



TIP Working Party
CO-CREATION PROJECT
2019-2020

Case study from Germany



AHEAD - Fraunhofer deep tech entrepreneurship platform

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Fraunhofer AHEAD

EXECUTIVE SUMMARY

In 2018, Fraunhofer decided to re-invent its central technology transfer system. The outcome is AHEAD as one of Europe’s largest technology transfer programs with roughly 80 high-tech projects per year and the goal to increase the number of spin-offs and licensing deals at Fraunhofer. Beyond that, the vision is to develop AHEAD into a platform that flexibly connects the dots between Fraunhofer researchers and technologies as well as external players such as entrepreneurs, startups, corporates and foundations – with a special focus on the Sustainable Development Goals. Thereby, AHEAD becomes a co-creation platform that is able to manage and support various team constellations and tech transfer goals around Fraunhofer technology. In order to do that in an efficient way, AHEAD has developed a Minimum Viable Product of a digital layer for the program that helps with matchmaking, tracking of teams and the overall program management. This will unlock the co-creation mode for 74 Fraunhofer institutes.

The case study reflects upon the first year of co-creation projects at AHEAD, the overall setup of the program and its vision to build an enabling platform for more “Sustainable Development Goals”-based projects by leveraging the benefits of digital means.

1. GENERAL CHARACTERISTICS OF FRAUNHOFER AHEAD

The initiative in short

Name of the initiative: Fraunhofer AHEAD

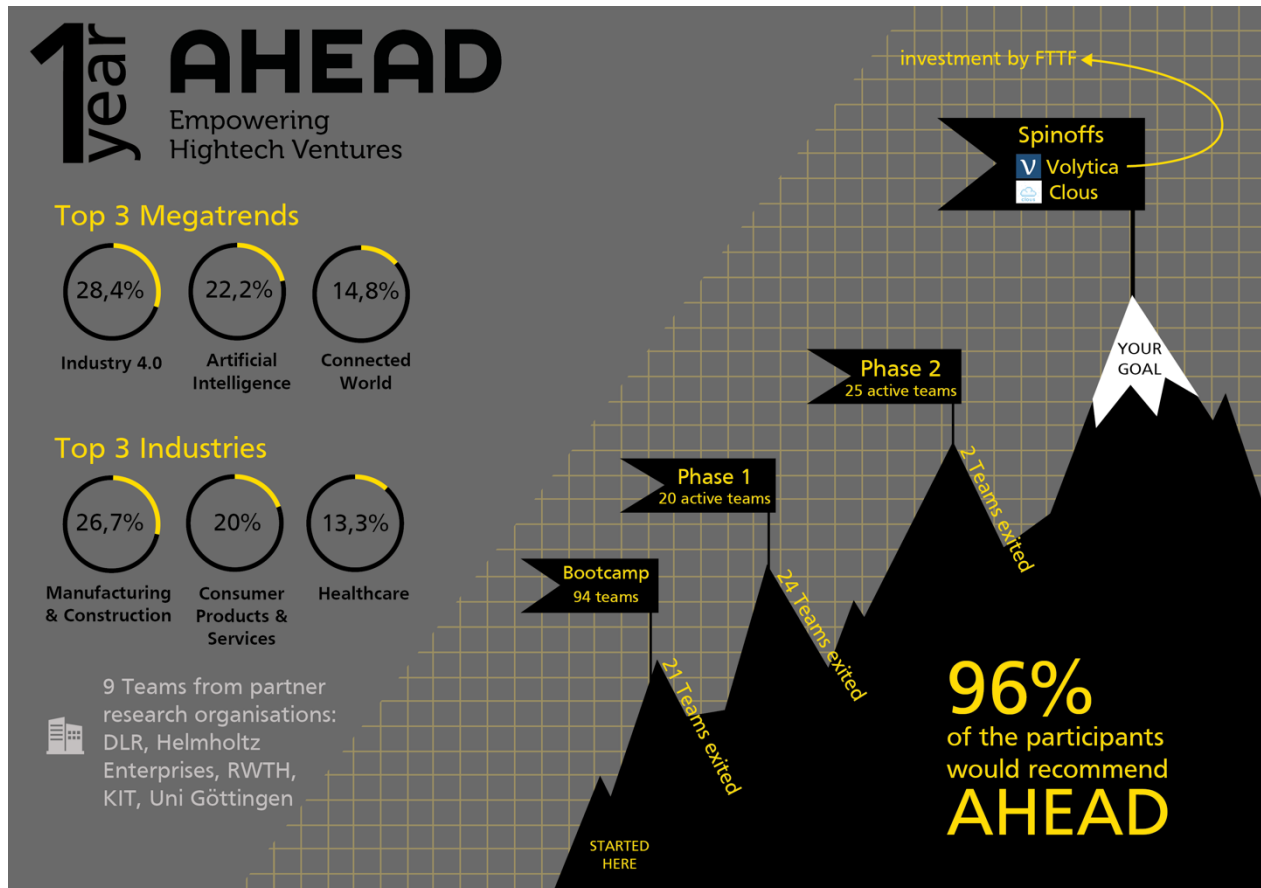
Start date: 01.01.2019

Expected end date: -

Country: Germany

Budget of the initiative: not clearly defined; AHEAD has a yearly small 7-digits basic funding for the program itself (workshops, trainings, coaches, networking events, etc.). Beyond that, the funding of individual projects is flexible.

Main focus: Economic



1. What is the vision of the co-creation initiative?

Establish AHEAD as a central & digitally enabled co-creation platform for technology transfer (“TT”) from 74 Fraunhofer institutes into European (impact) startups. The term “co-creation” refers to AHEAD’s rationale to involve Fraunhofer-external parties, such as startups, individual innovators, corporates, foundations, or the general public in order to translate a given technology into something of actual value. Through a “platform”, AHEAD will enable to match the respective parties into individual projects around Fraunhofer technology and create an environment for a systematic, effective collaboration.

1A. What is the rationale behind the establishment of the co-creation initiative?

Since knowledge about emerging market opportunities is scarce and hard to access, yet critical for TT to be successful, involving those parties possessing

this very knowledge is a critical component for the improvement of Fraunhofer's overall TT efficacy. The same is true for entrepreneurial personalities being capable of creating true innovations. Creating a central platform provides the potential to connect the right dots effectively. An underlying digital layer of this platform guarantees the efficiency of matching Fraunhofer with relevant co-creators, enabling co-creation processes and tracking the results.

1B. Who established the Fraunhofer Digital AHEAD initiative? Please provide details on the mechanisms implemented to co-develop the vision.

AHEAD originated from within the Fraunhofer Headquarters. Two fundamental factors influenced its initiation: 1. The need to increase the number of successful TTs – especially via spin-offs. 2. The need to increase the ratio of pull-generated TTs – especially for innovation horizons 2 + 3. Based upon decades of tech transfer experience and running programs dedicated to this goal, Fraunhofer decided to create AHEAD as the response to altering business conditions.

1C. Has the vision of the initiative ever been revised?

The vision is currently under revision.

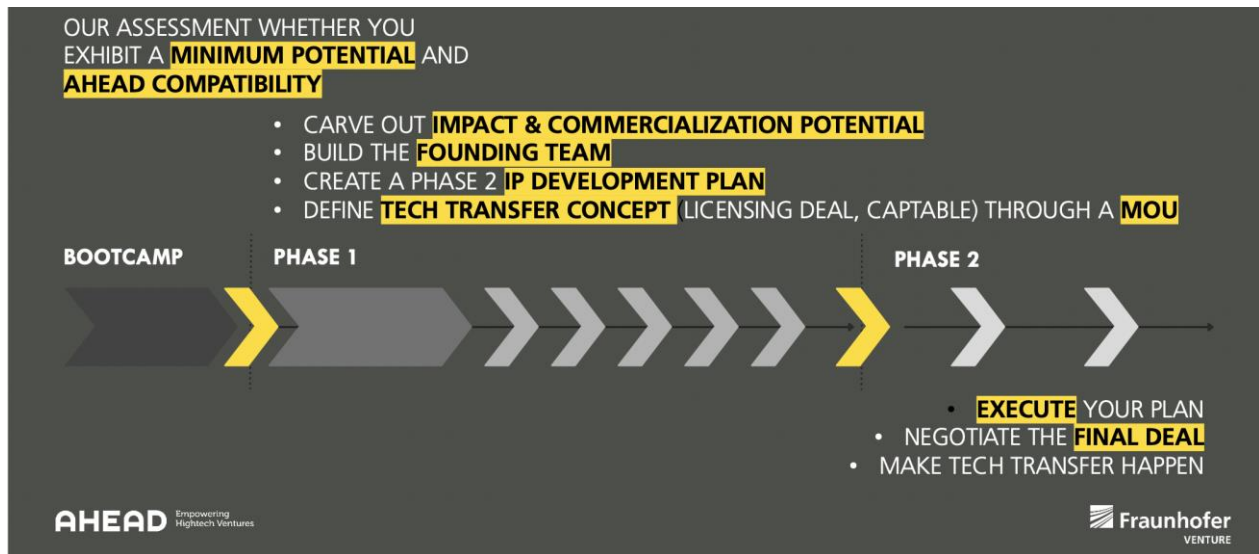
2. What are the main objectives of the initiative?

- Increasing the number of TTs – especially via spin-offs
- Increasing the amount of TT projects addressing the Sustainable Development Goals
- Long-term learning of co-creation mechanisms: at Fraunhofer we seek to tailor our co-creation activities to the individual needs of our projects and ventures. In order to achieve this for a portfolio of 100+ teams, we are currently developing a digital tool that enables us to track their progress systematically. In the future, we would like to understand what co-creation mechanisms (e.g. crowdsourcing ideas, startup cooperations) work best and what AHEAD activities (e.g. coachings, matchmaking events) support to the individual projects best.

3. What type of support is provided by AHEAD? Please elaborate on the characteristics and implementation of the support mechanisms

AHEAD facilitates - for any given Fraunhofer technology - an apt co-creation setup that optimizes for commercial viability and / or impact magnitude. In order to keep that promise, the following support mechanisms are in place:

- **Matchmaking:** for all our stakeholders, we support the identification of relevant partners (e.g. finding Fraunhofer institutes that can solve the tech challenge of a startup, or the curation of AHEAD ventures for a corporate venture capital unit) and support them in effectively working together (e.g. through creating a neutral ground where the partners can work together, or team development support).
- **Funding:** AHEAD can fund Fraunhofer researchers in order to work on the tech transfer and collaborate with partners. As an important partner of the AHEAD platform, the Fraunhofer future foundation can give additional funding to selected projects that address the Sustainable Development Goals. The funding from both source is tied to the AHEAD program (see next point). Moreover, AHEAD provides access to its network of investors, or alternative funding mechanisms (e.g. crowdfunding).
- **Program:** The AHEAD program is the platform's core. Starting with an assessment center (= Bootcamp) three times per year, teams (with at least 1 Fraunhofer employee being part of the team) can get access to AHEAD phase 1 one, which provides a 50k project budget for Fraunhofer employees and up to 6 month of support. During phase 1, market / impact opportunities have to be further explored and pre-validated, communication prototypes need be built, teams have to prove their entrepreneurial effectiveness and a TT project has to be defined. Based upon that plan and in case of an overall convincing project, phase 2 can be granted with flexible funding and up to 1,5 years of support. Beyond the funding, the AHEAD program provides workshops, coaching & mentoring, peer exchange and access to the network tailored to the individual need to every project. The necessary insights regarding current challenges stem from AHEAD coaches and experts who put their assessment of each team into AHEAD's digital tool every three weeks. A visualization of the program can be found below.



- Digital layer: The digital layer of AHEAD serves mainly three different purposes.
 1. Facilitating the matchmaking: via ahead.fraunhofer.de AHEAD projects can e.g. find investors, customers, or co-founders and vice versa
 2. Collecting data regarding AHEAD projects' maturity and challenges from different sources and linking AHEAD support activities (e.g. workshops, trainings, or individual expert sessions) accordingly
 3. Long-term learning regarding AHEAD's efficacy

- Easy matchmaking between co-creation partners
- continuous monitoring of all co-creation projects regarding their challenges, activities and progress
- allocation of program resources according to data
- measuring the overall efficacy of any project
- long-term learning

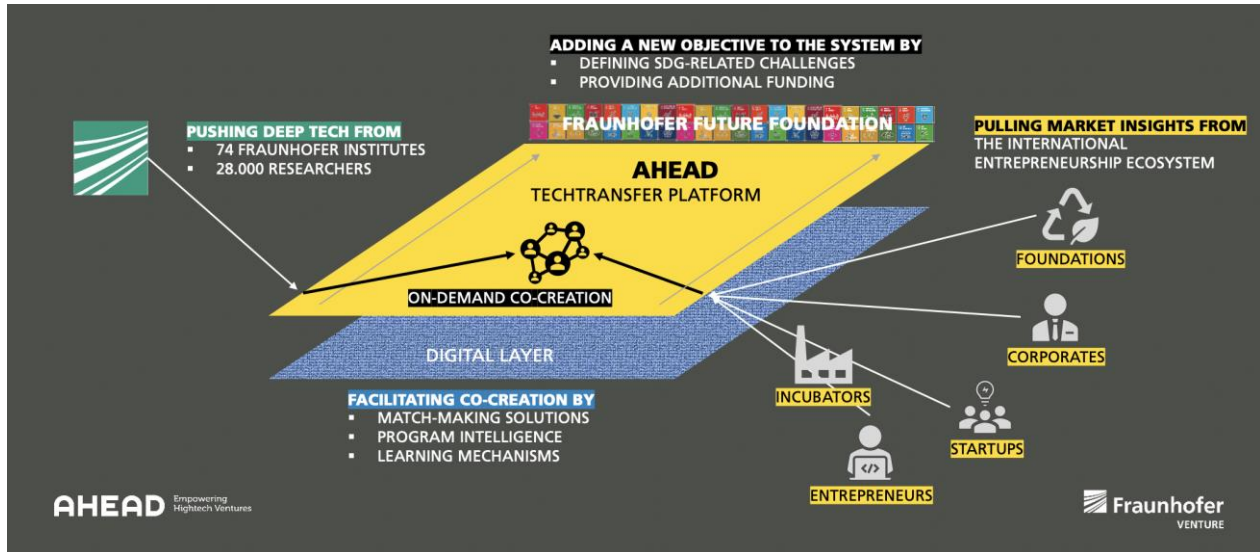
AHEAD Empowering Hightech Ventures **Fraunhofer** VENTURE

Main characteristics of Fraunhofer AHEAD's co-creation projects

3. What types of partners engage in Fraunhofer AHEAD's co-creation projects? Please explain and complete the table below

- Entrepreneurs: either have a business idea, but lack a fundamental Fraunhofer technology (see next point “startups”), or complement AHEAD teams who are searching for a business co-founder; e.g. [symvio](#)
- Firms:
 1. Startups: bring innovative business models and entrepreneurial team, yet lack state-of-the-art technology as enabler; seek to achieve a “Fraunhofer inside” status; e.g. [Skuld](#), or [Recycle on the Spot](#)
 2. SMEs/corporates/foundations: are looking for innovative startups, or licensing deals for specific target areas (such as stadiums, AI in banking); bring market insights, serve as proof-of-concept partners, or strategic investors; examples: [comdirect](#), Eintracht Frankfurt (football club); [systemiq](#)
- Fraunhofer: Europe's largest research institution for applied sciences technology with 74 institutes and 28.000 employees (roughly 20.000 researchers). There are 3 different players which are important in this context:
 1. The Fraunhofer institutes providing technologies and researchers as a necessary key ingredient of AHEAD. They are mainly responsible for tech & product development, yet also might create future business models and founding teams;
 2. Fraunhofer AHEAD is operated by Fraunhofer Headquarters and thus serves as a central platform between the institutes and the Fraunhofer-external ecosystem
 3. Fraunhofer Future Foundation: provides funding and network for SDG-related projects;
- Accelerators and incubators: have access to entrepreneurs and startups (see above) and thereby help with outreach and curation of relevant co-creation partners. They also provide complementary incubation services to joint projects; example: <https://projecttogether.org>

Please note that all of these partners might be co-creation partners, but do not necessarily need to be. For every single AHEAD project, the co-creation partners are selected based upon the individual needs.



The table below provides an overview of different types of actors participating in co-creation projects and the different activities they engage in.

	A.	B.	C. Location			D. Main activities						
	Partners for co-creation	Project initiator(s)	Local/regional	National	International	Priorities setting	Research	Designing products	Experimentation and development	Commercialization / Support (marketing, consultancy, etc.)	Product launch	Financial engagement (share of funding, %)
Firms:												
Service	X	X		X		X		X	X	X	X	
Manufacturing	X	X		X		X		X	X	X	X	
Research organizations:												
Public research institutes	X	X		X		X	X		X	X		X
Universities												
Civil society:												
Non-governmental organisations (NGOs)	X			X		X		X	X	X	X	X
Personal engagement												
Government:												
Public authorities												
Government agencies												
Transnational organizations	X				X	X		X	X	X	X	

4. What are the main motivations of the different partners to collaborate in this initiative?

- Entrepreneurs: in need of a technology and / or a tech-savvy co-founder; access to AHEAD network;
- Firms: seeking inspiration what technologies might serve as enablers for future business models; efficient early access to the latest technologies;
- Fraunhofer: improving technology transfer; getting access to entrepreneurs & market needs; funding more impact-related technology transfer projects (SDG focus)
- Accelerators/incubators: additional service for their target group (= entrepreneurs/incubators);

5. Are there any conditions to participate in Fraunhofer AHEAD’s co-creation projects? If there are criteria for selecting partners, please, name them.

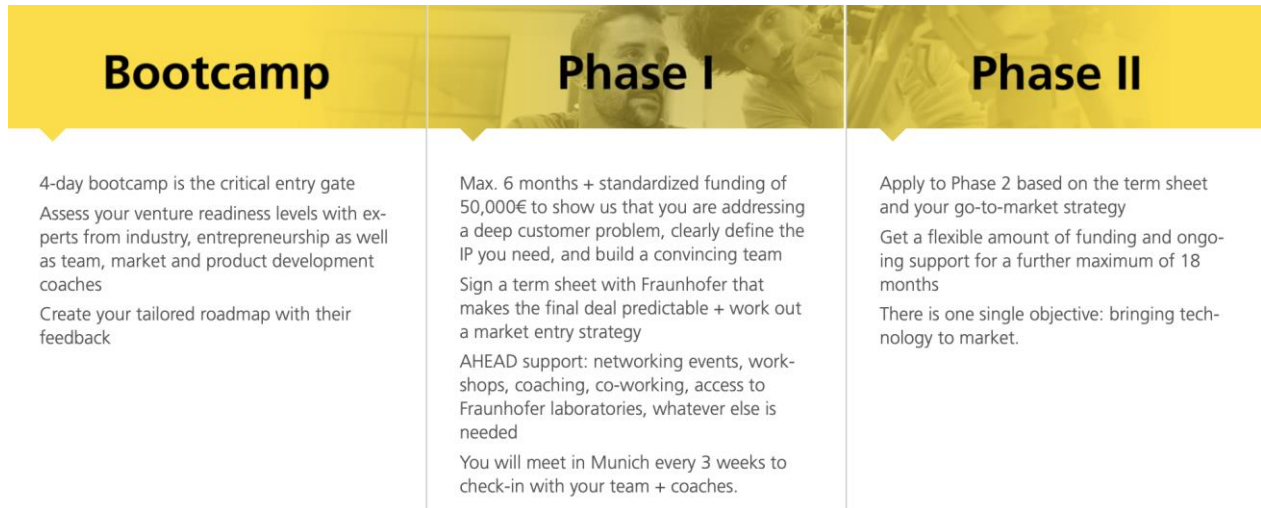
- As for entrepreneurs, startups: most of the matchmaking is enabled by AHEAD's digital tool.
 - Prior to the AHEAD program: the external partner registers on the platform with a business idea, the description of the team and a technological need. This template will be sent to Fraunhofer institutes, which then apply to work with the entrepreneur / startup. In case there is several interested institutes, bilateral calls with the external party clarify the fit and the mutual motivation wo work with each other. Ultimately, a mutual agreement (informal) is necessary in order to provide the basis for a joint AHEAD application.
 - During the AHEAD program: the list of AHEAD projects is always publicly available. Entrepreneurs might apply as co-founders and the matchmaking will be facilitated by the AHEAD team. Startups might apply to become a licensee of AHEAD projects.
- foundations, corporates:
 - Prior to the AHEAD program: partners can jointly build so-called tracks as part of a normal AHEAD batch. Tracks are topic-related and closely linked to a strategic interest of the partner. Examples include: Life Sciences (Life Science Factory Göttingen & Sartorius), AI (appliedAI), Sports (Eintracht Frankfurt & TechQuartier), SDG (multiple partners). Via a track, AHEAD will put additional efforts into scouting interesting technologies for the track and design – jointly with the track partner(s) – additional program activities (workshops, networking events) tailored to the track.
 - During the AHEAD program: are invited to networking events in order to get to know interesting projects, or they indicate their interest for a 1-on1-matching via the digital AHEAD tool.
- As for accelerators/incubators: should have complementary assets in terms of high quality experts / network and especially high quality ventures with high interest in collaborating with Fraunhofer.

6. Please explain the rationale of involving these partners co-creation projects

- Fraunhofer: broad pool of technologies, strong interest in funding SDG-related projects
- Entrepreneurs, startups, foundations, corporates: provide business knowledge and founding team;

- Accelerators/incubators: efficient channel to entrepreneurs & startups; provide additional and often complementary support;

7. What is the financial engagement of these partners in the co-creation initiative (i.e. what is the share of funding they provide overall and for each of the activities of the co-creation project)?



- Fraunhofer: funds technology development = Fraunhofer researchers (see picture above); provides AHEAD as a TT program with trainings, coaching, workshops and network specifically tailored to each project that survives the bootcamp; the Fraunhofer Future Foundation: provides 100% of Fraunhofer-internal (funding goes to the Fraunhofer researchers exclusively) funding for SDG-related projects
- Entrepreneurs, startups: invest their time in kind;
- foundations, corporates: invest their time in kind for coaching; run workshops / trainings as part of tracks;
- Accelerators/incubators: example: Vision Health Pioneers - invest their time & support services in kind

8. Are there plans to commercialise the co-created products and/or services? Please explain.

- Yes, usually, it is the plan to commercialize the co-creation projects; the commercialization scheme is always based upon a Fraunhofer license to either a spin-off, or an incumbent; the partner either benefits via equity / the licensing contract, or other than that, the deal has to be negotiated for every single project. Examples include:

- [MonitorFish](#): emerged from a cooperation between an external startup and Fraunhofer researchers
- [Greenup Sahara](#): originated from a track cooperation with the World Food Programme Accelerator and was additionally funded by a crowdfunding campaign

2. MANAGEMENT STRATEGY

9. Who is responsible for co-creation process management?

The entire process management is done by the AHEAD management team. Key activities include: promotion of co-creation activities for partner acquisition, selection of partners, partner management, matchmaking, project coaching.

9A. Was a steering group or advisory committee set up? If so, please provide details on its role and frequency of interactions.

There is mainly two different juries: 1. The AHEAD jury deciding upon access to phase 1 (3 jury sessions / year) and phase 2 (6 jury sessions / year) funding of the program; 2. The Fraunhofer future foundation deciding upon additional project funding for SDG-related projects (upon request);

10. What is the frequency of interaction between co-creation partners?

It very much depends on the co-creation setup. Two give two very concrete examples:

- As for a collaboration between a startup and a Fraunhofer institute, the AHEAD program itself enforces touchpoints every 3 weeks due to the program structure itself (every 3 weeks all teams get together for so-called check-ins in Munich or elsewhere). Apart from that, in most cases the interaction frequency is even higher, meaning that there are calls and status updates on a weekly basis.
- As for a track: e.g. once per year an AHEAD Life Science track in cooperation with the Life Science Factory (LSF) in Göttingen and the Sartorius AG focusses on technology transfer in the respective field. The track partners meet several times prior to the track in order to define interesting topics, select applicants and plan specific track activities.

During the track, experts and mentors from LSF & Sartorius meet and mentor the teams roughly every 6 weeks (every second check-in).

10A. Please describe the nature and frequency of interaction between all couples of partners

There is two different types of constellations:

1. Partners that are jointly part of an AHEAD project and collaborating towards a TT. This is for example true for an entrepreneur who is collaborating with Fraunhofer researchers. Here, collaborating on a concrete business model, a product based upon Fraunhofer tech and building the team is almost a daily job.
2. For e.g. corporate partners or foundations, the interaction model is two-fold: on the one hand they could co-create a track on the AHEAD management level and at the same time are responsible for taking care of individual AHEAD projects. For the former, there is especially intense interaction for the track preparation necessary. For the latter the nature of the interaction is especially coaching/mentoring relationship which – in most cases – does not follow a standardized model, but rather is defined individually.

11. What are the main means of communication among co-creation partners?

The primary mean is on-site meetings during the AHEAD program. Especially intense coaching sessions, workshops, co-working setups and peer meetings among AHEAD projects have to be mentioned here. The matchmaking is very often facilitated by f2f networking events.

AHEAD also makes use of slack in order to connect all projects and its partners. Due to the Corona crisis, video conferences replaced all on-site activities by AHEAD and the program ran virtually. In the future, more virtual tools will be involved into managing the projects and facilitate the interaction of partners.

Apart from that, the means of interaction are very different and can be chosen by partners individually.

13. Is there a partnership agreement for the co-creation initiative?

- for corporates there is a formal agreement clarifying the roles, commitments, in-kind-investments and the scope of the collaborations with regard to AHEAD tracks

- as for joint projects (e.g. startup with Fraunhofer) apart from a NDA there is no formal agreement in the very beginning. During AHEAD phase 1 partners need to agree upon a licensing model and the founding team setup (equity stakes) as part of a memorandum of understanding.

Other than that, there is no formal partnership agreements.

13A. Is the agreement formalised? See above

13B. Please specify the type of the agreement: see above

13C. Are legal issues related to the ownership of jointly developed IPRs settled in a partnership agreement?

Yes, this is part of the memorandum of understanding and the ultimate licensing agreement. For AHEAD funded projects there is no joint IPRs: Fraunhofer funds IP creation, owns the IP & licenses to external partners.

14A. Who is the owner of data from the co-creation initiative?

Not applicable

14B. Who is the owner of IP from the co-creation initiative?

- See 13c

15. How is the process of accessing research results (for partners) organized?

- See 13c

16. How do you set the balance between data sharing and IP protection?

- The data sharing is related to business models, team setups and product visions and mostly not around technological solutions. For any tech-related data sharing a NDA has to be in place.

17. Is public access to either co-creation results or products granted?

- no

18. What types of intellectual property (IP) protection mechanisms are used (e.g., patents, trademarks, industry design, utility model, complexity)?

- Depends on the project, but mostly patents, source codes or secret knowledge.

18A. What types of IP are more important for your co-creation processes?

- Patents
- Secret knowledge

3. PROJECT EVALUATION

For project evaluation, as digital tool is used: myAHEAD. It has been developed by AHEAD in order to track the progress of projects and gather quality assessments by internal and external experts. By understanding all teams at all stages of AHEAD and combine this data with the kind of activities and interactions a given team will have during AHEAD, we will also be able to learn what variables are decisive for successful tech transfer. Moreover, myAHEAD helps to assess whether AHEAD meets its objectives (see 2.).

19. Are milestones and key performance indicators (KPIs) set for the co-creation initiative?

There are only three major milestones: 1. Jury for phase 1 (during the bootcamp), 2. Jury for phase 2, 3. The final technology transfer.

The core KPI is progress in terms of the venture readiness levels (see picture below). At the bootcamp, every project is assessed on this scale. The individual action plan is derived from the specific maturity of an individual project and then translated into concrete actions that help the project to get more mature. At

every check-in, so every 3 weeks, the progress is being checked and further objectives until the next check-in defined. The data is collected and tracked via myAHEAD.



Venture Readiness Levels

Project name:

Team members:



Requirements to enter AHEAD Phase 2

Market Readiness Level (MRL)

MRL 1	MRL 2	MRL 3	MRL 4	MRL 5	MRL 6	MRL 7	MRL 8	MRL 9
Application Scenarios	User & Customer Personas	Qualitative Customer Evidence	Quantitative Market Analysis	Positioning & USP	Validated Market	Business Model	Market Entry & Financial Strategy	Paying Customer

Product Readiness Level (PRL)

PRL 1	PRL 2	PRL 3	PRL 4	PRL 5	PRL 6	PRL 7	PRL 8	PRL 9
Product Ideas	Communication Prototype	Qualitative Customer Evidence	Quantitative Understanding of Value Proposition	Under Advantage	MVP	Pilot Project & Product Development Plan	Product Design	Beta

Team Readiness Level (TeamRL)

TeamRL 1	TeamRL 2	TeamRL 3	TeamRL 4	TeamRL 5	TeamRL 6	TeamRL 7	TeamRL 8	TeamRL 9
Individual Profiles	Project Team Roles	Entrepreneurial Project Lead	Missing Team Roles	Team Formed	Founding Team Commitment	Team Development Plan	High Performance Team	Company Formation

19A. Are they settled in a partnership agreement?

No

19B. Are they essentially qualitative or quantitative?

Both

19C. Please provide the main KPIs (provide up to 5 indicators)

See venture readiness levels above.

20. At what stages is the evaluation implemented?

At the bootcamp for the first. Then every three weeks following the check-ins of the AHEAD program.

For each evaluation stage, please, provide the following information:

20A. What approaches are used?

For all stages:

With the aim of constantly improving the AHEAD program and tailoring its activities to the projects' needs, we distribute questionnaires every 3 weeks to our teams, experts and external partners. During the AHEAD check-ins we have mandatory status meetings. The main objective of digital questionnaire is to closely analyse and understand the co-creation process in AHEAD. We try to find evidence by linking market, product, technology team and industry indicators to describe Co-Creation activities in AHEAD. Furthermore, we scientifically deal with the fact that »you never should underestimate the value of co-creation on performance of the venture«. The purpose of the digital layer is to find out what makes AHEAD teams more successful than the others. During questionnaire, we ask a couple of questions about their level of readiness, maturity and their individual project status.

20B. What types of data are used? D

Data derived from different data sources:

- Application forms: Initial project information to get project funded
- Questionnaires: Check-Ins every 3 weeks (as mentioned above)
- Different databases to enrich own digital layer: PatOrg, PatBase, TrendOne, Crunchbase, Scopus, Frost & Sullivan etc.

20C. How is the evaluation process organised? Who is responsible for it? Are there any external evaluations conducted?

The evaluation process is organised by the AHEAD management. As for the two jury decisions, for entering phase 1 or 2 respectively, a jury committee comprised of both, Fraunhofer upper management and external entrepreneurs, investors and industry experts, makes funding decisions.

21. Are the evaluation results open (e.g. published on the website, reports, structured databases, etc.) or closed (used only for the internal goals)? If they are open, please specify.

closed

22. What are the implications of any evaluations conducted so far (e.g., revision of KPIs; suspension or termination of funding; penalties and rewards associated to performance)? Please explain.

- If no progress with regard to KPIs, then the next funding stage will not be unlocked or TT achieved.

23. What are the key success factors of this co-creation initiative?

The openness to different co-creation constellations and models. There is no one-size-fits-all mechanism, but instead the power of different approaches is being leveraged.

Since this flexible platform approach creates a lot of complexity in terms individual partner constellation, AHEAD created the venture readiness levels in order to have standardized assessments and a systematic way to track KPIs.

Also, due to digital tools, not only for the tracking, but also for partner applications and matchmaking, the platform works efficiently despite the high number of projects (80 per year).

24. Were there any challenges during the co-creation process? Please provide details and explain what caused them.

- Wrong expectations when entering co-creation → especially with regard to funding mechanism and IP policy of Fraunhofer. Resulted in break up of the team.
- Willingness to enter data on regular basis by all experts involved. Without data, a) tailoring AHEAD activities to specific co-creation teams is not possible due to sheer number and b) assessing whether AHEAD meets its KPIs/objectives is harder.

25. Based on your experience, what would you recommend to a new co-creation initiative for it to be successful? Please explain the main lessons learned from your experience.

- Self-selection of co-creation partners is a strong mechanism, if expectation management is done appropriately
- Joint vision and goals are necessary for effective progress and thus, AHEAD'S team building activities improve stability of co-creation project

5. POLICY CONTEXT

26. Was the initiative supported by a specific policy initiative? If so, please provide details on the policy initiative and type of support provided (e.g. amount of funding, conditions of support, selection criteria, reporting obligations, etc.).

No

27. What are the factors (e.g. related to regulations, policy, business environment etc.) supporting and/or hindering co-creation in your country? Please explain.

Funding policies for non-profit organizations

28. What do you think are most effective types of policy support for co-creation?

----- Case study authors -----

Name: Dr. Antje Schimke; Dr. Thorsten Lambertus, Julia Schmalenberg

Location (country): Germany

Affiliation: Fraunhofer

Your role in the co-creation process: co-initiators

Your main activities in the co-creation process: overall management of co-creation process