicles        |  |

### 03. What was the turnover [millions] of your company or business unit in 2017?

Currency  €  \$ Turnover [millions]: \_\_\_\_\_

### 04. What was the ratio of research and development budgets to total sales in your company or business unit in 2017 and how do you estimate the trend for 2018?

R&D budget/total revenue 2017 [%]: \_\_\_\_\_

Trend 2018:  ↗ rising  → constant  ↘ falling

**05. What is the budget ratio of radical innovation projects within your research & development of your company/business unit?**

- 0%                       1 – 5%                       6 – 10%                       11 – 15%  
 16 – 25%                       26 – 50%                       > 50%

**06. How large are the average development timespans for radical innovation projects from the idea to market launch in your company or business unit?**

- < 1 year                       1 – 2 years                       3 – 5 years  
 6 – 10 years                       11 – 20 years                       > 20 years

**07. Self-assessment: »Comparing the given principles/characteristics, how would you classify your company or business unit?«**

Process and Tools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Individuals and Interactions
Working Solutions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Comprehensive Documentation
Customer Collaboration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Contract Negotiation
Following a Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Responding to Change

## 2. Organizational structure

**08. Is there an invention process in your company?**

- Yes, there is a systematic invention process.  
 Yes, but the invention process is not systematized or formally defined.  
 No, but it is being planned for the future.  
 No, and it is not planned for the future.

**09. Self-assessment: »We regularly succeed in bringing radical innovations to market.«**



**Definition: Phases of the invention process**


<b>Idea phase:</b>	Identification and creative development of ideas
<b>Concept phase:</b>	Conceptual elaboration and detailing of ideas
<b>Development phase:</b>	Concrete realization of the ideas (e.g. first prototypes)
<b>Implementation phase:</b>	Testing and implementation of the ideas at real customers (e.g. within a first small series)

**10. Do you use separate innovation paths (e.g. incubators, innovation labs, etc.) to promote innovations outside existing structures? (if »no«, please proceed to question 14)**

Yes

No (proceed to question 14)

**11. For which phases of the invention process do you use separate innovation paths?**

	No use			Intensive use
Idea phase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Concept phase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Development phase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implementation phase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**12. How are the inventions from separate innovation paths generally exploited? (multiple answers are possible)**

- Integration in existing structures of the parent company.
- Integration in new created structures of the parent company.
- Exploitation through the separate innovation path. (proceed to question 14)
- Founding of a new company. (proceed to question 14)
- Other: \_\_\_\_\_

**13. If you integrate the invention in the parent company...**

**...at what time are the inventions transferred? (multiple answers are possible)**

- Idea phase
- Concept phase
- Development phase
- Implementation phase

**...which problems do mainly occur during the transfer process? (multiple answers are possible)**

- Loss of development pace
- Lack of availability of resources
- Unclear responsibilities within the organization
- Other: \_\_\_\_\_
- Missing acceptance within the organization
- Missing interfaces
- No clear assignment within the organization possible

**14. Which of the following statements about collaboration on radical development projects in your company is generally accurate?**

- The specialist disciplines work in **separate departments** in the context of a classical line organization. Tasks are distributed by the respective department or group leaders.


---


- The specialist disciplines are organized into separate departments, but work together **project-specifically**. A project manager is responsible for the interdisciplinary management of the project.

---

- Employees of the specialist disciplines are released for a comprehensive project and work **exclusively in the interdisciplinary project team**.

**15. What networks do you use within your invention process?**

<b>Internal networks:</b>	No use			Very intensive use
Intra-divisional cooperation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cross-divisional cooperation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group-wide networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>External networks:</b>	No use			Very intensive use
Corporate networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supplier networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Research/university networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Associations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**16. Which are your primary goals of using internal and external networks within the invention process?**

	No goal			Strong goal
Reducing of costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Higher creativity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Better market access	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knowhow access	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saving of resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**17. How are your network cooperations generally designed for innovation projects?**


Strictly contractual network	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Loose cooperation network without contractual regulations
Own intellectual property (IP) is openly made available in the network	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Own intellectual property (IP) is deliberately not provided
Generated IP is strictly separated between cooperation partners	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Generated IP is used jointly

**3. Identifying & evaluating ideas**

**18. How are new ideas as a basis for radical innovations predominantly generated in your company/business unit?**


Actively (through »development«)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Passively (through »picking up«)
Internally (e.g. through employees)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Externally (e.g. through trade fairs)
Market Pull	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Technology Push

**19. Which divisions/departments are the main sources of radical ideas in your company?**

	No participation		Very high participation	Area does not exist
Research & development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Predevelopment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Series development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Innovation management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technology management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Corporate management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Production	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Marketing/sales	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Separate innovation paths: incubators, innovation labs, accelerators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strategy units/corporate development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



**20. Which methods or instruments do you use to identify radical ideas?**

	No use			Very intensive use
Internal idea competitions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stationary idea boxes/suggestion boxes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External idea competitions (e.g. hackathons)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Open innovation platforms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Startup events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer surveys	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer observation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Research/university cooperations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Market/Trend analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scenario technique	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patent analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**21. How many new, radical ideas have you generated within the last three years?**

- None     
  1 – 5     
  6 – 20     
  21 – 50  
 51 – 100     
  101 – 250     
  > 250     
  N/A

**How many of these ideas have been conceptually pursued?**

- None     
  < 5%     
  5 – 10%     
  11 – 20%  
 21 – 35%     
  36 – 50%     
  51 – 75%     
  > 75%

**How much percentage of the ideas conceptually pursued were successfully brought to market maturity?**

- None     
  < 5%     
  5 – 10%     
  11 – 20%  
 21 – 35%     
  36 – 50%     
  51 – 75%     
  > 75%


**22. Who is responsible for evaluating the radical ideas in your company? (multiple answers are possible)**

- Individuals from top management, e.g. managing directors
- Individuals from middle/lower management, e.g. business unit manager/department manager, project manager
- Board of internal experts from various divisions of the company (e.g. marketing, development, innovation management)
- (Open, internal) innovation communities
- External experts/consultants
- Customers
- Other: \_\_\_\_\_


**23. What kind of criteria do you use to evaluate different ideas in your company in the respective phases of the invention process? (multiple answers per phase are possible)**

	Subjective assessment	Qualitative criteria	Quantitative criteria	No evaluation of ideas
Idea phase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Concept phase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Development phase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implementation phase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**24. What specific criteria do you use to evaluate ideas?**

	No evaluation criterion		Very strong evaluation criterion
Personal appearance / competencies of the »inventor«	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vision of the idea	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fit for strategic orientation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Differentiation potential/uniqueness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attractiveness of the market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk potential (e.g. imitability)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technical feasibility of the idea	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**(continuation) What specific criteria do you use to evaluate ideas?**

	No evaluation criterion				Very strong evaluation criterion
Capital requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Exploitation potential (sales/margin/ROI)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**25. Does your company or business unit has defined essential criteria for the termination of invention projects?**

Yes

No

**If yes, what are they?**

---



---

**26. Self-assessment: »Our evaluation system enables us to place the right ideas in the market at the right time.«**

Strongly disagree





Strongly agree

## 4. Agile processes & methods

**27. For you, working in an agile way means... (multiple answers are possible)**

- ... possessing high transparency in processes.
- ... building prototypes at regular intervals.
- ... spending a lot of time on communication.
- ... self-organization and individual responsibilities of teams.
- ... handling unclear decision processes.
- ... higher personal resources.
- ... obtaining product feedback regularly.
- ... iterative work in cycles.
- ... being in direct contact with the customer.
- ... lower process-related structuring.
- ... development without a completely defined list of requirements.
- ... Other: \_\_\_\_\_

**28. In which projects do you use agile methods or agile project management? (multiple answers are possible)**

Software development  
(proceed to question 29)

Hardware engineering  
(proceed to question 29)

No application of agile methods

**If you use no agile methods:**

**Why aren't agile methods used in your company or business unit? (multiple answers are possible)**

- Established processes/methods are successful.
- Agile methods have already been used, but have been discarded again.
- The method is not convincing.
- Thinking about dealing with the topic in future.
- The method is not or hardly known.
- Implementation is too difficult.
- Not suitable for our field of activity.
- Other: \_\_\_\_\_

→ **If you are not currently using agile methods in your company, please continue with question 38**

**29. How long have you been using agile methods in your company or business unit?**

- < 1 year       1 – 2 years       3 – 5 years       > 5 years

**30. Why did your company initially decide to introduce agile methods? (multiple answers are possible)**

- Shorter time-to-market
- Improvement of product/process quality
- Reduction of project risks
- Optimization of plannability
- Demand from a customer/supplier
- Reduction of development costs
- Improved teamwork
- Improving the ability for innovation
- Other: \_\_\_\_\_

**31. What percentage of development projects are carried out using agile methods?**

- < 25%       25 – 50%       51 – 75%       76 – 99%       100%

**32. During which phases do you use agile methods? (multiple answers are possible)**

In the early phases  
(invention)

In the late phases  
(series development)

**33. Please answer how agile methods and principles are interdisciplinary used within your company/business unit.**

Not at all  
applicable



Fully  
applicable

The whole organization uses agile methods and principles.






---

All divisions/departments involved within a agile development project are working with agile methods.





**34. What measures have been taken to roll out agile methods in your company or business unit? (multiple answers are possible)**

- Single successful pilot projects
- Training of individual employees
- Training of all managers
- Establishment of a staff position
- Complete restructuring of the organizational structure
- So far no rolling out
- Other: \_\_\_\_\_

**35. Which agile methods do you use in your field of activity? (multiple answers are possible)**

- SCRUM
- Kanban
- Design Thinking
- Lean
- Lean Startup
- Other: \_\_\_\_\_

**Which agile tools/techniques do you therefor use in your field of activity? (multiple answers are possible)**

- Product Backlog
- Daily meeting
- Sprint review
- Time boxing
- User stories
- Sprint backlog
- Planning poker
- Personas
- Sprint retrospective
- Burndown chart
- Release planning
- MoSCoW Prioritization
- Story Points
- Slack
- Team-based estimation
- Task board (e.g. Kanban/Scrum Board)
- Other: \_\_\_\_\_



**36. Which process do you generally use in your development projects?**

- a) Depending on the type of development project, purely agile or purely traditional processes
- b) Use of agile methods in traditional processes (e.g. agile in Stage Gate)
- c) Situative, selective development (depending on the project phase 'agile' or 'traditional')
- d) Purely agile development process

**If you select a):**

**What are the criteria for selecting a pure agile process?  
(multiple selection possible)**

- |   |   |
|---|---|
| <input type="checkbox"/> Wide range of solutions      | <input type="checkbox"/> High market relevance  |
| <input type="checkbox"/> High resource availability   | <input type="checkbox"/> Low market accuracy    |
| <input type="checkbox"/> Low technological capability | <input type="checkbox"/> High market volatility |
| <input type="checkbox"/> Prototyping capability given | <input type="checkbox"/> Other: _____           |

**If you select b):**

**How can agile methods be integrated into the traditional development process?  
(multiple answers are possible)**

- Aligning the agile process with company-specific deadlines (e.g. trade fairs)
- Agile cycles/sprints between the gates of the traditional process
- Traditional development process using individual agile methods (e.g. Kanban board, ...)
- Other: \_\_\_\_\_

**If you select c):**

**During which phases do you prefer to use the respective processes?  
(multiple answers are possible)**

- Agile process in early phases, then change to traditional process
- Traditional process in early phases, then switch to an agile process
- Situation-specific change between development methods
- Other: \_\_\_\_\_

**37. Please indicate the extent to which the following statements on the use of agile methods apply to your company's development.**

**By using agile methods...**

	Not at all applicable				Fully applicable
... our ability for the <b>dynamic handling of priorities</b> has risen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
... our <b>project results</b> have improved.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
... the <b>productivity and efficiency</b> of our development teams have risen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
... the <b>morale and motivation</b> in our development teams have risen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
... we achieve a shorter <b>time-to-market</b> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
... we succeed in terminate <b>non-relevant projects at an early stage</b> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
... our <b>innovation ability</b> has risen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
... we can better handle <b>uncertainties</b> in our innovation process.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
... we limit ourselves to a <b>minimum number of product requirements at first</b> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
... we have improved with respect to <b>deadlines</b> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
... we achieve a <b>higher customer orientation</b> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
... we have improved with respect to <b>budget compliance</b> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	


**38. On average, how many development projects are your employees involved in simultaneously?**

- 1                       2                       3 – 4  
 5 – 6                       7 – 8                       > 8

**39. How do you involve your customers in the respective development phases?  
(multiple answers per phase are possible)**

	Idea phase	Concept phase	Development phase	Implementation phase
Market studies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sales survey	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Survey of lead customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer observation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Validation based on prototypes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Collaborative development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No integration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**40. Which of your business units have customer contact?  
(multiple answers are possible)**

	No contact		Very intensive contact	Area does not exist
Research & development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Predevelopment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Series development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Innovation management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technology management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Corporate management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Marketing/sales	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Separate innovation paths: incubators, innovation labs, accelerators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strategy units/corporate development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**41. To what extent do you agree with the following statements about the use of prototypes in your company/business unit?**

	Strongly disagree				Strongly agree
Prototypes are systematically used for specifying and validating single requirements.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
Prototypes are the necessary result after a development cycle.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
Prototypes are always specified in such a way that they present the full range of functions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**42. In what time interval are new prototypes generally developed within a development project?**

<input type="checkbox"/> 1 – 2 weeks	<input type="checkbox"/> 3 – 4 weeks	<input type="checkbox"/> 5 – 8 weeks
<input type="checkbox"/> 9 – 16 weeks	<input type="checkbox"/> 17 – 24 weeks	<input type="checkbox"/> > 24 weeks

**43. How does the financing of a single innovation project work within your company/business unit?**

One-time defined budget	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Demand-driven budget at flexible intervals
<hr/>					
Full freedom of the team over the released budget	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strict controlling by the budget financier

## 5. Culture & mindset

**44. Self-assessment: »We enable our employees to develop and try out new ideas.«**

Strongly disagree				Strongly agree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**45. Please indicate to what extent the following characteristics apply to the corporate culture of your company/business unit.**

	No characteristic				Strong characteristic
Established culture of trust	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
Room for creativity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
Flat hierarchies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>					
Conscious assumption of risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**(continuation) Please indicate to what extent the following characteristics apply to the corporate culture of your company/business unit.**

	No characteristic				Strong characteristic
Little silo mentality – a lot of joint innovation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Open information and communication behavior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Acceptance & openness to errors and failures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Learning organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**46. Which levers/approaches do you use to promote the emergence of a successful »Culture of invention«? (multiple answers are possible)**

- |   |   |
|---|---|
| <input type="checkbox"/> Culture and training programs for employees      | <input type="checkbox"/> Communication of corporate vision and values                 |
| <input type="checkbox"/> Freely available budget                          | <input type="checkbox"/> Defined target   |
| <input type="checkbox"/> Honouring of employees (e.g. best failure award) | <input type="checkbox"/> Active promotion of employee exchanges (e.g. internal fairs) |
| <input type="checkbox"/> Free space for employees (time)                  | <input type="checkbox"/> Promotion of (interest) communities                          |
| <input type="checkbox"/> Defined employees as cultural representatives    | <input type="checkbox"/> Other: _____   |

**Definition:**

**Intrapreneur:** An intrapreneur is an employee who does his job with the same attitude as an entrepreneur, even though he is integrated in an organization

**47. Please indicate to what extent the following statements about your company's employees apply.**

	Strongly disagree				Strongly agree
Every employee can be thrilled for the use of agile methods.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Every employee can be empowered to act as an intrapreneur and successfully implement innovations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The traditional »(technical) inventor« possesses the ability to bring inventions (alone) to market maturity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
It is wise to actively empower intrapreneurs and integrate them within each development team.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



**48. How do you identify the actual intrapreneurs in your company/business unit from the employees as a whole?**

- Via internally advertised idea competitions
- Via internal innovation platforms/forums
- Via the assessments of superiors
- Via the assessments of colleagues
- Through the employees' own applications
- Other: \_\_\_\_\_

**49. What, in your opinion, are essential competencies/properties of employees who, as intrapreneurs, promote the creation/development of inventions?**

	Not important			Very important
Optimism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety awareness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Team spirit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The ability to motivate others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Entrepreneurial spirit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inventive talent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Willingness to take risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Curiosity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Openness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enthusiasm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Creativity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good knowledge of the market/industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specialized knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**50. Which incentive models do you use to motivate your intrapreneurs?  
(multiple choices are possible)**

- Proportional participation in the success of the project
- Fixed reward if the project is successful
- Exemption of own capacities by securing the workplace
- Successful invention as a career springboard
- Top management attention
- Company-wide appreciation through »official« awards
- There are no incentive models
- Other: \_\_\_\_\_

**Additional**

**Is there a concrete example in the context of agile invention within your company/business unit which you would state as special and unique? If yes, please describe it.**

---

---

---

---

**Thank you for your participation!**

**May we send you future informations?**

**Declaration of consent to the storage and use of personal data**

I hereby give my consent for Fraunhofer Institute for Production Technology IPT to collect my data by in accordance with the provisions of the German Federal Data Protection Act (BDSG) and to send me information about the research activities and service portfolio of the Fraunhofer IPT by mail, fax, or e-mail.

This consent has been given voluntarily and can be withdrawn at any time.

\_\_\_\_\_  
Place, date

\_\_\_\_\_  
Signature

# INITIATORS

## Fraunhofer Institute for Production Technology IPT

On behalf of our customers we develop and optimize new and existing solutions for modern production. The aim of the Fraunhofer Institute for Production Technology IPT is to conduct application and industry-oriented research and development for companies throughout the entire manufacturing sector. The results are promptly implemented in the operating practice of our customers. We focus on sectors ranging from the automotive industry and its suppliers, particularly on tool and die making, through aerospace, precision engineering and optical industries through to machine tool construction.



## Laboratory for Machine Tools and Production Engineering WZL

The Laboratory for Machine Tools and Production Engineering WZL of the RWTH University Aachen conducts both basic and industry-oriented research and consulting projects, developing innovative, practice-based solutions to safeguard successful company development. The goal, to address the whole range of production engineering issues, results in an expansive field of activity extending from strategy innovation, production and quality management to control, machine, manufacturing and measuring engineering.



## Invention Center

The Invention Center on the RWTH Aachen campus is where participating companies can obtain further qualifications in the field of technology and innovation management along with optimum solutions to any challenges which arise. In collaboration with the TIME Research Area, the Fraunhofer IPT, the WZL of the RWTH Aachen University and the KEX Knowledge Exchange AG, a »World of Experience« is designed, which provides planners and decision-makers in industry with the opportunity to experience the entire process from the initial development idea through to the manufacture of products suitable for mass production. The underlying concept is fine-tuned carefully to match the projects, capabilities and interests of companies involved.



## KEX Knowledge Exchange AG

KEX Knowledge Exchange AG is a professional service providing technology and market-related information. The enterprise concentrates over 20 years of experience acquired by Aachen-based institutes covering a diverse range of disciplines in searching for, assessing and interpreting information. Intelligent knowledge management systems and the comprehensive links to exclusive sources of information and to a unique network of experts permit technologies and markets to be scanned, scouted and monitored effectively. By providing requirement-specific information, the enterprise supports corporate decision-making ranging from the identification of technologies of relevance in the competitive environment through the observation of markets, competitors and M&A candidates to the identification of new business areas.



**Fraunhofer Institute for  
Production Technology IPT**

Steinbachstrasse 17

52074 Aachen

Germany

Phone +49 241 8904-0

Fax +49 241 8904-198

[info@ipt.fraunhofer.de](mailto:info@ipt.fraunhofer.de)

[www.ipt.fraunhofer.de](http://www.ipt.fraunhofer.de)

**Contact**

Florian Vogt, M.Sc. M.Sc.

Phone +49 241 8904-564

Fax +49 241 8904-6564

[florian.vogt@ipt.fraunhofer.de](mailto:florian.vogt@ipt.fraunhofer.de)