
HOW TO BUILD
A SUCCESSFUL
DEEP TECH
ACCELERATION
PROGRAM
hello tomorrow
in partnership with
bpifrance

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Bpifrance

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About Hello Tomorrow

Hello Tomorrow is a global organisation dedicated to leveraging deep technologies to help solve world challenges. Through our Global startup Challenge, which has had 20,000 applications from 128 countries since 2014, we identify deeptech solutions by partnering with universities and research labs worldwide. We empower the pioneers who drive these solutions and connect them with industry leaders, investors, researchers and regulators through conferences and networking events in over 10 countries. In addition to facilitating a global deep tech ecosystem, we offer consulting services to help companies integrate deep tech in their strategies, enable organizations to adapt faster to open innovation, and train them to be more agile.

For more information, please visit:
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About Bpifrance

Bpifrance is the French national investment bank: it finances businesses – at every stage of their development – through loans, guarantees, equity investments and export insurances. Bpifrance also provides extra financial services (training, consultancy…) to help entrepreneurs meet their challenges (innovation, export…).

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INTRODUCTION

Why do we need an additional study on accelerators and other entrepreneurship support structures?

The first-known business incubators were established about 40 years ago in the industrial Northeast of the USA, which had suffered from plant closures in the 1970s. In contrast, the term accelerator first emerged with the establishment of Y Combinator in Silicon Valley in 2005. Together with Techstars in Colorado, they are the oldest existing accelerator structures which have significantly contributed to the development of the current model.

Business incubators and accelerators have become more and more important in the deep tech ecosystem. In times of declining corporate R&D expenditures, spin-offs from universities and other deep tech startups have taken over the role of driving technology innovation by transforming scientific discoveries into products and applications. However, these small business entities lack the established production and distribution infrastructure as well as an over decades developed business expertise. Hence, incubators and accelerators primarily help entrepreneurs to overcome those limitations and to develop a thriving business.

The traditional accelerator model consists of a short period (often a few months) of intense learning. The accelerator usually provides limited financial support and access to a network of professionals and seasoned entrepreneurs who act as coaches and mentors. During the time of accelerated learning, the business model is refined, market access strategies are developed and the product tested and iterated. In exchange, the accelerator takes a few percent of equity or charges a fee. Eventually, the startups present themselves at the Demo Day to investors and the wider community.[1]
Web business models and mobile applications can be rapidly tested and iterated which fits very well in this acceleration framework. A few quantitative studies have shown that accelerators generally have a positive impact on startup development[2] as well as on the ecosystem[3] which explains the vast adoption of the concept over the last decade. In contrast to web and mobile applications, deep tech is characterized by its fairly long and costly R&D phase. It most often originates in the basic research labs of universities.

Therefore, it has been developed without specific market or user needs in mind which represents the second differentiating characteristic of deep tech[4].

In light of the above, it is important to evaluate the impact of current support structures (startup studios, incubators, accelerators) on deep tech startups, and share best practices from the most successful ones.

Unlike previous studies, this one focuses only on support structures in the deep tech ecosystem with its specific characteristics (see box). Drawing on Hello Tomorrow's unique grassroots network, this study is based on a tailored survey of the deep tech community, including detailed feedback from more than 100 deep tech startups worldwide which have previously participated in an acceleration program. Instead of focusing on measurable performance parameters of startups such as investments secured or talents hired, this study centres on identifying the best practices among deep tech support structures by giving a voice to their clients - the deep tech startups.
Consequently, this report aims at providing the community with a deep tech specific, comprehensive set of recommendations for

[1] Do Accelerators Work? If So, How? - Brooking (2019), Hallen
[2] Accelerating Growth: Startup accelerator programs in the United States - Brooking (2016), Hathaway
[3] Accelerators and the Regional Supply of Venture Capital Investment - SSRN (2014), Fehder and Hochberg
[4] The Dawn of the Deep Tech Ecosystem - BCG & Hello Tomorrow (2019), De la Tour, Portincase, Goeldel, et al.

building and running a deep tech acceleration program.

Accelerators in the deep tech ecosystem

The deep tech ecosystem encompasses a multitude of players as depicted in figure 1 below. It is not orchestrated by a central player but is rather fluid. However, incubators, accelerators and other entrepreneurship support structures are the only platforms which are indeed in contact with all players (see figure 1) therefore playing the important role of nodes in this ecosystem. Most accelerators are seen as open innovation platforms supporting the entrepreneurs in launching or scaling their business and by connecting them to mentors, corporations and investors. Their main objective is to help early-stage startups to enter into a competitive, often global market.

While this report shows that the accelerator concept does not need to be re-designed from scratch, it is necessary to significantly adapt the model to accommodate the specific needs of deep tech startups. The study further revealed that there are only marginal differences between startup studios, incubators and accelerators. All three structures share a common goal - advancing the business idea by providing tailored feedback through mentors and coaches as well as connecting the startups to relevant stakeholders and the local ecosystem. Thus, the results presented in this study are applicable to all entrepreneurship support structures. For convenience, we will use, throughout the text, the terms "accelerator" and "acceleration program", thereby also referring to startup studios and incubators, if not explicitly stated otherwise.

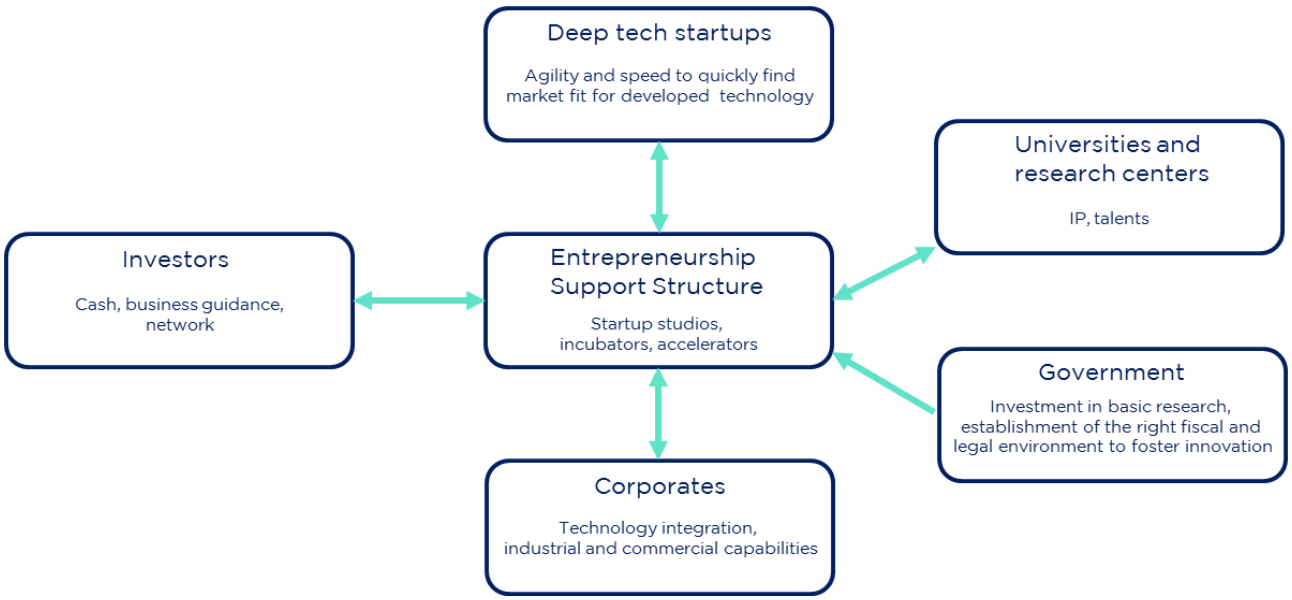


Fig.1: The deep tech ecosystem

How to define the different entrepreneurship support structures

As mentioned above, there are hardly any differences between incubators, accelerators or startup studios, in terms of their best practices to support deep tech startups. However, we have been frequently asked to provide a definition of each structure as there is no global consensus today. This does not come as a surprise as the scope and function of each structure is influenced by the overall ecosystem maturity, the industry it serves, the guiding principles of the owning entity, the host country and its culture, etc. For these reasons, we remain descriptive with a focus on the main differences between the structures:

Incubator

A deep tech incubator accompanies entrepreneurs in building their startup *over a longer period of time* (up to years). An incubator mostly *admits local startups which are still in the lab-to-MVP phase*. Most of these startups originate from university research labs. Its founders are often scientists with little knowledge about running a startup. For this reason, *coaches teach and advise science entrepreneurs on the fundamentals of developing a product and business*. The incubator also introduces the entrepreneur to other relevant stakeholders such as investors, industry representatives, etc. Only a very small number of deep tech startups enter the market while still part of an incubation program. *The aim of an incubator is rather to equip an entrepreneur with the right mind-set, knowledge and connection to successfully continue building the startup instead of bringing the startup all the way to the market*. For the reasons above, *incubators are often connected to universities and other public research institutions*.

Accelerator

A deep tech accelerator offers entrepreneurs an *intense learning experience over a short time period* (a few months). An accelerator actively selects a cohort of startups which apply from all around the world. *Most of the startups are in the prototype-to-commercialisation phase.* The technology & product development are in the advanced stage. For this reason, *the coaching efforts of an accelerator focuses more on market access and business development strategies*. *Its main added value lies in its network* of investors, corporates and mentors which *provide the entrepreneur with tailored feedback* rather than teaching general knowledge. In the best case, *at the end of the program, the entrepreneur has prioritized the fields of work, has a clear idea of how to tackle the remaining challenges ahead as well as has made valuable connections* which will help him/her to bring the product to the market.

Startup Studio

A deep tech startup studio gathers a group of *dedicated entrepreneurs who are successively creating startups*. In contrast to the other structures, s*tartup studios do not accept external applications* but instead *develop business ideas which are then internally assigned to teams*. The *startup studio hosts the startups until they enter the market* and become an independent business entity.

What are the most important outcomes?

According to Sam Altman, the former president of the renowned Y Combinator, entrepreneurship support programs are mostly about accelerating the learning of an entrepreneur. This is achieved by facilitating access to coaches and mentors who will provide tailored feedback to the entrepreneur about his or her business idea.
In line with that, this study reveals that the key to a successful accelerator program is to have an engaged network of mentors. Maintaining a good, long-term relationship with a diverse network of seasoned entrepreneurs and experts allows them to address the needs of each admitted startup in a tailored manner. A clear sector focus helps to further engage corporates and VCs in the acceleration program.

Furthermore, it is important to provide the entrepreneurs with feedback from potential customers and to foster startup-corporate collaborations. The deep tech entrepreneur has rarely been exposed to the customer view of things which is essential to transform the technology into a product meeting a market need or creating a new market. Also, entrepreneurs are often in need of an industrial partner to develop and pilot their solution.

This study shows that it remains difficult for deep tech startups to secure funding and close first investment rounds. Particular at an early stage, an investment in deep tech startups is still seen as risky. Use cases are often not yet well defined and the product development in deep tech is, in general, costly. For this reason, a significant direct investment by the accelerator allows the startup to stay focused on the business idea and continue shaping the product until a clear use case and customer have been identified.

Last but not least, it is important to focus the scope of the program on the most urgent startup needs as well as on certain sectors or technologies. In the current phase of consolidation with increasing competition between accelerators, it is important to have a clear, visible profile and consequently provide the admitted entrepreneur with a maximum added value.

In this regard, the study clearly states that, instead of covering all aspects of company formation, accelerators should focus on three aspects - business model development, market access strategy, securing investment - and further tailor sessions around those topics to the individual entrepreneur. It also became clear that a focus on an industry eases building and maintaining a long-term relationship with mentors, relevant corporates and investors.

How were the best practices identified?

The impact of the respective program on the development of the startup was assessed through a survey. More than 100 startups which had previously been accelerated, evaluated these programs based on the impact it had on several dimensions: Funding, Business development / Market access, Technical / Product development, Talent acquisition, Visibility and Connection with other entrepreneurs. The survey allowed us to draw quantitative conclusions and identify the best accelerator practices through qualitative information. This survey has been completed through interviews with 15 accelerators to shed light on how they are building impactful programs. Where necessary, we also interviewed other stakeholders such as VCs or university representatives to take into account their perspective, thereby obtaining a full 360° view of the deep tech ecosystems around accelerators.

To conclude, the insights presented here are mainly geared towards independent accelerators, if not specified otherwise. However, most of the advice presented can also be implemented by other types of incubators or accelerators in the deep tech ecosystem such as corporate and university-based structures or startup studios.

Geographic origin and industry affiliation of participating startups

The above described survey was sent out to our global community and covered startups from various industries. The largest share of answers received are from startups within the healthcare sector (Fig.2).

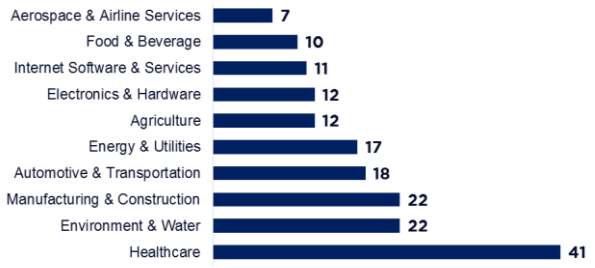


Fig.2: Industry affiliation of startup participants in [%]

Regarding the geographic representation, most participating startups are located in North America and Europe (Fig.3).

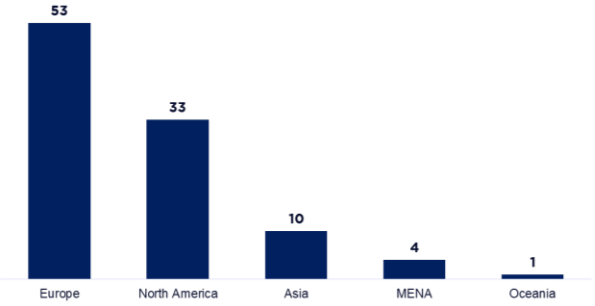


Fig.3: Geographic location of startup participants in [%]

If the analysis of the surveys yielded a significant difference depending on the sector of the startups, we explicitly mention it in the text. The differences observed based on the location of the startup are discussed in the conclusions.

THE KEY SUCCESS FACTORS FOR AN IMPACTFUL DEEP TECH ACCELERATION PROGRAM

Engaging the right network of experts and peers to provide quality mentoring

Learning from mentors and peers is the most effective

Foremost, accelerators have the mandate to accelerate the learning of an entrepreneur over a short period of time[5]. This is achieved through engaged mentors, as confirmed by 64% of the participating startups (Fig.4). While access to information is easier than ever before, the real challenge lies in separating impactful advice from omnipresent, non-relevant information, as well as tailoring advice to the individual entrepreneur and business idea. By providing access to experienced mentors, accelerators enable their entrepreneurs to obtain impactful knowledge and tailored feedback. Moreover, 44% of the entrepreneurs highly value learning from the experience of peers, and 25% value the input from external experts, whereas seminars and masterclasses had a positive impact on the development of startups in only 18% of the cases (Fig.4).

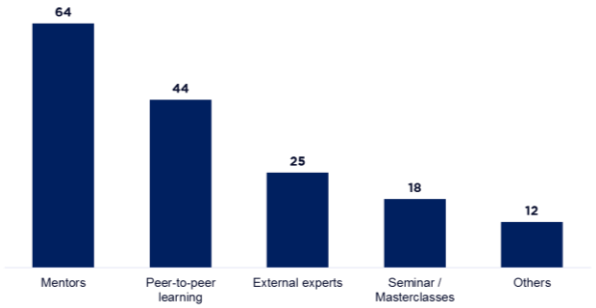


Fig.4: Answers of startups in [%] to the question: "What were the most efficient learning processes?" Others = Online Resources

Interestingly, the effectiveness of these learning processes is partially dependent on the maturity of the startups (see table 1 below). Entrepreneurs who find themselves at the very beginning of building a business profit more from seminars and masterclasses than those who are advanced in their journey. The opposite holds true for input from corporate and industry experts. Their expertise is more appreciated among startups which are closer to market entry.

MOST EFFICIENT LEARNING PROCESSES	TRL 1-4	TRL 6-9
Seminar / Masterclasses	24%	8%
Peer-to-peer learning	48%	50%
Mentors	64%	67%
External scientific / technical experts	13%	17%
External corporate / industry experts	15%	33%

Table1: Startups' responses in [%] to the question: "What were the most efficient learning processes?" in the function of their maturity.

Mentors with entrepreneurial background are key

72% of startups which had been part of an acceleration program said that mentors with an entrepreneurial background provided valuable advice. This number dropped to only 48% for mentors without an entrepreneurial background. Interestingly, for incubators, the background of the mentor was irrelevant (Fig.5). This indicates that an incubation program teaches the basics of entrepreneurship while, during an acceleration program, the entrepreneurs are in need of more tailored entrepreneurial advice and feedback. In line with that observation is a statement made by Deeptech Founders, an entrepreneurship training program in Paris. According to them, the most useful mentors for practical decisions are those who are 2-5 years ahead in their startup journey since entrepreneurship is taught best by entrepreneurs. However, more seasoned entrepreneurs will be of great help when establishing a vision for the company. Moreover, the more diverse the available

[5] What startup accelerators really do - Harvard Business Review (2016), Hathaway

mentors are, the more likely it is that every startup need can be addressed.

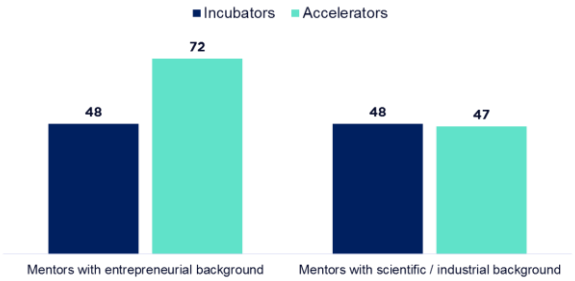


Fig.5: Comparison of mentor background preferences for entrepreneurs in accelerators vs incubators in [%]

Develop long-term relationships with potential mentors

To provide the entrepreneur with a high-level mentoring experience, the conducted interviews revealed that it is essential for the accelerator to have a long-term relationship with potential mentors. Firstly, this allows the accelerator to build an atmosphere of trust where mentors work with other mentors openly together. Secondly, it eases the process of pre-matching the entrepreneur and the mentor, which is key as described below.

While mentors should be intrinsically motivated to support new entrepreneurs and young businesses, they are often given the chance to create business opportunities for themselves too. During the acceleration program, the mentorship or particular service provided is often free of charge. However, later on, they may invest with favourable conditions being the first ones, they may sell their services to those companies or they may become a member of the (advisory) board.

Take advantage of the crowd intelligence of mentors

If mentors know each other and a working environment of trust is established by the accelerator, the best way of taking advantage of the diverse know-how in the network is to let mentors jointly identify and prioritize the actions each individual startup needs the most. Despite a vast experience, it is unlikely that a single mentor can evaluate and foresee the size of all problems on his/her own. For this reason, Creative Destruction Labs asks all mentors to jointly identify the biggest risks and challenges of each startup prior to mentors and entrepreneurs working together in pairs.

Match mentors and entrepreneurs carefully

Beyond providing expertise, the mentor is often part of the human support network to which the entrepreneur can refer to during difficult professional times. It may sound trivial, but for a fruitful interaction, it is important that the relationship between mentor and mentee is based on mutual trust, according to the startups questioned in this study. For this reason, it is critical to allocate time during the program to get to know the potential mentors and then carefully match the mentors and the entrepreneurs according to their preferences, not just the best "expertise match". The cohort of Techstars' program, for instance, spends the entire first week in meeting hundreds of possible mentors.

OffGridBox, USA, Hello Tomorrow Global Challenge Alumni 2017, on: "What was the most impactful part of the program?"

"Mentors were very good and are still involved 2 years after finishing the programme."

Include alumni in your mentoring network

Established programs also often engage alumni as mentors. The added value of alumni is their experience and knowledge of the entire acceleration journey related to the particular accelerator. They may offer the mentee a unique perspective on the program and on how to benefit best from the offerings provided by the accelerator. They are also likely to know in detail the hurdles in the local ecosystem for newly starting businesses.

Special case: University-linked structures

University-based programs have a two-fold mission. Besides the goal of helping to build successful startups, universities have the primary mandate to educate and provide opportunities to their students.

The University-linked structures naturally have three great assets. Firstly, lab-based projects can often be continued within the original research group guaranteeing a suitably equipped work environment and high levels of technical knowledge. Secondly, expertise and workforce are amply available. Scientific teams can be matched with students from marketing and business departments to form multi-skilled teams,

thereby offering an entrepreneurial experience to their students. Last but not least, its vast alumni network likely allows for the recruitment of mentors with an entrepreneurial background and industry expertise.

However, university-based entrepreneur support structures are equally in need of building and maintaining relationships with private investors and big corporates. Since most universities are publicly funded, connections to private investors and corporates need to be established from scratch. This process is eased if the university encourages entrepreneurship such as at Imperial College London. Their student entrepreneurship centre, Imperial Enterprise Lab, organizes a pre-accelerator competition called the Venture Catalyst Challenge. Investors, alumni and corporate sponsors are invited to discover and support these future startups. The best ventures compete for a chance to win seed funding to continue their work. A large proportion of these are eventually incorporated. In this case, the entrepreneurship support structure is well integrated into the global strategy of the university and efforts to build relationships with the private sector are coordinated.

On-site is the preferred learning method

The study also revealed that 63% of the entrepreneurs prefer the on-site, in-house exchange with mentors while this figure drops to only 41% for off-site, external mentors (Fig.6). As discussed above, the personal interaction between mentor and entrepreneur plays a crucial role and the relation is fostered when meeting as often as possible face-to-face. Also, in-house mentors are likely more accessible than external ones. This is a common issue that online-based programs face.
However, leaving the familiar infrastructure and ecosystem to join an accelerator program abroad also comes at a cost for the entrepreneur. For instance, hardware projects which require a fully equipped lab could not be further developed for the time of the acceleration program. To mitigate this, IndieBio in San Francisco offers on-site access to fully equipped labs while Rockstart invites its cohort one week out of every 3 months to the Netherlands or Copenhagen to conduct acceleration sprints on-site. The entrepreneurs can then spend the remaining time at the site of their company or stay at Rockstart's co-working space.



Fig.6: Startups' responses in [%] to the question: "What were the most efficient learning processes?"

Special case: Online-based programs

Long-distance, online acceleration programs are facing two critical issues. Firstly, figures 2 and 3 show that on-site exchange with mentors and animated peer-to-peer learning are the preferred ways of learning. While more than 60% of the world population has access to the internet and thus can connect with other parts of the world, the exchange remains frequently less fruitful than face-to-face.
Secondly, it is clear that young businesses benefit a lot from a dynamic, thriving ecosystem. This is not always a given in the original location of the startup. Often, investors are reluctant to invest in startups which are located in remote areas far from any other entrepreneur or support structure.

However, online programs have the advantage of often offering a truly international cohort potentially resulting in many different perspectives on a single subject - which we value as positive. As mentioned above, an online program also has the advantage of allowing the entrepreneur to continue working in a familiar environment which is likely more straightforward.
Nevertheless, in line with the results of our study, we strongly encourage primarily online-based programs to gather the entrepreneurs at least twice - once at the beginning and once at the end of the program physically in one place. In that way, peer-to-peer learning will be facilitated and the entrepreneur is given a chance to develop connections with the ecosystem from which the program operates. This is of particular importance for entrepreneurs located in immature ecosystems who may want to open a branch of the company in a more mature one. By initiating connections

to important stakeholders in a more advanced ecosystem, the entrepreneur can make up in part for the drawbacks such as less available funding and expertise in his/her original ecosystem.
For the time spent at the site of the startup, we suggest following Thought For Food's example which provides online forums for their entrepreneurs to exchange during but also after the program on industry-relevant or company-culture related topics such as the acquisition of new talents.

Don't forget to foster exchanges among peers

49% of startups who have participated in this study obtained impactful insights by exchanging with peers. To ensure a fruitful exchange, Rockstart aims to facilitate the discussion during its acceleration program in Amsterdam. Their programs contain fixed-time slots reserved to exchange about relevant topics.
The exchange among peers is highly valuable for two reasons (Fig.7). As 70% of entrepreneurs stated, they benefit from the insights and experiences their peers had. For the remaining 30%, the other members of the cohort represent foremost a human support network. Indeed, an accelerator program can be intense, thus a great collective spirit is beneficial for the wellbeing of the entrepreneur and subsequently for his/her learning ability.

Spectra Plasmonics, Canada, Hello Tomorrow Global Challenge Alumni 2019:
"Entrepreneurs can get trapped in their own bubble, thinking they are onto something when they are not. Networking with your cohort can bring you back down to earth and provide new ideas to grow your company."

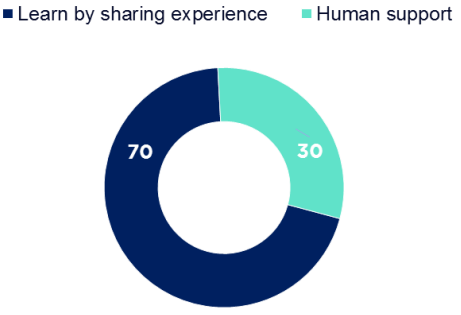


Fig.7: Answers of startups in [%] to the question: "What did peer-to-peer connections bring?"

Main takeaways:

- Maintain a good, long-term relationship with a diverse and engaged network of mentors and alumni
- Carefully match mentors and entrepreneurs
- On-site exchange with peers and mentors with an entrepreneurial background are the most efficient learning practices

Confront startups with an internationally-oriented customer perspective

Introduction to potential customers is pivotal for business development

61% of the startups stated that the introduction to a potential customer was an efficient practice with regard to their business development (Fig.8). While deep tech usually originates from university labs, which means that the technology itself is novel and often very sophisticated, it has not been necessarily designed with a worldly application or a specific market need in mind. One solution to a general problem can usually lead to dozens of potential applications in different industries. Prioritizing those potential applications/markets can only be done by talking to potential customers, or even working together on a proof-of-concept and a business case. For this reason, it is essential to encourage startups to engage with potential customers who can give valuable feedback from a client/user perspective.

Clara Biotech, USA, Hello Tomorrow Global Challenge Alumni 2019:
"We were forced to interview 100+ customers [during our business development effort]."

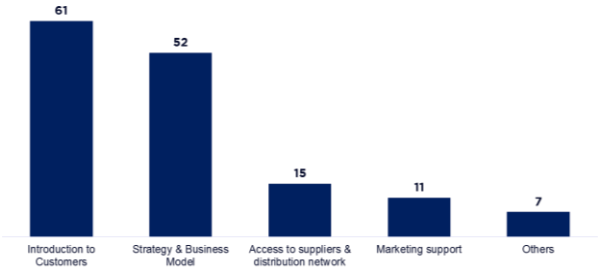


Fig.8: Startups' responses in [%] to the question "What was the most useful for your business development?" Others = Company management - Non-dilutive funding

The interviews which were conducted throughout this study revealed that only a minority of accelerators have a well-defined strategy to introduce their entrepreneurs to potential customers such as corporates. While many accelerators acknowledge the importance of customer introductions, they report difficulties in engaging big corporates and their innovation units. Although some corporates officially partner with accelerators, innovation units of the same companies are often less committed and true startup-corporate collaborations develop only occasionally.

Special case: Corporate-associated structures

In the case of corporate-based accelerators, the selection of the projects is often in great alignment with the identified needs and the strategic focus of the company. This increases the likelihood that the company backing the accelerator will also become the client. While this is a convenient route for startups to secure first sales, it doesn't guarantee that the demand is sufficient to allow the startup to scale. Also, the product specifications might be too specific for other companies to become clients which eventually leaves the entrepreneur without much leeway. For this reason, the accelerator should ensure that the focus is kept wide enough and exclusive rights are only given under outstanding circumstances.

Facilitate contact with potential clients

The conducted interviews clearly showed that a sector- or technology focus eases the efforts of accelerators to engage corporates. Firstly, corporate representatives are more willing to become engaged when the entire cohort works on relevant projects with regard to the sector. Besides identifying possible investment or business opportunities, it also allows the visiting corporate representatives to get a glimpse of upcoming, transformative solutions that might change the sector at large in the future. EnergyLab, an Australian incubator that entirely focuses on energy and cleantech managed to develop deeply-rooted connections with the key stakeholders of the energy sector in Australia. Hence, every 4 months, the whole sector gathers to meet the current cohort, facilitating direct business connections between startups and corporates

Secondly, the experience of alumni on their journey to find their first customer, as well as the connections that most mentors have in the industry, are valuable sources to identify

potential customers especially if they are related to the same industry.
Last but not least, after a few years of several successful alumni cohorts, the reputation of the accelerator within the industry will help to open previously locked doors, thereby increasing the potential customer base.

Foster collaboration between corporates and startups

The past has shown that connecting corporates and startups is necessary but often not sufficient to start concrete collaborations. For this reason, the Fishing Tech accelerator, which is run by Kaleido Logistics, has come up with a particular model. It focuses entirely on the maritime sector connecting boat-building companies, the fishing industry and other relevant corporates with startups. The accelerator sees itself as a platform to match business needs of their partners with innovative technologies presented by the startups. In return for being part of the accelerator network, the partner corporates have committed to providing entrepreneurs with the possibility to pilot their project under real conditions once a match between business needs and technology is identified.

bound4blue, Spain, *Hello Tomorrow Global Challenge Alumni* 2019:
"*Participating in the Fishing Tech program had a great impact on our business as it resulted in finding bound4blue's first customer and deployment of our wingsail in a fishing vessel.*"

The Paris-based IPEPS accelerator has identified another tool to pave the way for startup-corporate collaborations. It demands from its startups to keep a detailed, standardized up-to-date online information sheet which can be accessed on-demand (following a startup's approval) by the corporate partners in the accelerator's network. The information sheet contains data about the technology, use cases, business model etc. and can conveniently be browsed at any time and from any location. Moreover, IPEPS exclusively introduces their cohort to their 150 partner corporates coming from the European Health sector during the program. While this still doesn't guarantee the start of a corporate-startup collaboration, it allows the entrepreneurs to exchange with industry veterans and learn valuable insights about the customer perspective. This is particularly necessary for deep tech startups.

International orientation is appreciated

Another impactful practice in business development, selected by 52% of the startups, turned out to be support in refining the strategy and business model. With the needs of the industry in mind, the accelerator and mentors can help to develop a suitable business model for the young company, thereby increasing the likelihood that corporates and startups eventually start collaborating. In particular, implementing an international customer perspective from day 1 is fundamental for a successful strategy. In this way, the product development process can take into account the different needs and necessary specifications of the domestic as well as international market.

Letos, Germany, Hello Tomorrow Global Challenge Alumni 2019:
"Global positioning from day 1 [was the most useful aspect of the program]; Having the possibility to interact with highly experienced business developers from Portugal and Boston, US, really gives one a unique overview of the market."

Main takeaways:

- Expose startups to potential customers to help them quickly confirm their product-market fit and their priority application
- Focus on specific industries to better engage corporate partners in the acceleration program

Secure investor interest before the start of the program

Up-front investment by the accelerator allows the entrepreneur to focus on learning

Funding to grow your business is amply available in some ecosystems and certain sectors. However, for deep tech startups, it is still very difficult to secure private investments at an early stage. Particularly in the first round, the perceived risks are still high, and a customer hasn't always been identified at that point. Funding provided by the accelerator in exchange for equity was found useful by 37% of entrepreneurs (Fig.9). It allows the entrepreneur to entirely focus on the learning process during the program. It also signals to other potential investors that the accelerator and the organisations backing it are committed to the project, thereby increasing basic trust.

Spectra Plasmonics, Canada, Hello Tomorrow Global Challenge Alumni 2019:
"The direct investment was key, as the organization paid everyone a stipend over the summer to start our business and a small amount of seed funding. It allowed us to take a major risk, […]."

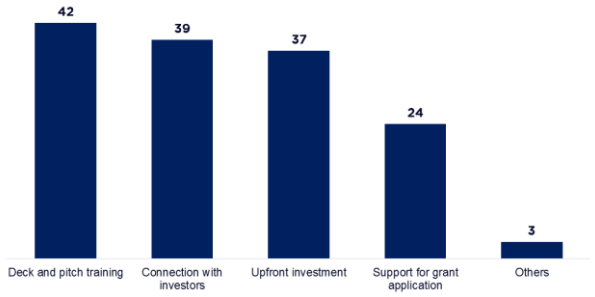


Fig.9: Startups' responses in [%] to the question "What was the most useful to raise funds?" Others = Bringing credibility

Adapt the investment to the type of project admitted

Depending on the funding amount granted by the accelerator, the investment also helps to bridge the "valley of death"- aka, the period between graduation from the program and the first sales or significant private investments, when the startup can be considered as established. The equity taken in exchange should be kept at a reasonable level (<10%) to allow later joining co-founders to buy themselves in, and business angels to participate in the first round of funding. Also important to consider is the nature of the project. Hardware and biotech startups often need higher amounts of cash because of a more costly product development phase.
For instance, the SOSV backed accelerators admit mostly biotech and other hardware startups into their programs. Consequently, they provide the admitted startups up to $250,000 in cash in the form of a convertible loan.
Rockstart, an established accelerator with its headquarters located in Amsterdam, isn't directly backed up by any VC firm and needs to raise a fund before starting a program. Each person or entity who provides investments for the program indirectly becomes a shareholder of the later-admitted startups in return. Similarly, to the SOSV backed accelerators, Rockstart supports the startups by handing out cash. Each startup receives €20,000 as Rockstart's cohort features on average significantly fewer hardware heavy businesses than, for example, IndieBio.

Build a network of VCs and bring them into the program early

It is clear that emerging accelerators, which don't have a reputation as successfully established support structures, won't be able to secure enough funding upfront to support their cohort in a meaningful way. However, those accelerators can support entrepreneurs in finding investment by adjusting their programs. About 40% of the entrepreneurs in this study stated that an extensive pitch training, and introduction to VCs were useful ways to raise investment (Fig.7). However, the dominant belief among accelerators is that startups should be presented to investors in the best possible shape, meaning at the end of the acceleration program, when the business model, market entry strategy and pitch have been refined.
On the contrary, the study here shows that the key is to engage VCs much earlier than commonly done. This is possible if a long term relationship is built with VCs who have a similar vision of the industry and its future.. Those VCs, who can be considered part of the accelerator's network, will appreciate being brought in early to the program, and to de-risk the startups together with other mentors in a couple of sessions. It also allows the VCs to evaluate the progress made by the startup and entrepreneur between entry into the program and graduation day. This is of

particular importance as the choice of investment made by a VC needs to be understood as a sign of trust in the project, as well as in the founding team. The longer the VC knows the founders, the easier it is to build up a relationship of trust between them which will work in favour of a potential investment.

BMB Solutions, USA, Hello Tomorrow Global Challenge Alumni 2016:
"The network allowed us to reach more investors and increase the possibility of us getting funded. More importantly, the learning modules helped us better understand what investors actually looked for, why this is so, and how we can iterate our plans, products, and approaches, accordingly."

Let VCs participate in the selection of the cohort
Having a VC network at hand also helps during the selection of the cohort. Similarly to potential customers, it is of great interest to hear from VCs and what they are looking for, and if applicable, take their views into account for the selection of the next cohort. At Cornell's McGovern incubator, the applying spin-off projects are directly selected by international investors and corporate partners looking for the next global company. Outsourcing the selection and assessment of projects to investors can be useful in engaging those investors and ensuring maximum viability of the projects, but may also be perceived as a loss of independence and control over the program.

For support structures without a technology or sector focus, it will be more difficult to identify aligned VCs and maintain a relationship with them. For those structures, it remains best to introduce the projects to potential investors either during or at the end of the program.

Main takeaways:

- Build long-term relationships with investors who are aligned with the vision of the accelerator
- Secure investment up-front, if possible
- Engage VCs before the program starts and during the program to jointly de-risk the projects and build trust

Focus on a few well-defined priorities and provide tailored working sessions

Focus your program on a few priorities

Creating a successful business requires many components, such as a sustainable business model, the right market entry strategy, a good HR culture etc., eventually resulting in a very lengthy to-do-list for the entrepreneur. However, during a few months of accelerated learning, it is impossible for the entrepreneur to simultaneously focus on all perspectives. According to this study, instead of covering all aspects an accelerator should instead focus on business development, including the market access strategy and securing investment, while an incubator might want to additionally support the entrepreneur, in connecting to peers and in providing technical expertise (Fig.10).

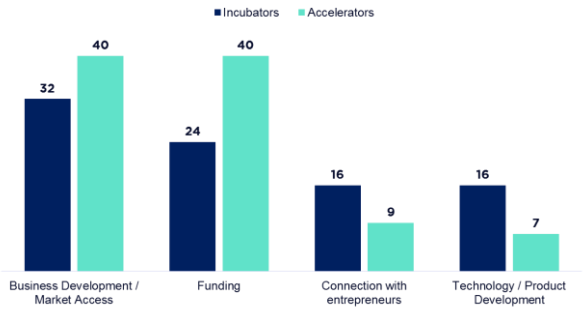


Fig.10: Priorities of startups in [%] when applying to incubators or accelerators Others = Visibility (2%) - Talent Acquisition (3%) - Other (1%)

The usually more advanced accelerator cohort is already well connected to peers, and less interested in technology development. This represents another unique area of deep tech. Contrary to software-based projects where standard methods can be used at any stage to quickly iterate the product, deep tech projects need much more time and specific expertise. Also, the core technology on which the startup is built upon, is usually very sophisticated after years of basic research. For this reason, it is more about identifying a promising use case than further iterating the technology. Hence, deep tech accelerators shouldn't put a focus on product development.

However, if more resources are available, enabling the program to cover more topics, a modular approach is best. In this case, you allow the entrepreneurs to choose from several options according to their needs, but priorities should be clearly defined.

Be startup-centered and solution-oriented

Maturity of the project notwithstanding, an accelerator will admit founders with very different levels of entrepreneurship experience. Furthermore, his/her program expectations and business development needs will differ substantially from the other cohort members. Therefore, in order to maximize the impact of the program, it is essential to provide an adaptive, agile learning process and to avoid a one-size-fits-all approach. This is particularly important for deep tech, where the technology and business diversity is greater than for internet and mobile startups which are based on existing, standard digital platforms. General lectures and seminars should be limited to basic topics such as pitch training, which are of interest to the entire cohort.

Entrepreneurs should be given the time and space to continuously work on their startup, thereby applying the things they have just learned, instead of spending most of their time in compulsory classes.

Customem, UK, HT Hello Tomorrow Global Challenge Alumni 2016, on: "What were the best mentoring practices?"

"High quality 1 on 1 time, [and] customising the learnings to us individually."

An accelerator should focus on teaching applicable knowledge and problem-solving skills. Critical feedback and tailored working sessions are the most valuable coaching methods. To monitor the progress of the startup, clear objectives should be defined. If the entrepreneur and the accelerator jointly agree upon KPIs and milestones, it will help everyone to keep track of the progress made and update priorities.

ListenField, Japan, Hello Tomorrow Global Challenge Alumni 2019, on: "What is the one thing that makes a good accelerator?"

"Help each startup to understand their problem and solve [their] specific needs."

Select the startups based on their needs and the added value of the program

Furthermore, it is essential to select the startup based on the match between the expertise and services provided by the accelerator and the needs of the entrepreneur. If the program adds only limited value to a startup, it is better to

choose another project which is less advanced but whose challenges fit better to the expertise available within the accelerator and its network.

Main takeaways:

- Focus the program on business development including market access strategy and securing investment
- Tailor the program and learning processes to each startup who all face specific issues
- Select the startups according to the value that your program will bring to them, not only their intrinsic quality

Build a community & maintain long-term relationships with key stakeholders by focusing on one sector

Build a network of key stakeholders with an aligned vision by focusing on one sector

Restricting the focus of the program to certain industries or a certain technology will be beneficial in two ways. Firstly, it will ease the process of identifying relevant mentors and keeping track of recent developments in the field. A network including all key actors will form almost naturally over time. Secondly, a more similar cohort facilitates the transfer of learning from one entrepreneur to another in the cohort, thereby increasing the efficacy of peer-to-peer learning.
However, if the projects are too similar in terms of technology or target markets, they eventually compete for the same investors and customers. For this reason, it is necessary to select a well-balanced cohort.

Cast21, USA, Hello Tomorrow Global Challenge Alumni 2016:
"The program was well connected to other stakeholders in the community with the same vision for supporting entrepreneurs, so everyone that was a connection was rowing in the same direction and was valuable."

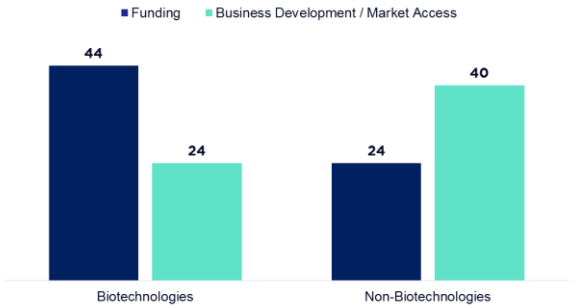


Fig.11: Comparison of priority needs between biotech startups vs. non-biotech startups in [%]

Figure 11 further depicts the importance of having a sector focus. When plotting the needs of biotechnology startups vs startups from other sectors, one sees a complete shift of priorities. The product development phase in Biotechnology is very costly, and often takes years for clinical trials to be completed, for example. For this reason, at an early stage of the company, the business development and market access strategy drop to second place, while the need for funding is high. Another reasonable explanation would be that the path to enter the healthcare market, for example, is fairly well outlined. Since it is highly regulated, it leaves the entrepreneurs without much leeway and subsequently, there is less need for support and tailored feedback from coaches and mentors.

Main takeaways:

- A sector focus yields a more relevant network, thereby increasing the efficiency of connecting entrepreneurs to partners
- A sector focus results in a more homogenous cohort, thus facilitating peer-to-peer learning
- The program can be specifically adapted to the needs of the startup in this sector which may differ substantially across industries

CONCLUDING REMARKS

Since the 1970s, and in particular, over the last 10 years, the concept of entrepreneurial support structures including business accelerators has been widely adopted, as depicted in figure 12[6]. However, the growth phase of entrepreneur support structures has come to an end and has transitioned into a consolidation phase. For this reason, it becomes essential to identify a sustainable business model, and to follow best practices to attract promising startups in an increasingly competitive field.

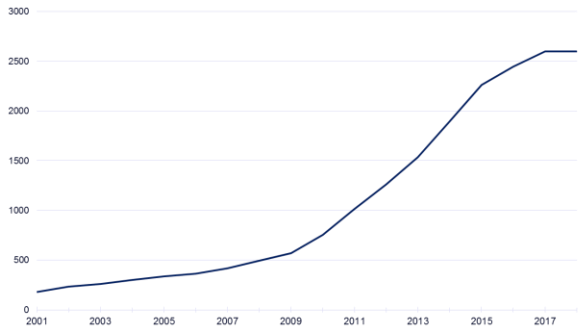


Fig.12: Active incubators and accelerators in the world between 2001 and 2018 (graph adapted from [6])

To attract the most promising startups, it is important to know their main criteria, when selecting one accelerator program over another. In this study, 54% of the entrepreneurs chose an accelerator because it seemed to best match their needs (Fig.13), emphasizing again the fact that an accelerator should have a clear profile.

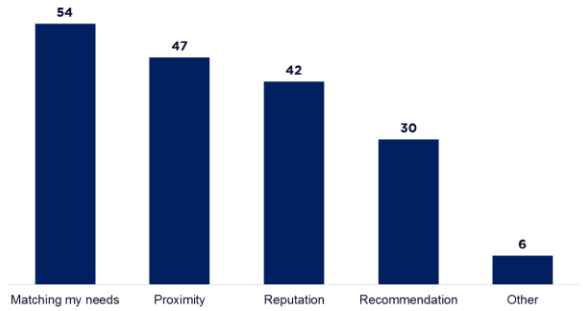


Fig.13: Startups' responses in [%] to the question: "Why did you choose the accelerator?"

However, the physical proximity and reputation are also important selection criteria. This shows once more the perceived high costs of relocating, and thus changing the ecosystem for an early-stage deep tech startup. Hardware startups will be less likely to relocate for the duration of the program, unless sufficient infrastructure is provided on-site to continue the project, or that the time required to be spent abroad during the program is kept reasonably short.

Regional differences

Interestingly, the priority needs of entrepreneurs, as well as the preferred learning methods,vary in one aspect depending on the location. For entrepreneurs from North America, peer-to-peer learning is far less important than mentoring, while for European entrepreneurs both learning practices are almost equally important (Fig.14).

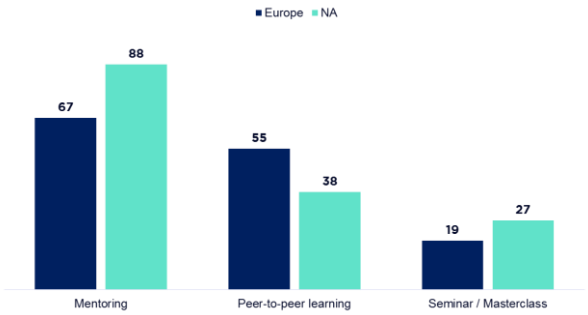


Fig.14: Comparison of European and North American (NA) responses in [%] to the question "What were the most efficient learning practices?"

Consequently, when joining an acceleration program, European entrepreneurs also look forward to connecting to other entrepreneurs. This is in contrast to North American entrepreneurs, for whom connecting to other entrepreneurs is an almost negligible factor when joining an accelerator (Fig.15).

In the absence of specific data, we estimate that entrepreneurs in North America form

[6] How accelerators and incubators can reinvent themselves - Roland Berger (2019)

communities which foster a fruitful exchange between peers also outside fixed program frameworks. The generally more open culture in North America compared to Europe may work in their favor when it comes to building connections.

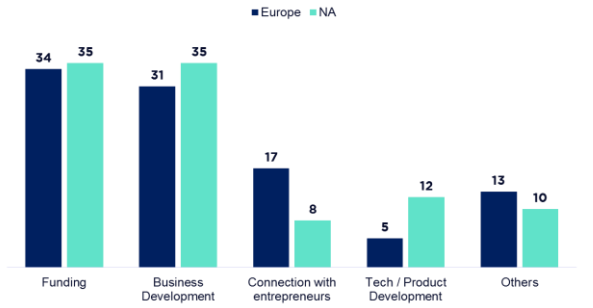


Fig.15: Comparison of European and North American (NA) priority needs in [%]

ANNEX: ACTIONABLE RECOMMENDATIONS

	Before the program	During the program	After the program
Startup	**Select a program which best matches your most urgent needs** *Don't give too much importance to its reputation, but figure out the relevance of the network and the focus areas of the program.* **Be aware of the pros & cons of relocating for the program** *What are the strengths of the ecosystem? Is access to lab space provided? etc.*	**Focus entirely on your principal needs** *Prioritise your needs to build a sound business, be proactive to create opportunities for yourself.* **Exchange with your peers** *Share your experience and what you have learnt, support each other.* **Get maximum feedback from mentors, experts, investors and potential customers** *Engage with a variety of expertise and ask for honest & critical feedback.*	**Keep being involved as an alumnus** *Use alumni events for business development, become a mentor yourself.*
Accelerator	**Focus on a specific industry or technology** *More actionable network.* **Engage with your network and partners early** *Be aware of the needs of relevant corporates and the vision of sector-relevant VCs to select the new startup cohort accordingly.* **Select a well-balanced cohort** *Don't admit competing projects, but look for synergies between projects which will foster peer-to-peer learning.*	**Make use of the crowd intelligence of your network** *Invite your network to also prioritize the needs of the startups.* **Bring VCs into the program early** *Engage VCs to assist in 'de-risking' the startups.* **Allocate sufficient time and resources to match startups with the right mentors** *Involve entrepreneurs in the matching process, assign mentors according to corresponding expertise and mentor-mentee relationship.*	**Build a strong and actionable community around your vision** *Incentivize alumni from abroad to open a branch in the ecosystem by giving them privileged access to lab and office space, organize a post-acceleration program and meetups, etc.* **Make your alumni your ambassadors** *Continue to provide your alumni with external showcasing opportunities, share the stage with them at events, etc.*

		Adapt your program to address each startup's needs *Provide an agile learning framework, implement KPI & milestones, and give tailored feedback.* **Foster peer-to-peer exchange** *Reserve time, animate the exchange and provide online tools, etc.* **Provide potential customer feedback** *Establish a network of potential customers, invite potential customers on-site, and make corporate partner commit to offering piloting.*	
Investor	**Share your strategic vision of the sector** *Provide accelerators with insights which allows them to select a promising cohort of startups.*	**Actively participate in the program** *Engage in working sessions to assist in de-risking the startups with others, thereby getting to know the entrepreneurs and getting hands-on insights. Provide connections, be a mentor yourself.*	**Invest in the most promising projects**
Corporate	**Share your needs and strategic vision** *Provide accelerators with insights which allow them to select a promising cohort of startups.* **See accelerators as part of an open innovation system and a way to source promising solutions** *Invest in accelerators, become a partner.*	**Provide startup cohort with valuable customer feedback** *Help in shaping product specifications, etc.*	**Allow startups, with technology that fits your needs to pilot their solution within your company** *Provide industrial know-how and expertise in setting up a pilot phase.*

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