SPACEUP

Assisting European Space Start-ups in Scaling Up

The Space Academy
HANDBOOK

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Content

This handbook is intended to provide details of what a 'Space Academy' is, how the Space Academies were carried out in the framework of the SpaceUp project and in order to provide a practical guide for any organisation wishing to carry out their own Space Academy in the future.

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The SpaceUp Project

SpaceUp was an EU funded project which ran from 1st June 2018 to 31st December 2021. The aim of the project was to create opportunities for new and existing start-ups coming from space and non-space sectors and to contribute at a European level to the safeguarding and further development of a competitive and entrepreneurial space industry.

Desired impacts of the SpaceUp project included:

- Facilitating access to finance through outreach and networking with business angels, crowdfunders, investors, managers and CEOs from corporates
- Maximising opportunities offered by the European Commission, the SME instrument for space and Horizon 2020
- Assisting the development of viable business cases - 10 selected companies received full support in the form of studies and personalised coaching sessions in connection to each Space Academy
- Accompanying start-ups in commercial phases
- Improving the Human Resources practices of startups by connecting them with HR specialists who proposed flexible, customised, Europe-wide staffing solutions
- Transferring space technology to non-space sectors by collaborating with the Technology Transfer Programme Office (TTPO) and ESA-BICs

Marta-Patricia Aparicio y Montesinos
Founder & Managing Director
Keymon Ventures

Space Academy Rome, December 2020
"As a mentor during my participation at Space Academy Rome, I saw high growth potential businesses being developed by dedicated teams of outstanding professionals, using current and new cutting edge space technology, aiming to develop their business skills to evolve from start-ups to scale-ups. This is our best reward as investors. To discover and be involved in the first opportunities within the market before anybody else."

Mirko Ross
CEO
Asvin

Space Academy Paris, March 2021
"It was a great experience for the team and we gained insights into the latest trends in the space industry. The seminars & talks by various industry experts were engaging for us, we were able to expand our network for potential project partners and collaborators and we were also delighted to receive feedback on our business development and products."

Space Academy services

The Space Academies were not just events with sector or business specific workshops. Each Space Academy encompassed a series of customised business services which were provided to a number of selected startups (x10 startups per Space Academy in the case of the SpaceUp project), following an open call. Submitted business plans were evaluated and selected based on quality by an expert committee

Some of these services were provided prior to the Space Academy event itself, and gave valuable insights to the participating companies and entrepreneurs. Certain accompanying reports provided the basis of the one-to-one meetings with experts, enabling each company to get advice – for free – on specific elements of their individual businesses, learning how to improve, move forward with their ideas, and consolidate their projects. These meetings also allowed entrepreneurs the opportunity to ask questions about the findings of the reports. All participants could then participate in a two-day event with general workshops, aimed at bringing together all of the related knowledge and expertise.

In the case of SpaceUp 5 events were held in total (originally six were planned, but two Space Academies were merged due to the impact of COVID19) via which startups could access SpaceUp services. A total of 60 startups received the customised services in the project duration.

The Space Academy services can be divided into three main categories: feasibility studies, one-to-one meetings, open workshops.

Studies – provided only to selected startups and customised to their individual cases.

These feasibility studies were carried out by experts in the subject matter (see brackets after each topic for the organisation responsible during the SpaceUp project) and based on a series of data and information provided previously by the start -up. The topics of the studies were:

- Business Model Design (Fraunhofer IPK)
- HR Needs (GI Group)
- Intellectual Property Rights (Hypatia)
- Public/Private Funds (IBS)

One-to-one meetings – provided only to selected startups and customised to their individual cases.

These meetings were carried out by experts in the subject matter (see brackets after each topic for the organisation responsible during the SpaceUp project) and based on a series of data and information provided previously by the start -up. The topics of personalised meetings were:

- Access to finance through Credit Passport (IBS Consulting)
- Cross-fertilization (Consorzio di ricerca Hypatia)
- Business Models (Fraunhofer IPK)
- Finance for Innovation (Consorzio di ricerca Hypatia)
- HR Needs Solutions (Gi Group)
- Meeting Business Angels (EBAN)

Open workshops – provided to any startup or entrepreneur interested in the topics and wishing to gain a deeper understanding of the topic.

These workshops were carried out by experts in the subject matter (see brackets after each topic for the organisation responsible during the SpaceUp project). Each Space Academy featured open workshops covering six of the following seven topics:

- How To Succeed In Your Crowdfunding Campaign (200 Crowd)
- Latest trends, Deep Learning and AI Engineering (AviaSpace Bremen)
- European Space Ecosystem: Doing Business with the ESA (SME4SPACE)
- Technology Transfer and Innovation Opportunities (Lazio Innova)
- Becoming Investment Ready (EBAN)
- The Business Model Discovery (Fraunhofer IPK)
- EU Funding Opportunities (Lazio Innova)

Descriptions of studies

a) Business Model Design (Fraunhofer IPK)

This feasibility study carried out an analysis of the business idea and identified prioritized options of business models to implement, helping to make the core business idea marketable.

Fraunhofer IPK feasibility studies were documents composed of three main sections:

- presentation of the current business model
- overview of general approaches to further develop business models
- analysis with recommendations on prioritized options to improve the current business model.

After receiving Fraunhofer IPK feasibility studies, the start-up should have had:

- a better understanding of the current business model
- an overview on general approaches to further develop business models
- prioritized options available to further develop their business model

Fraunhofer IPK feasibility studies required the submission of the following content if not included in the business plan:

- Description of present material and immaterial resources
- Description of the internal value chain (description of distinct activities how products and services are produced and provided to customers)
- Description of value proposition
- Profit equation

b) HR Needs (GI Group)

This feasibility study was designed to analyze the HR structure of the selected startups in terms of potential, skills and performance.

They provided insights into supporting start-ups in implementing value-adding projects around employees' evaluation and in identifying internal and external resources for specific job roles.

Gi Group feasibility studies were adopted to analyse the level of maturity of the start-ups with regard to strengths and weaknesses of HRM processes.

Each HRM Process was assessed in relation to the following dimensions:

- Employer branding
- Skills, assessments and training
- Talent management
- People management
- Organization design and development

Gi Group's studies provided personalized advice on how to tackle most HR challenges based on concrete and relevant examples.

c) Intellectual Property Rights (Hypatia)

Hypatia is an expert in IPR and chose to provide feasibility studies on this topic because:
IPRs encourage innovation by granting successful innovators temporary monopoly power over their innovations
IPRs can play a positive role in knowledge diffusion and strong IPR protection may encourage technology transfer through increased trade, foreign direct investment and joint ventures
The number of patents owned by a company also represents a competitive advantage with both small and large companies operating in the same sector

Hypatia provided each startup with the tools to patent their projects and IPRs. This should guarantee technical results and possible commercial operations, as well as make losing potential investments harder.

Each startup was provided with a tailored report on IPR, depending on their business activities and based on an assessment framework for the project. This allowed:
The patenting part to be put in relation to other components such as the market, technology and the general economic context
The economic value of patents to be identified and assessed
A potential increase in company value deriving from the exploitation of new patented technologies and solutions

d) Public/Private Funds (IBS)

This feasibility study provided an analysis of potential access to EU funding opportunities, covering identification of the most suitable funding opportunities as well as giving an economic and financial analysis.

IBS feasibility studies were documents composed of three main sections:

- the presentation of a project idea,
- an overview of funding opportunities from the EU direct funding programmes,
- an analysis with recommendations on how to improve the project idea to better fit funding opportunities.

After receiving IBS feasibility studies, the start-up should have been able to:

- Identify the most appropriate funding opportunities under the EU direct funding programmes, namely with regards to Horizon 2020;
- Identify where project ideas can be improved to better fit funding opportunities identified.

IBS feasibility studies required the submission of:

- Business plan;
- Financial statements for the last 3 years (when available).

Descriptions of open workshops

These open workshops were topics selected within the context of the SpaceUp project, and in a future case be adapted to the needs of the potential audience and expert availability although they were carefully studied in order to provide startups with a good balance of insights, expertise and knowledge.

a) Becoming Investment Ready – EBAN

The workshop aimed to give concrete tips on helping space tech entrepreneurs to improve their business strategy and to present their business to investors in a better way.

The workshop opened with a brief introduction from the speakers during which they introduced themselves and their careers. Afterwards there was a panel session on investment readiness where the speakers explained why investors do not invest and provided advice on how to become investment ready.

Why investors do not invest and how to become investment ready
For investors, the two main reasons for not moving forward with an investment are the high risk of failure and exaggerated valuations. Regarding the high-risk profile, entrepreneurs are either unaware of all the risks embedded in their business plans, or at least they have not addressed all of these risks properly.

Investors' main problems and reasons for not investing in tech startups are primarily focused on market demand and competition, team structure and ability to execute, and, finally, the valuation of the company. It is interesting to note that, whereas entrepreneurs tend to focus on the product/technology, investors are more interested in knowing if there is a market for the product/service and if the team is capable of executing their business idea. Therefore, if entrepreneurs focus more on the market in their business plans and presentations, they might increase their chances of getting funded.

In terms of situations that could reduce the overall perceived risk for investors, a project having good traction and a balanced team are widely acknowledged as risk reducing factors.

The panel session was followed by a Q&A session where the entrepreneurs attending the workshop asked specific questions about their businesses and understood how to improve their situation in order to increase their opportunity to get funded.

During these two interactive sessions the following topics were discussed:

- The investment and life cycle of an idea/start-up
- Business modelling and mentoring
- Where to look for investors
- How to approach and address investors
- Different types of investors and how to pitch to them in different ways
- What is the mindset of early stage investors?
- What is a Business Angel? How does a Business Angel evaluate a start-up?

After attending this module, the participants should:

- Be able to position the stage of their company
- Be able to understand what the bottlenecks and hassles in their business could be
- Understand the mindset of early stage investors

b) European Space Ecosystem: Doing Business with the ESA – SME4SPACE

Due to the limited time available and in order to be as effective as possible, SME4SPACE decided to split the presentation to the selected companies into two parts, A and B. Part A of the presentation concerned the general information on the European Space Agency (ESA), whilst Part B tackled the actual subject of doing business with ESA.

The objective of this module was to provide the participants with a comprehensive overview of ESA's industrial policy and its electronic tendering systems. The presentation primarily focused on how to write a good technical proposal in response to an ESA ITT. The two main questions, i.e. "What are the elements of a good technical proposal?" and "How to elaborate a good technical proposal?" were tackled. Participants willing to submit a proposal to ESA will have the opportunity to discuss their project/product/idea with the group and to receive feedback from the other participants.

The presentation was well received by the participants and incited one start-up who had already replied to an ESA ITT to share its experiences and lessons learned with the other participants. There was sufficient time available to allow an interactive exchange of ideas, testimonials and feedback. The main conclusion was that start-ups have a relatively good chance to win an ESA ITT if their project, product or idea is technically sound and highly innovative.

c) How to Succeed In Your Crowdfunding Campaign – 200 Crowd

The format of the presentation took the participants through the different categories of crowdfunding in order to help them understand which type is more appropriate for each company. As a crowdfunding campaign needs many different activities to succeed, we will provide an extensive explanation of the knowledge required and the documentation to be prepared in advance. As most crowdfunding campaigns fail because of excessive improvisation, they were also provided information about planning and related activities. In order to increase the usefulness of the presentation, case studies from successful campaigns in different crowdfunding categories were presented.

After attending the module, the participants:

- Were able to understand the difference between different types of crowdfunding campaigns
- Were able to understand the general activities required for a crowdfunding campaign
- Can acquire the necessary knowledge and tools in order to execute a crowdfunding campaign
- Can identify the potential target and required budget to execute a crowdfunding campaign

d) Latest Trends, Deep Learning and AI Engineering – AviaSpace Bremen

The presentation covered the advantages and needs for deployment of robotic and artificial intelligence (AI) capabilities in actual and future space applications. In particular, demands on key technologies and dependencies in regard to different mission objectives were presented. An overview on past and current projects of DFKI Robotics Innovation Center was provided and how to develop, integrate, evaluate and qualify the required hard- and software components, including two examples for technology transfer between space and terrestrial applications (spin-in / spin-out). A short presentation of the current European funding initiative PERASPERA and an outlook on its planned future space activities and missions served as introduction to discuss upcoming opportunities with the audience, in which the scientific community is ready to cooperate with ambitious start-ups.

A short presentation of the DFKI, especially the Robotic Innovation Center, as well as the various application areas for robotics and AI technologies, e.g. space, underwater, rehabilitation, served to demonstrate the experiences as well as the basic motivation for technology transfer between the different areas (spin-in / spin-out).

Subsequently, the focus was put on space robotics. Different requirements and application possibilities of robotics and AI for future space applications were presented together with the current development state of required technologies and capabilities using projects carried out at DFKI for illustration. This started with more commercially interesting and relevant applications in Earth orbit such as the maintenance of communication satellites, before ranging further to scientifically motivated mission scenarios for extraterrestrial exploration to search for life on other planets and gain knowledge about the origin of the universe and our solar system.

Finally, presented solutions, robotic systems, components, capabilities and increasing demands on AI were summarized to provide a suitable overview for start-up companies on possible products and inspirations for opportunities to expand their product portfolios. Presenting the transfer of two selected technologies - from space application to environmental protection or to rehabilitation within the health sector - also served to illustrate potential expansion of target markets for solutions originally developed exclusively for space. Finally, the roadmap of the EU Horizon 2020 Strategic Research Cluster (SRC) on Space Robotics Technologies - PERASPERA - was presented to provide a recent and ongoing example for governmental and institutional funding for technology development, in which start-up companies can also participate.

The objectives were to enable the participants of the workshop:

- To gain a comprehensive understanding of the concept of robotics with AI and advantages (and caveats) of utilizing these technologies in space applications,
- To be able to identify potential elements for AI and robotics useful for their business development,
- To be able to identify potential opportunities to transfer technologies developed for operation in space to terrestrial applications and vice versa in order to enhance and increase their business model and diversify their markets (spin-in / spin-out),
- To extend start-ups' knowledge on application and exploitation options, scientific contact networks and funding opportunities in Germany and Europe.

Space applications provide an excellent environment for developing and testing such technologies due to the need to apply AI and robotics for use in these harsh and distant environments. However, the market is still relatively small, at least for the time being, which is why it is worth looking for application opportunities in other, terrestrial and everyday application areas and markets.

e) Technology Transfer & Innovation Opportunities – Lazio Innova

The module was held as a seminar and was organised – before the Covid-19 pandemic - as the following:
45 min: trainer-centred method on the topic of Innovation and Technology Transfer
30 min: road mapping/brainstorming exercise in sub-groups of 5 people
15 min: presentation of the sub-groups' results and questions and answers

The seminar is intended to give participants an overview of what the meaning of technology transfer is and what possibilities it can offer in the EU and in ESA, as well as how innovation is considered in H2020 proposals.

Participants acquire theoretical and practical information on the meaning of "technology transfer" and IPR. They acquire clear information on how to look for and obtain funding within ESA's technology transfer programme and within EC innovation-funded projects. They also gain practical experience on how to approach innovation in EC projects, and information about the role of the Technology Broker Network.

During the Covid-19 pandemic the content of the webinars focused on the Technology Broker Network and was structured as follows:
30 min: presentation on the role of the Technology Broker Network
15 min: case study on the transfer of technology through brokers
15 min: questions and answers

f) The Business Model Discovery – Fraunhofer IPK

The module was held as a seminar, following a trainer-centred method, with a slot of Q&A at the end of each thematic block. The module was intended to educate participants on the importance of the business model concept and on the benefits of applying it in practice. Moreover, established approaches for analysing and developing an organisation's business model were outlined and underpinned by real-world cases.

The module Business Model Discovery aimed at sensitizing, educating and empowering participants on the business model concept and the analysis as well as the development of business models in practice.

After attending the business model workshop, the participants will:

- Understand the business model concept and its benefits
- Be able to identify components of their own business models
- Be able to prioritize common methods of business model analysis and development
- Have ideas regarding starting points for business model analysis and development

G) EU Funding Opportunities – Lazio Innova

Before Covid-19 this module had been held as a seminar following a trainer-centred method with a question and answer session. During the pandemic the module was adapted to be a webinar and organised as follows:
45 min: presentation on space funding opportunities inside the Horizon Europe Program
10-15 min: questions and answers

Participants received practical and comprehensive skills on the EU funding ecosystem. There was a specific focus on the R&I Horizon 2020 opportunities linked to the space sector, SME Instrument and EIC pilot, as well as tips and tricks on proposal writing, elaboration, submission and evaluation of projects financed by Horizon 2020.

Descriptions of meeting topics

As per the open workshops these topics were selected within the context of the SpaceUp project, and in a future case be adapted to needs of potential audience and expert availability although they were carefully studied in order to provide startups with a good balance of insights, expertise and knowledge.

a) Meeting with Business Angels – EBAN

Often, entrepreneurs meet investors only when they are looking for funding, and rarely have the opportunity to openly talk to them to understand their mistakes in the business.

With these one-to-one meetings, EBAN aimed to facilitate the dialogue between entrepreneurs and investors in order to help the former acquire the necessary knowledge to become investment ready. It is important to notice that entrepreneurs need to improve not only the execution of their businesses by fixing possible mistakes, but also their communication
skills in order to approach investors in the best way and at the right moment.

All this is possible only if the investor can talk with the entrepreneurs in a friendly environment and without the feeling of an obligation to provide funding.

After attending EBAN one-to-one modules the entrepreneurs should be able to:

- Take the next steps to overcome any barriers or issues
- Identify weaknesses and strengths in his/her company
- Work towards a better defined business strategy
- Approach investors in a better way
- Identify opportunities for his/her company

(Each one-to-one meeting can cover different topics according to the entrepreneurs' needs)

Given the flexibility of its structure, each one-to-one meeting covered different topics according to the entrepreneurs' needs. Unfortunately, as raised by both entrepreneurs and business angels during the survey after the events, half hour is not enough for a deep analysis of the business and a fulfilling exchange of experiences. Thus, one hour would be a better option where possible in order to give the entrepreneur enough time to explain the projects and the investor the possibility to get a clear overview of the business, and then tackle bottlenecks and lacks of the execution.

For an even more effective result, the meeting should be followed by other follow-up meetings where the investor can track entrepreneur's progresses. However, EBAN understand that even if the suggested format is not the perfect solution, it perfectly covers its role to push the entrepreneurs to start an open dialogue with business angels before and in parallel to their funding activities. Thus, although half hour is not enough for a comprehensive advice it is enough to let entrepreneurs understand the importance of business angels' role on mentoring over the money.

b) HR Needs Solutions – Gi Group

Depending on the development status and growth plan, the reference/target market, the existing company network, and the composition, background and competences of the startup team, start-up's HR needs can be very different. Challenges vary from identifying the
competences required in order to be able to achieve the company goals, to defining related strategies for the development or acquisition of competences including the attraction and on boarding of new team members, to understanding the national (and international) labour market, to managing existing resources including the establishment of organizational structures as well as the management of performance and the setup of strategies to increase employee retention.

Given the multitude and complexity of potential HR challenges for startups, Gi Group's objective, providing one-to-one sessions within the framework of Space Academies, was to reply most flexibly to the start-ups' specific needs and individual questions in order to create a real added value for them. Therefore, Gi Group's one-to-one sessions followed the below structure:

- Short introduction of both parties
- Review of the feasibility study and matching of Gi Group considerations with start-up's perceptions
- Additional needs and HR related questions from the startup
- Reply, feedback and recommendations given by Gi Group

Gi Group perceived that the approach, namely the opportunity to address specific questions, was well appreciated. Questions raised by the single startups turned out to be very different in fact and included but were not limited to challenges such as when to on board a dedicated HR Manager, how to manage senior team members, how to write job adds more attractively and how to reduce the turnover of internal employees. Wherever needed Gi Group provided a follow up to the startups after the Space Academy.

c) Access to Finance through Credit Passport – IBS Consulting

IBS Consulting is a company specialized in financial analysis and EU funds. It collaborates on a daily basis with Credit Data Research (part of the Moody's Group) and other financial institutions specialized in risks and investment analysis. IBS together with these agencies provided tools and models for creditworthiness assessment, which aim to identify predictive simulations (rating outlook). This is the approach to be followed to support the 10 selected start-up companies: after having collected their business plan and other relevant information, a careful analysis of their prospective cash flows was performed, and a current and future financial risk determined based on a certified model.

These 10 reports were structured into three different levels of analysis: quantitative, qualitative, and performance analysis for each start-up. The creation of each report implied the personal acquaintance of the new entrepreneur to examine its expectations of strategy, business model, the company's predisposition to risk, and finally to help the firm in the process of scaling-up. Furthermore, the targeted company had the possibility to discuss during the B2B the contents of the feasibility study delivered through the project Space Up, defining and planning a tailor-made strategy concerning EU funds.

Main content elements:

- Detailed description of the provided services
- Needs and documents for issuing the Credit Passports or other similar reports
- EU Funds: target needs and priority actions
- Wrap-up and next steps

The companies were extremely engaged and had an enthusiastic reaction for both services, considering the importance of the start – ups to get a document (Credit Passport or similar) which reinforced their credibility in the loan and banking market. Furthermore, all the participants have been curious and full of questions concerning the world of European funds, recognizing their importance and that they could be a concrete added value for their activities. In conclusion, IBS was in contact with all the companies, doing the follow – up of the meetings as well as defining tailor - made services according to their needs.

d) Cross-fertilization – Consorzio di ricerca Hypatia

Hypatia offered a comprehensive one-to-one coaching meeting on cross-fertilisation and cross-technology solutions from space to non-space with the aim of helping the companies in developing sustainable and alternative solutions for their business. The coaching, based on Hypatia's long-standing experience in technology transfer process applied in the space sector, included the presentation of the main TT instruments based on Hypatia's model. In particular, the main paths, critical paths and actors of the technology transfer process were presented, together with the evaluation of accessibility matching the technical and economic-organisational feasibility and the possible exit strategies. Under this model it is possible to follow the evolution of the companies in every stage, addressing them to the most suitable instrument according to their stage, TRL and need. Given that all the companies coached are in a scaleup phase, Hypatia directed them to two main activities: ESA Business Applications Programme and the Italian VC Fund "Primomiglio Space" dedicated to space ventures and to deepen on the Finance for Innovation module.

As manager for the last 2 years of the ESA Business Applications Programme, Hypatia presented the related opportunity of integrating space technologies in an already ongoing business for terrestrial benefits and of receiving zero-equity funding. Where interest was shown, Hypatia directed the company to the national point of contact.

Every company was also provided with two tailored case studies, one on the possible sectors where their technology could be implemented (cross-fertilisation case study) and one on the possible space technologies that could be implemented in their business (cross-technology case study). Where possible each case study was discussed with the company. At the end, under the request of some companies, a discussion on the IPRs Reports elaborated and sent in preparation of the Space Academy took place.

The companies were extremely interested in understanding how different sectors could benefit from their solution and vice-versa (cross-fertilisation case study) and how/why different technology could complement their business idea. Some of them found confirmation in the analysis when looking at the possible market to approach and technologies to consider. However, they highlighted some difficulties on how to proceed in doing so and understanding the logic, instruments and means behind it. Follow-ups with interested companies were arranged.

Hypatia believes that a discussion with the company on the IPRs report should be implemented within the module to benefit the start-ups that do not know how to manage it. Indeed, following the Space Academy we received explicit request from one of the companies to advise on the IP protection.

e) Finance for Innovation – Consorzio di ricerca Hypatia

The expert provided the 10 selected start-ups with the main instruments to navigate the world of finance. In particular, the expert analysed with the companies the different sources of finance for innovation according to their status, TRL and interest. The expert focused on the role of venture capital, as a type of equity investment, sharing knowledge on how to approach a VC investor, the different stages of a VC investment, types of venture capitalists, functioning of the investment business and the logic behind it, the role of venture capital fund management companies and of a coherent business plan with the expectation of the VC investor. Each start-up received tailored advice on which investor to address next and how to best overcome the scaleup phase.

The session provided an overview of innovative financing opportunities in space for advanced investments with a particular focus on the Venture Capital funds available in Europe and the Italian VC Fund for space "Primo Space". Hypatia required the submission of financial statements by the startups. As a result, the interest companies were inserted into the deal flow of Primo Space for investment evaluation.

f) Business Models – Fraunhofer IPK

For the one-to-one module on business models, Fraunhofer IPK provided the start-up with a document containing answers to the questions of the companies regarding the related feasibility report and additional information on the prioritized option to further develop the company's business model. During the one-to-one module on business models Fraunhofer IPK answered the start-ups' questions regarding the before provided feasibility report on business models and together with the start-up discussed and further elaborated a specific option proposed to further develop the business model of the company.

Fraunhofer IPK's one-to-one module on business models:

- Provided answers to open questions of the company regarding the business model feasibility report and established an in-depth understanding of the company's business model
- Supported companies in detailing a specific option to further develop their business model

Fraunhofer IPK required the submission of:

- Open questions regarding the feasibility report
- The selection of an option to further develop the business model

The one-to-one meeting on Business Model Development showed that the respective feasibility study provided the start-ups with a comprehensive analysis of their existing business model in terms of strengths and weaknesses and options for further development in the form of business model options. Furthermore, the meetings provided the start-ups with information and instructions to pursue business model development independently and continuously as well as on how to simplify the process. The majority of start-ups confirmed the usefulness of the reports and showed that the creation of an overview of the entire business model and the concrete options for improvement were perceived as particularly useful. Besides, the majority of participants assessed the content as relevant as well as useful.

In conclusion, it can be stated that the feedback from the one-to-one meetings showed that the project succeeded in making the increasingly important and mostly abstract topic of business model development accessible to start-ups in the form of a practicable procedure.

Space Academy event structure

The Space Academy events were the core of the SpaceUp project, building on the prior services and reports, offering a platform to meet, connect and consolidate information and knowledge.

Space Academies usually had an associated event held in conjunction or in parallel. This event was always related to the space sector and was usually relatively big. Some of the partner events included: the European Business Angels Network's Annual Congress, Paris Space Week, New Space Economy Forum and Space Tech Expo Europe.

The Space Academies gathered relevant stakeholders from the EU Space industry, creating a space for startups to network and access workshops led by project partners. The attendees included Startups, Experts, Consortium members, Investors and General delegates from companies and universities.

Space Academies themselves were usually two days long, with workshops on the first day and the one-to-one sessions for the selected companies taking place in parallel. There were 6 topics of either type of session, and open workshops took place twice (a total of 12 sessions), once in the morning and once in the afternoon so that companies having meetings with the experts could participate in workshops as well. The open workshops were available for anyone to attend for free. After the 10 startups had been selected, the link to register to the workshops was promoted and shared amongst related sectors and contacts in order to attract other startups and entrepreneurs to attend.

The second day companies were invited to participate in the larger event that was being held in parallel, where some entrepreneurs were also offered to opportunity to pitch their companies. In some cases, this gave them a chance to win a competition and present their pitch to a wider audience, including investors.

On this second day, the project would also hold a panel session embedded in the parallel event on a topic related to its action area. Some example topics were:

- 'From Space To Earth: Investing In Downstream Applications' at Paris Space Week
- 'Finance for Space-tech Startups' at New Space Economy Forum
- 'Enhancing Greater Investment in the European Space Industry' at Space Tech Expo Europe
- 'New Space for Europe' at EBAN Annual Congress

Space Academy participants all had preferential access to the other larger event being held at the same time, either with free entry or by offering them a discount.

In most cases, the SpaceUp project had a stand at the larger event to promote the project and raise awareness of future Space Academies.

Time	SESSIONS
9:00	**Welcome - Opening** **Welcome Speech by AviaSpace Bremen and IASP**
09:30-10:30	**How to succeed in your crowd-funding campaign** Matteo Masserdotti, CEO at 200Crowd
10:30-11:30	**European Space Ecosystem: Doing Business with ESA** **SME4SPACE** TBC
11:30-12:00	Break
12:00-13:00	**Becoming investment ready** EBAN TBC
13:00-14:00	**Lunch & Networking**
14:00-15:00	**Latest trends, Deep learning and AI Engineering** Angelo Dalli, General Partner at 111
15:00-16:00	**Technology Transfer & Innovation opportunities** Andrea Maria Ferrari, engineering manager at RINA
16:00-16:30	**Break**
16:30-17:30	**The Business Model Discovery** Markus Will, Head of Competence Center Knowledge Management at Fraunhofer IPK
17:30 -18:00	Closing and announcement of the winner of the pitch competition

Figure 1 - Example Space Academy programme. Agenda from Space Academy Paris

In terms of selected speakers, the SpaceUp project used the relevant contacts within the project consortium to identify the necessary experts on the topics required, both for the open workshops and the panel session.

The logistics and organisation of the event were handled by the named partner of the consortium for this task, but counted on close collaboration with other consortium members.

Latest trends, Deep learning and AI Engineering Angelo Dalli, General Partner at 111	**5 one-to-one meetings** 6 sessions, 30 min each
Technology Transfer & Innovation opportunities Andrea Maria Ferrari, engineering manager at RINA	
The Business Model Discovery Markus Will, Head of Competence Center Knowledge Management at Fraunhofer IPK	
How to succeed in your crowd-funding campaign Matteo Masserdotti, CEO at 200Crowd	5 one-to-one meetings 6 sessions, 30 min each
European Space Ecosystem: Doing Business with ESA SME4SPACE TBC	
Becoming investment ready EBAN TBC	

The organisers of the SpaceUp Space Academies were:

- EBAN
- AviaSpace Bremen
- Hypatia
- IASP

In Person Space Academies

Logistics to bear in mind
The physical venue should be selected so that it is able to accommodate all sessions of the event. Following the current event programme set up, it should have 3 main rooms for workshops, 1 room for welcome/stand-up lunch, and 6 small meeting rooms for 1-2-1 meetings. An additional advantage would be a location near (or the same as) the associated event to ease access to it on the second day.

Because of multiple sessions going on at the same time, it is recommended to have one or more people designated to direct participants to the sessions they are trying to find, and who would be recognisable to attendees in case of any questions.

The 10 selected startups would ideally receive travel funding support which covers their flight tickets to the Space Academy. Other participants could book their tickets individually. All attendees should be given a list with suggested accommodation near the venue and advice on transportation with catering provided for meals falling during the event hours.

The breaks are intended to be networking occasions, so it is important to facilitate this as much as possible by providing adequate space, and catering where applicable. If relevant, and budget allowing, a social activity (dinner, other side event) can be organised, thus encouraging a good interaction between participants.

An attendance list should be signed by all participants, providing their relevant details, enabling a register of who has attended and allowing the organisers to reach out to participants for any follow-ups afterwards.

Virtual Space Academies

Logistics to bear in mind
In the case of the event being virtual, an appropriate online platform must be selected. Platform functionalities vary and it is important to consider the access restrictions for each type of participant and the functionalities that they have access to. Useful features include slide sharing, breakout rooms and deciding if participants can speak in sessions or if they should write their questions in a chat. The platform's networking options such as sending invitations to connect with others, messaging and scheduling meetings should also be considered.

In the case of virtual Space Academies, in addition to the speakers leading the main workshops, each open session could also consider having a moderator who would introduce the speaker, ask questions at the end of the workshop and facilitate discussion.

There are a number of technical considerations with virtual events. Test sessions should be held well ahead of time to minimise disruptions to the event. Tests could include the opening and closing ceremonies, preparatory sessions with experts running workshops and meetings, and with selected companies to ensure they can access their scheduled meetings. One-to-one sessions should be booked in advance between the consortium member and the startup to avoid confusion on the day.

In case of technical difficulties, the technical team should be on standby and assist with solving any issues. Most often such issues would be related to connectivity or web browser incompatibility.

The open workshops should be recorded and depending on the platform could be watched again for a specified period of time, for example 48 or 72 hours. Other platforms may simply offer the option to download the videos.

Virtual networking can be difficult, as many participants wish to disconnect when not involved directly in a session, so the platform ideally should have some additional functionality to be able to interact and engage via others, with chat, video chat, virtual exhibition, or other organised activities.

Online events provide a wide variety of statistics and information, but this varies depending on the platform, so the main indicators and parameters should be identified ahead of time to know whether these will be available or not.

Organisers checklist for Space Academies

The below list provides a useful checklist for the event organiser of these Space Academies. Depending on individual needs there may be additional tasks not mentioned here, as well as some items that may not always be necessary. Also bear in mind that previous arrangements and individual needs may arise from identifying the larger event within which the Space Academy will be held.

In blue = actions only for physical events
In green = actions only for virtual events

Pre-Event

1. Call launch and promotion
2. Evaluation of applications received by committee and selection of 10 best startups
3. Beginning of cooperation with the startups in providing personalised services
4. Submission of pitches by startups and evaluation
5. Inviting speakers and moderators from the consortium
6. Gathering information from speakers (CVs, presentations, pictures)
7. Preparation of the virtual platform and technical tests with the speakers and selected startups/ Book venue satisfying requirements
8. Promotion of open workshops and open registrations
9. Accommodation (coordination with participants, or for invited speakers)
10. Transport (coordination of any transfers to hotel; transport between venues; transport to dinners etc.)
11. Book refreshments: coffee breaks (how many, where, when?); lunches/dinners (what sort of restaurant, distance from hotel, dietary requirements etc)
12. Inform speakers about payment and logistics
13. Prepare/order promotional material – rollups, posters, gadgets
14. Prepare SpaceUp stand at the associated event
15. Promotional gifts/brochure
16. Prepare anything that needs to be sent in advance, either electronically (presentations etc, or physically)
17. Organise any photography/video recordings
18. Confirm agendas and meeting locations for events and other meetings – speakers, companies
19. Test sessions on platform, confirm login and functionality for all meetings and especially for speaker, moderators and experts
20. Maintain list of attendees up to date
21. Ensure all attendee payments are in order, if applicable
22. Press release (if applicable beforehand, also consider preparing one for after the event)
23. Promotional news piece(s)
24. Promotional mailing(s)
25. Promotional social media (set up campaigns, share news on latest speakers, participating companies,

experts etc)

26. Respond to enquiries
27. Confirm programme flow (workshops, one-to-one meetings etc)
28. Print final programme and organise any other info for attendees to have on registration/arrival to the event. Badges etc
29. Email participants with final event information

Event

1. Ensure there is Wi-Fi connection
2. Open workshops
3. One to one meetings for the 10 selected startups
4. Announcement of the winner of the pitch competition
5. Technical support to all participants
6. Take photos/videos
7. Take notes if necessary
8. Social media coverage
9. Ongoing liaising with organiser onsite/with the platform technical team
10. Have an attendee list to sign to make sure all attendees are present

Post-Event

1. Promotion and public announcement of winners on social media, website, newspiece and newsletter
2. Post-event satisfaction survey to be sent out, reminders if necessary
3. Reminders about online workshop recordings (if applicable)
4. Debrief other staff and contacts on lessons learnt, feedback received
5. Communicate with partners or platform hosts re. pending documentation, final lists, feedback, numbers of delegates, payments
6. Send thank you to speakers
7. Send greetings or follow-up to enquiries/new contacts
8. Upload photos to public forum

When considering in-person events, the below set-up for the rooms and additional materials should be considered and selected as applicable:

Distribution of the tables:

- ☐ U-shape
- ☐ Classroom
- ☐ Freestyle
- ☐ Roundtable
- ☐ Other:

Materials

- ☐ Projector
- ☐ Computer (if required)
- ☐ Whiteboard (+ markers)
- ☐ Flipchart (+ markers)
- ☐ Clicker
- ☐ Notepads (+ pens)
- ☐ Post-its
- ☐ Other:

For virtual events the needs will vary depending on the platform selected and what levels of interaction or engagement are desired.

Week	1	2	3	4	5	6	7
Date selection	●						
Timetable finalisation							
Negotiating and making hotel reservations							
Negotiating and reserving the conference venue		■	■				
Partnering with another space event							
Preparing promotional print materials		●				■	■
Promotion of the call for startups						●	
Close of call							
Evaluation of applications by the committee							
Begin promotion of the event and open workshops							
Preparation of the registration form					●		
Catering/restaurant reservations							
Organisation of trip, flight tickets, transport to the venue							
Control of the technical equipment at the venue							
Ongoing support to the speakers and beneficiaries							■
Preparation of company studies of startups		■	■	■	■	■	■
Compilation of pitches from startups / informing startups of pitch competition							
Invitation of space industry stakeholders – investors, companies, organisations							
Invitation of speakers to conduct workshops							
Sharing of pictures, recordings and materials on website, social media and by email							

Figure 2 – Example Gantt chart for Space Academy organisation (physical)

8	9	10	11	12	13	14	15	16	17	18	19	EVENT	1	2

Week	1	2	3	4	5	6	7
Date selection	●						
Timetable finalisation							
Negotiating and choosing the platform		●					
Partnering with another space event		■	■				
Preparing promotional materials		●					
Promotion of the call for startups						■	■
Close of call							
Evaluation of applications by the committee							
Begin promotion of the event and open workshops							
Preparation of the registration form					●		
Technical tests of the platform							
Ongoing support to the speakers and beneficiaries							
Preparation of company studies of startups							
Compilation of pitches from startups / informing startups of pitch competition							
Invitation of space industry stakeholders – investors, companies, organisations							■
Invitation of speakers to conduct workshops		■	■	■	■	■	■
Sharing of pictures, recordings and materials on website, social media and by email							

Figure 3 - Example Gantt chart for Space Academy organisation (virtual)

8	9	10	11	12	13	14	15	16	17	18	19	EVENT	1	2
														

Promotion

The purpose of the communication and dissemination actions was to ensure a wide coverage and visibility for the project and to increase awareness of the European space sector for a wider audience. The dissemination of SpaceUp was fundamental for assisting start-ups potentially interested in the Space sector to scale up and participate in the project's Space Academies. The purpose of the dissemination actions was to foster European Space-related opportunities and encouraging start-ups to scale up and internationalize their businesses, especially those in the acceleration phase and those coming from ESA BICs.

The promotion of the SpaceUp project and Space Academies was composed of communication and dissemination actions through multiple channels.

The main dissemination elements were:

1. Promotion and support of the five Space Academies (via web tools, social media and videos etc.).
2. Regular newsletters to key target stakeholders and other targeted promotion materials such as a rollup and flyer

The main communication elements were:

1. Print material, a project video and social media accounts (Twitter, LinkedIn)
2. A visually attractive website

All project partners were involved in active dissemination of the opportunities relating to the Space Academies, with IASP leading the actions and covering promotion via the main SpaceUp official channels.

The complete list of materials used for promotion of the project and thus the related Space Academies is as follows:

- Overall branding/communication kit (logo, templates, flyer)
- Brochure
- Poster
- Roll ups
- Press releases
- Scientific Papers
- Website
- Social networks
- Newsletters
- Videos (introduction to the project, recordings of webinars and videos of Space Academies)
- Specific Space Academy related promotional material for Call and event (flyer/poster etc)
- Outreach sessions

The website was where the periodic Calls for Space Academies were published, and a newsletter was circulated to a list of interested subscribers in order to share updates of the latest Calls that were open.
A separate page hosted the online form for applications, in which startups provided all details needed for the selection process. The applications were later passed on to the evaluation committee for processing assessment and establishing a ranked list of the 10 best applicants to be fully supported.
Social media accounts were kept active to engage with the target audience. Apart from campaigns specific to Calls for applications and Space Academies news, separate campaigns gave visibility to the selected startups before, during and after each Space Academy. Achievements of the selected companies were widely disseminated on the project website, through the newsletter and on social media, providing more publicity

to them and the project itself.
Coordination and mutual support can be given by the larger event and framework within which the Space Academy is taking place, as the Space Academy should appear in the main programme of the event which also adds to the visibility.
Each project partner was responsible for a certain amount of communication actions within their own network and personal contacts, thus ensuring a wide spread of information and promoting the event to a broad audience.

Evaluation

After each Space Academy, a satisfaction survey is sent out to all participants. Answers provide helpful indications about the success of the event and areas for improvement. Two distinct questionnaires were sent out: one to startups and the other to investors and industry representatives.
The start-up questionnaire consisted of 23 questions. Questions 1-5 evaluated how the start-ups found out about the Space Academies, how they assess the information on the project website, their main reason of applying as well as ease of completing the application process. Only the selected start-ups answered questions 6 - 18 about their satisfaction with feasibility studies, one-to-one meetings and pitches. Considering again all participating start-ups, questions 19 - 23 dealt with the overall content-related assessment of the Space Academy, their major value of the event as well as further comments and suggestions.
The investor & industry questionnaire consisted of a total of 13 questions which were divided into four different sections. The first construct asked for the reasons for participation and what kind of organisation the participant represents. The second section of the questionnaire looked into how the participants became aware of the SpaceUp project. The third section contained questions about specific aspects of the Space Academy. Finally, the fourth section contained questions about their overall assessment of the event.

In addition to the official evaluation process, ongoing monitoring and contact took place throughout the project with the selected startups, not only via their customised services, but also to check in with them to ensure that all was meeting their needs.

Conclusions

This handbook is intended to give a practical outline of what the Space Academies were and provide a guide for anyone wishing to organise their own series of events and services.

The proposed structure has been shown to be successful and participants and organisers were satisfied with the results.

In the context of this particular project, there were some adaptations that had to be made, due to the coronavirus pandemic meaning the events had to go virtual, and various insights gained over the period of time which allowed for adaptations to some of the workshops or programme structure of an event. Given the good results, all this shows that the Space Academies are versatile and flexible, and can be taken on for a number of uses and sectors.

The SpaceUp project comprised 10 consortium partners each bringing to the Space Academies a unique set of skills, and thus offering a broad support network to the organisation of such events and activities. That said, this very complete ‘unit’ behind these Space Academies is not a requisite for carrying out these customised services and events, simply that each element would need to be considered carefully in order to identify people with the necessary expertise to be involved.

Annex

Promotional Materials Examples

Various promotional materials were used throughout the SpaceUp project. Most were used to promote applications for the Space Academies themselves, and included posters, rollups and a brochure. They were shared on the SpaceUp website, social media and partner websites.

What is SpaceUp and who is behind it

SpaceUp is a project financed by the EU Framework programme for Research and Innovation (Horizon 2020). The overall objective of SpaceUp is to contribute at a European level to the safeguarding and further development of a competitive and entrepreneurial space industry.

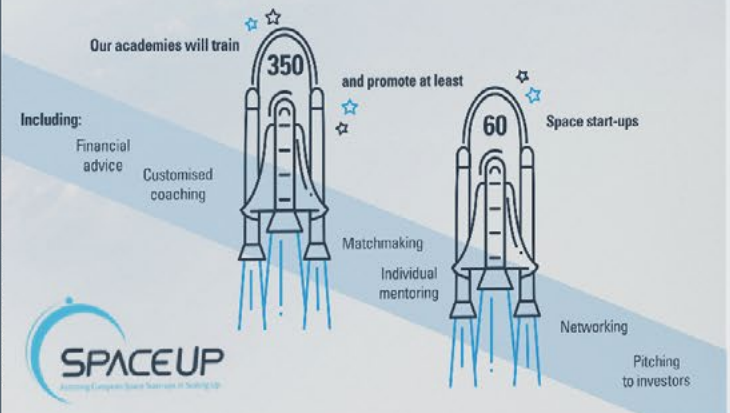
www.space-academy.eu

SpaceUp offers individual and targeted support focusing on

- **Technology Transfer & IPR**
- **Funding & Financing Options**
- **Human Resources & Business Development**

Via remote services/support and 6 Space Academies throughout Europe in 2019, 2020 and 2021

For each Space Academy 10 selected start-ups will be provided FREE personalised services from SpaceUp experts, prior to and during the event. Feasibility studies, one-to-one talks, travel funding and more!



ARE YOU?

- a start-up, entrepreneur or SME
- in high / deep-tech
- linked to satellite-based or space technologies & services
- planning to scale up

Join us at a Space Academy!

An intensive programme including a two-day event for European space-tech entrepreneurs to accelerate their business.

Participants will receive coaching in small groups by prominent experts, on topics such as:

- Investment readiness and relationships with investors.
- Crowdfunding.
- Spin-in/Spin-Out opportunities, for example in artificial intelligence, robotics and space applications.
- Business models.
- Information on funding for SMEs via H2020 and other alternatives.
- Space ecosystem, how to connect with international space institutions and corporates, and apply to ESA Invitation to Tender (ESA ITT).

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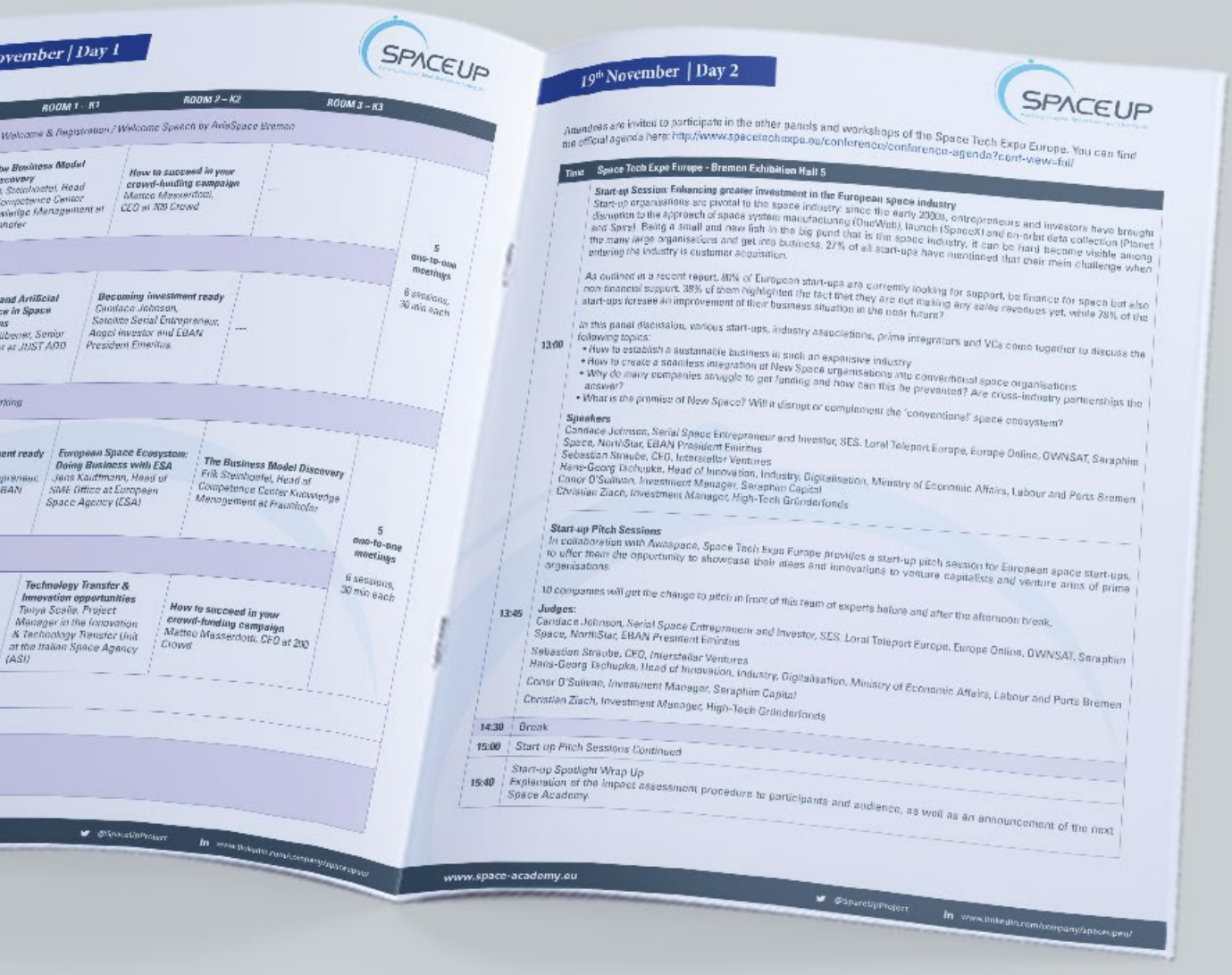
@SpaceUpProject www.linkedin.com/company/spaceupeu/

Figure 1 - Space Academy brochure, pages 2 and 3

Figure 2 - Example of a Space Academy poster promoting the Call. Poster from Space Academy Paris

Figure 3 - Example of a detailed Space Academy poster. Poster from Space Academy Rome

Figure 4a - Example of an in-person Space Academy programme. Programme from Space Academy Bremen (p1 &4)



ovember | Day 1

SPACEUP

ROOM 1 – R1 | ROOM 2 – R2 | ROOM 3 – R3

Welcome & Registration / Welcome Speech by AvioSpace Bremen

...ow to succeed in your crowd-funding campaign
Matteo Masserdotti, CEO at 200 Crowd

...

5 one-to-one meetings
6 sessions, 30 min each

...ecoming investment ready
Candace Johnson, Serial Entrepreneur, Angel Investor and EBAN President Emeritus

...

...European Space Ecosystem: Doing Business with ESA
Jens Kaufmann, Head of SME Office at European Space Agency (ESA)

...The Business Model Discovery
Erik Steinhoefel, Head of Competence Center Knowledge Management at Fraunhofer

5 one-to-one meetings
6 sessions, 30 min each

...Technology Transfer & Innovation opportunities
Tanya Scalia, Project Manager in the Innovation & Technology Transfer Unit at the Italian Space Agency (ASI)

...How to succeed in your crowd-funding campaign
Matteo Masserdotti, CEO at 200 Crowd

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19th November | Day 2

SPACEUP

Attendees are invited to participate in the other panels and workshops of the Space Tech Expo Europe. You can find the official agenda here: http://www.spacetechexpo.eu/conference/conference-agenda?conf-view=full

Time	Space Tech Expo Europe - Bremen Exhibition Hall 5
13:00	**Start-up Session: Enhancing greater investment in the European space industry** Start-up organisations are pivotal to the space industry: since the early 2000s, entrepreneurs and investors have brought disruption to the approach of space system manufacturing (OneWeb), launch (SpaceX) and on-orbit data collection (Planet and Spire). Being a small and new fish in the big pond that is the space industry, it can be hard become visible among the many large organisations and get into business. 27% of all start-ups have mentioned that their main challenge when entering the industry is customer acquisition. As outlined in a recent report, 80% of European start-ups are currently looking for support, be finance for space but also non-financial support. 38% of them highlighted the fact that they are not making any sales revenues yet, while 78% of the start-ups foresee an improvement of their business situation in the near future. In this panel discussion, various start-ups, industry associations, prime integrators and VCs come together to discuss the following topics: • How to establish a sustainable business in such an expensive industry • How to create a seamless integration of New Space organisations into conventional space organisations • Why do many companies struggle to get funding and how can this be prevented? Are cross-industry partnerships the answer? • What is the promise of New Space? Will it disrupt or complement the 'conventional' space ecosystem? **Speakers** Candace Johnson, Serial Space Entrepreneur and Investor, SES, Loral Telepart Europe, Europe Online, OWNSAT, Seraphim Space, NorthStar, EBAN President Emiritus Sebastian Straube, CEO, Interstellar Ventures Hans-Georg Tschupke, Head of Innovation, Industry, Digitalisation, Ministry of Economic Affairs, Labour and Ports Bremen Conor O'Sullivan, Investment Manager, Seraphim Capital Christian Ziach, Investment Manager, High-Tech Gründerfonds
13:45	**Start-up Pitch Sessions** In collaboration with Aviaspace, Space Tech Expo Europe provides a start-up pitch session for European space start-ups, to offer them the opportunity to showcase their ideas and innovations to venture capitalists and venture arms of prime organisations. 10 companies will get the change to pitch in front of this team of experts before and after the afternoon break. **Judges:** Candace Johnson, Serial Space Entrepreneur and Investor, SES, Loral Telepart Europe, Europe Online, OWNSAT, Seraphim Space, NorthStar, EBAN President Emiritus Sebastian Straube, CEO, Interstellar Ventures Hans-Georg Tschupke, Head of Innovation, Industry, Digitalisation, Ministry of Economic Affairs, Labour and Ports Bremen Conor O'Sullivan, Investment Manager, Seraphim Capital Christian Ziach, Investment Manager, High-Tech Gründerfonds
14:30	Break
15:00	Start-up Pitch Sessions Continued
15:40	Start-up Spotlight Wrap Up Explanation of the impact assessment procedure to participants and audience, as well as an announcement of the next Space Academy.

www.space-academy.eu | @SpaceUpProject | www.linkedin.com/company/space-up/

Figure 4b - Example of an in-person Space Academy programme. Programme from Space Academy Bremen (p1 & 4)

SpaceUp also produced a series of promotional materials that focused on the 60 selected startups with the aim of gaining them visibility. A brochure showing each startups' profile, website, contact details and various key facts was produced, which is available online at the following link:
https://es.calameo.com/read/0063206256b388f8b73db

Figure 4 - Space Academy Selected Startups brochure, front cover

Figure 5 - Space Academy Selected Startups brochure, pages 27 and 28

Figure 6 – Poster showing the selected startups for each Space Academy

AVIASPACE BREMEN

eban

Fraunhofer IPK
INSTITUTE
PRODUCTION SYSTEMS AND
DESIGN TECHNOLOGY

IASP
International Association of Science Parks
and Areas of Innovation

TWO HUNDRED

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ACF

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Group
YOUR JOB, OUR WORK

REGIONE LAZIO

LAZIO INNOVA

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