INNORBIT

CAPACITY & SUPPORT FOR
SUSTAINABLE SPACE INNOVATION

Empowering
innovation intermediaries
to generate sustainable
initiatives to incentivise
and accelerate
the commercialisation
of space innovation

D4.5 InnORBIT Replication Guide

This project has received funding from the European Union's Horizon 2020 Framework Programme for Research and Innovation under Grant Agreement no 101004212.

Grant Agreement 101004212

Empowering innovation intermediaries to generate sustainable initiatives to incentivise and accelerate the commercialisation of space innovation

COORDINATION AND SUPPORT ACTION

D4.5: InnORBIT Replication Guide

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PU	Public	X
PP	Restricted to other programme participants (including the EC Services)	
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The **InnORBIT Replication Guide aims to support innovation intermediaries** (such as clusters, digital innovation hubs, universities, industry associations, consultancy companies) who are interested in **developing innovation ecosystems for the space sector** through initiatives that promote entrepreneurship**.**

By using this guide, we hope that innovation intermediaries across Europe will be **motivated** and **empowered to implement our methodologies and programmes on their own**, reaping all the benefits offered from our expertise and lessons learnt our team has collected during the deployment of the entrepreneurship programmes of InnORBIT in 2 pilot rounds.

The Replication Guide is also available in **interactive form**, designed as a self-paced online course for easier and convenient use. The course was integrated into the InnORBIT e-learning platform, available at this link.

The Replication Guide provides step-by-step information and guidance on the following topics:

- An **ecosystem study methodology** allowing you to **understand what is critical** in a developed space innovation support framework.
- A path of **waypoints to develop your local support mechanism** in space entrepreneurship.
- Business planning for **funding your innovation intermediaries' activities.**

The Replication Guide is structured in three main parts, corresponding to the topics mentioned above.

Part A: Understanding space innovation ecosystems

1. The "perfect" space start-up ecosystem
2. Ecosystem mapping methodology

Part B: Building space innovation ecosystems

1. The journey towards a comprehensive support framework
2. Introduction to local space initiatives
   - Community building
   - Ideation
   - Incubation and acceleration
   - Fundraising and scaling-up

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1. Essentials of business planning
2. Presenting your local space initiative
3. Market Analysis
4. Marketing Plan
5. Operational Plan & Risk Analysis
6. Financial Plan

Part A – Understanding space innovation ecosystems

2 The “perfect” space start-up ecosystem

In this section you will learn **how innovation support ecosystems work effectively for the NewSpace sector** and **how different players** from the public, academic and private sector **influence the successful growth of ecosystems.**

We provide examples and insights from the Eastern European ecosystem support landscape to show the mechanics of ecosystem building in practice**.**

2.1 What’s a space innovation support framework?

Innovation support services

- **Set of services provided by the public or private sector to innovators** to guide them on their entrepreneurial journey, improving their survival rate and helping them scale faster.
- Includes ecosystem awareness, community building, ideation, fund-raising, incubation, coaching, training, networking, acceleration, etc.
- Public or publicly funded innovation services are usually free of charge for the entrepreneur whereas private initiatives usually participate in the equity of the supported businesses

The support framework

- The **set of all support mechanisms for entrepreneurship support in a region**, including all actors and all different types of support.

The space flavour

Is the **particular knowledge of the space sector** and dynamics needed by the intermediaries’ part of the innovation support framework

Space is deep tech, with more **lengthy payback periods** and large investment needs for upstream ventures. But it is also at the **forefront of the newest IT technologies** such as AI and HPC in the downstream sector.

To better support space start-ups is necessary to understand the **wildly varying dynamics of the space sector**

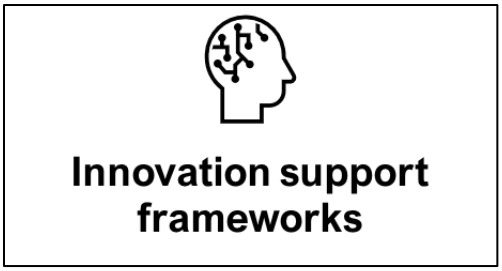
Space innovation support framework

2.2 Core elements behind the space innovation ecosystem

The development of an **effective space innovation support ecosystem** requires smooth and active interaction of key actors, institutions and structures.

- Coordinates the design & implementation of the national space strategy
- Boosts investment through publicly funded programmes
- Establishes conducive legal frameworks

- Research and development initiatives (new technologies, products)
- Supports industrial processes and interacts with the innovation support landscape



- Promotes commercialization/uptake through innovation support services.
- Tightens the local ecosystem of actors (policy, academia, research, market)

In the following pages we will delve into details about the specific role of each structure, how they interact with / complement each other, through the use of examples from the space innovation support ecosystems of Eastern European countries.

2.2.1 The role of the Government

National Space Strategy

The **National Space Strategy** is a document where **high-level visions and ambitions are described, identifying pathways towards the development of the country's space sector**.

Some strategies include detailed and concrete steps towards its implementation, while others are kept at a higher level.

It is a **public document**, developed by **ministries, agencies or intersectoral working groups**, wherein programmes, critical technologies and the required technical, legal or governance capabilities are mapped out.

The document is a **master plan** that provides insight into the needs and pathways towards the planned horizon.

It serves to let the industry and stakeholders know where developments will be heading so that they can evolve along the same course. Hence, **the national space strategy defines the downward ecosystem**.

As strategies evolve together with the local and international ecosystem, they are frequently reviewed and updated to maximise their impact.

Government Investment

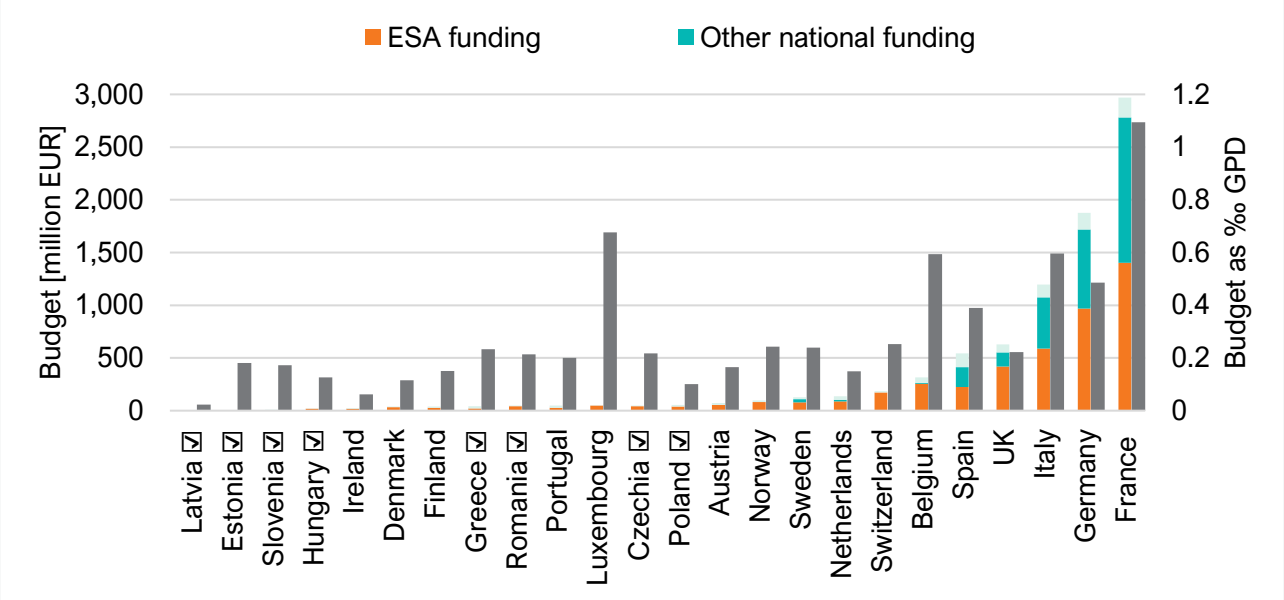
The **space financing plan** of the government accompanies and complements the National Space Strategy. Certain areas or pillars of the National Space Strategy are promoted in the financing plan, such as the development of concrete programmes.

- **Government-funded programmes** may include, for instance, creating a space agency, R&D in satellite communications, developing the micro-launcher sector, or also finding new applications by leveraging existing programmes and boosting the innovation framework.
- **Private funding** usually follows, once the prospects are clear and the possibilities for commercialisation emerge.

Thus, the government's strategy and funding plan impact downstream the whole ecosystem, acting as a cornerstone of the space sector at large and cranking the engine of the space innovation support framework.

A deeper look: National funding in the space sector in Central & Eastern Europe

Figure 1: Budget for space activities in EU countries (Source: InnORBIT D1.1)



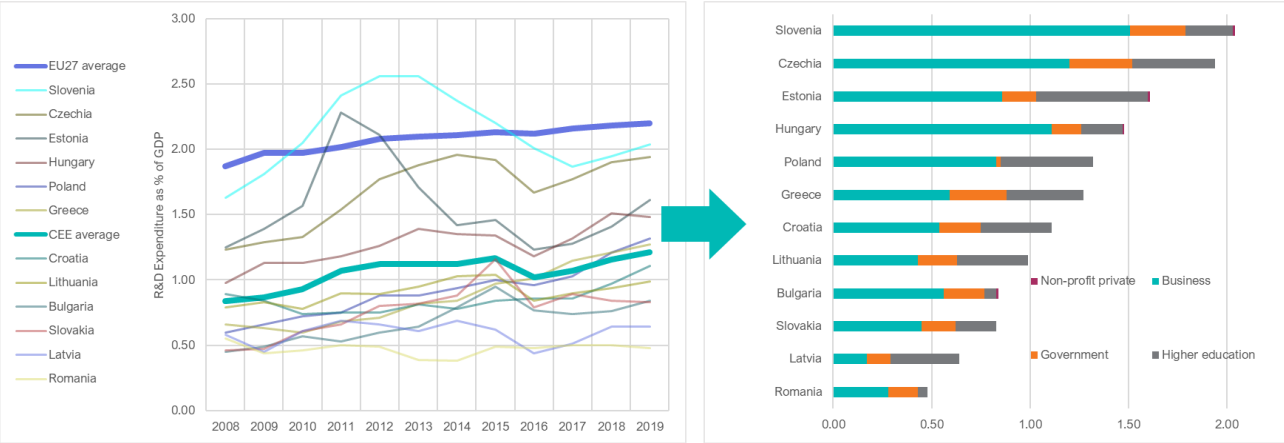
Source: InnORBIT D1.1 - The European space support landscape: Insights from Central Eastern and South Eastern Europe

Most **Central & Eastern European countries have public expenditures of less than 0.02% of GDP in the space sector**.

Their overall budgets are all less than 50 million euros, with an average value of 21 million euros

Countries with a more advanced development of the innovation support framework have **much higher funding, up to 1.4% of the GDP** and reaching almost 3,000 million euros.

Figure 2: R&D expenses in CEE/SEE countries (left) & breakdown per sector (right)



Source: InnORBIT D1.1 - The European space support landscape: Insights from Central Eastern and South Eastern Europe

R&D expenditures for the CEE & SEE region draw an improvement possibility towards their counterpart in the west or EU-average.

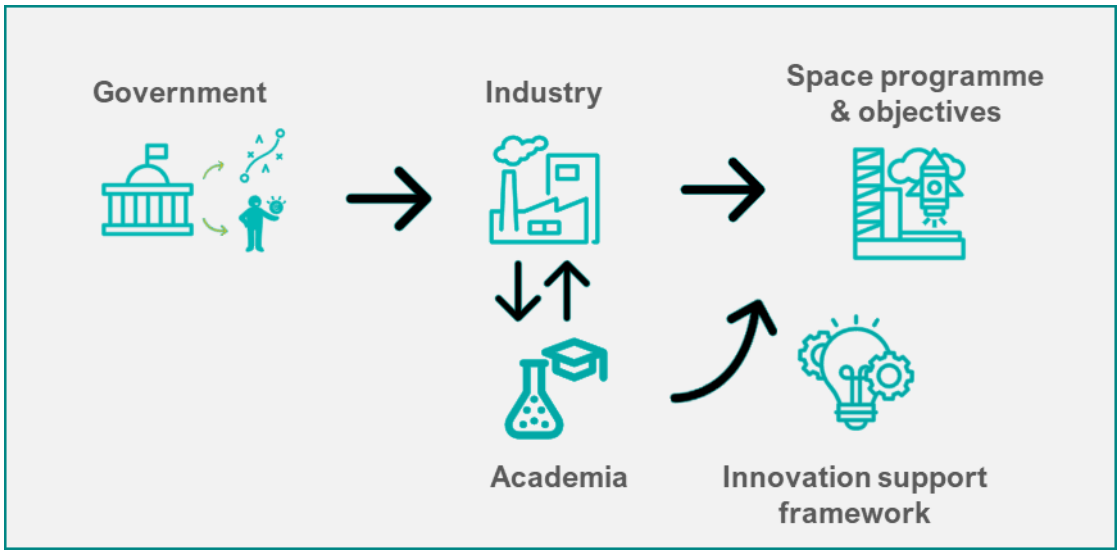
The **funding gap in research and development** explains the lesser output in academic production, measured by patent filling and Horizon participation, for example.

2.2.2 The role of academia & research

Once there is a global plan and the demand is created, **academic and research institutions** are a central part of the success of the development of a space innovation ecosystem. Ideas, solutions and technological developments **may help to tackle the industry's challenges**.

The network of universities and technical experts is a **key factor in enabling solutions and synergies** between the academy and the industry. Technical solutions stemming from the academia may foster the **generation of start-ups and spin-offs**, thus new players in the field.

Figure 3: Role of academia with the innovation support ecosystem



In a simplified view (as presented in the figure above), the **momentum created by the government** with its space strategy and its funding **is followed up by the industry**, which develops the space programmes.

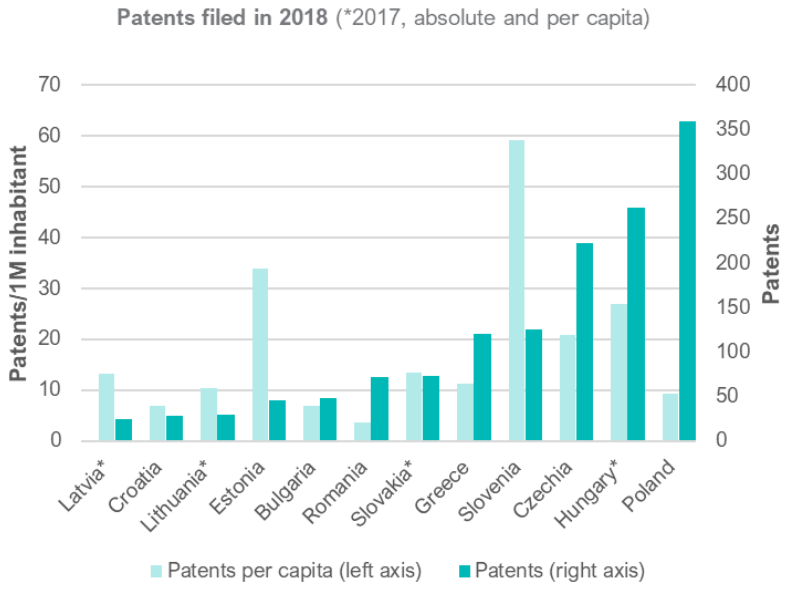
Academy and research institutions support the space sector industry to bring new products, ideas or innovations that satisfy the needs of the national strategy.

In the same way as academy backs-up industry, **innovation ecosystem backs-up the activities of the academy and research organisations**, converting their output into new business.

Predictors of academic and research output could be the number of patents filled, the share in Horizon research projects, the scientific publishing or the raking of the local universities.

A deeper look: Academic and research output landscape in Central & Eastern Europe

Figure 4: Number of patents filed in CEE / SEE countries

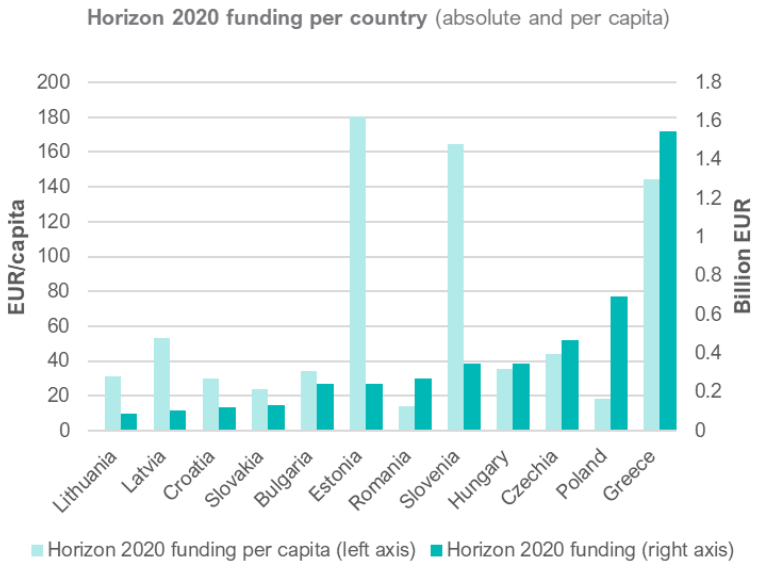


Source: InnORBIT D1.1 - The European space support landscape: Insights from Central Eastern and South Eastern Europe

Insights:

- The **best performing countries are the ones with larger R&D expenditures per capita.**
- They have larger scientific output measured by the number of patents, both intensive per capita and total.
- Estonia and Slovenia are exceptions in the region, unveiling a more developed participation per capita.

Figure 5: Horizon funding of CEE/SEE countries



Source: InnORBIT D1.1 - The European space support landscape: Insights from Central Eastern and South Eastern Europe

Insights:

- For Horizon participation the numbers leads to a similar conclusion, best performers are directly related to the investments in R&D and research.
- CEE&SEE countries are typically an order of magnitude lower on per capita metrics than top EU innovators such as the Netherlands or Sweden.

2.2.3 Key dimensions of innovation support ecosystems

The **innovation framework is the mechanism supporting innovators**, start-ups, scale-ups and entrepreneurs **in developing their activities** to a high degree. **A mature innovation support framework provides support to start-ups**, in the areas of business and incubation support, access to finance, talent attraction, networking, regulation and IP.

To illustrate, **mature innovation support ecosystems** may produce around **50-200 start-ups per year and per million people** like Spain, Germany, Luxembourg, Singapore, Estonia, or the USA, respectively.

The **8 main activity areas** that make up for an effective innovation ecosystem are presented in more detail as follows.

Networks: Committees, clusters, industry association, etc. These can be networks of governments, public agencies, industry or users.

Access to finance: Venture capital, business angel networks, start-up competitions involving cash prizes, public funding mechanisms which have a space application focus, such as grants, prizes, pre-commercial procurement, PPP, etc. This includes funding guides and informational workshop on access **to finance.**

Academics: Prominent research centres, university departments, or professors who can influence the agenda, draw in international talent, and in the case of space, win contracts for major spacecraft instrumentation proposals or data analysis.

Accelerators: Presence of for-profit companies offering time-limited support (coworking space, legal advice, connection with investors), typically in exchange for equity in the company.

Incubators: Presence of (typically non-profit) well-connected associations which help entrepreneurs define a minimum viable product, provide them with initial guidance, help them make a financial plan, and provide them with opportunities for networking with investors.

Business support: Organisations disseminating information about opportunities and support programmes for start-ups.

Conferences and Events: Events with the objective to network, share information on own activities and do business development. Typical examples would be trade shows, sales conferences, and other industry-driven events. It could be a non-technical side event of a larger conference.

Industry: Local space hardware or software companies with important European/international activities.

Additional material and resources

Want to find more insights about the status of space entrepreneurship in the CEE / SEE region and deep dives on the ecosystems of 4 countries?

Full report

“The European space support landscape: Insights from Central Eastern and Southeastern Europe”

available on the InnORBIT website

Training video

“Insights from Eastern Europe”

available on the InnORBIT e-learning platform

3 Ecosystem mapping methodology

In this section you will learn step-by-step how to implement InnORBIT's methodology for ecosystem mapping.

This exercise aims to support you with the **identification of key stakeholders that operate in and drive the local ecosystem** and the **assessment of the local ecosystem performance** when it comes to start-up and innovation support for space. The working documents designed by InnORBIT will be provided as a complement to this guide, to support you in replicating this exercise for your local ecosystem.

3.1 Overview of the methodology

1. Science and Technology: driving the most space technology domains and applications for all areas of science, including space exploration.
2. Services: in the scope of the space tech including telecommunications, Earth observation, PNT, and also integrated and cross-cutting applications: precision farming, telemedicine, disaster management, etc.
3. Security: matters such as planetary defence, space weather, space traffic management (SSA, SST), disaster management, prevention and recovery; peacekeeping, arms control, illegal trafficking, de-mining, cybersecurity and monitoring of global issues[21].

As the most influential organisation in the space domain ROSA coordinates national research programmes and space applications and develops and coordinates the implementation of the National Space Program in line with the objectives defined by the national research, development, and innovation strategy. ROSA also supports the development of Romania's national space infrastructure and human resources in order to reach the average European level. The Agency is also authorized to set up research and development centres but there is no ESA Business Incubation Centre (for comparison, there are 23 such centres in Europe today).

Figure 15: Ecosystem chart for Romania

The Romanian Space Agency is the coordinator of Romania's national and international space activities. It is a public institution entirely self-funded, operating under the decisions of the Ministry of Research, Innovation and Digitization (MRID). The Romanian Association for Space Technology and Industry (ROMSPACE) is a non-governmental encouraging participation in national and international programs and projects of national scientific and industrial entities by promoting conditions to optimise their participation.

[21] Marius-Ioan Piso, "Space as Enabler", presentation at the UN Office for Outer Space Affairs, 2019, https://www.unoosa.org/documents/pdf/psa/activities/2019/UNRomania2019/UNRomania_Presentations/2_ROSA_SSS_UN_Cluj_MAY_2019_v1_Short.pdf

Figure 6: Ecosystem analysis sample

Understanding the local space innovation support ecosystem using a **structured approach** is key for the selection and design of space initiatives for start-up support. This knowledge will empower you to introduce activities that respond to start-ups needs and guide the ecosystem towards maturity.

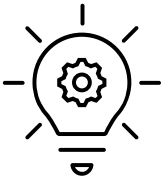
Our methodology is based on the assessment of ecosystem' performance on the 8 most important areas of activity as introduced in the previous chapter, namely, **networks, access to finance, academics, accelerators, incubators, industry, business support** and **events/conferences.**

3.2 InnORBIT's ecosystem mapping methodology

The ecosystem mapping methodology entails 3 interrelated steps: **desk research**, **consultation rounds**, and finally, **synthesis and reporting.** The output of this exercise is the **ecosystem dossier**.

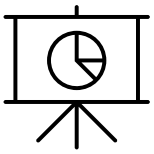
Step 1: Desk research

- Search for regional information about the 8 areas of study
- Use public sources, technical or market reports. Note that information may be incomplete.
- Note key people in your ecosystem during the desk research phase to contact during the next phase (Consultation rounds)



Step 2: Consultation rounds

- Arrange interviews / consultations with key market players to complement your research.
- Involve people in as many different fields of expertise.
- If possible, engage multiple stakeholders from each area of expertise to extract unbiased trends / patterns.

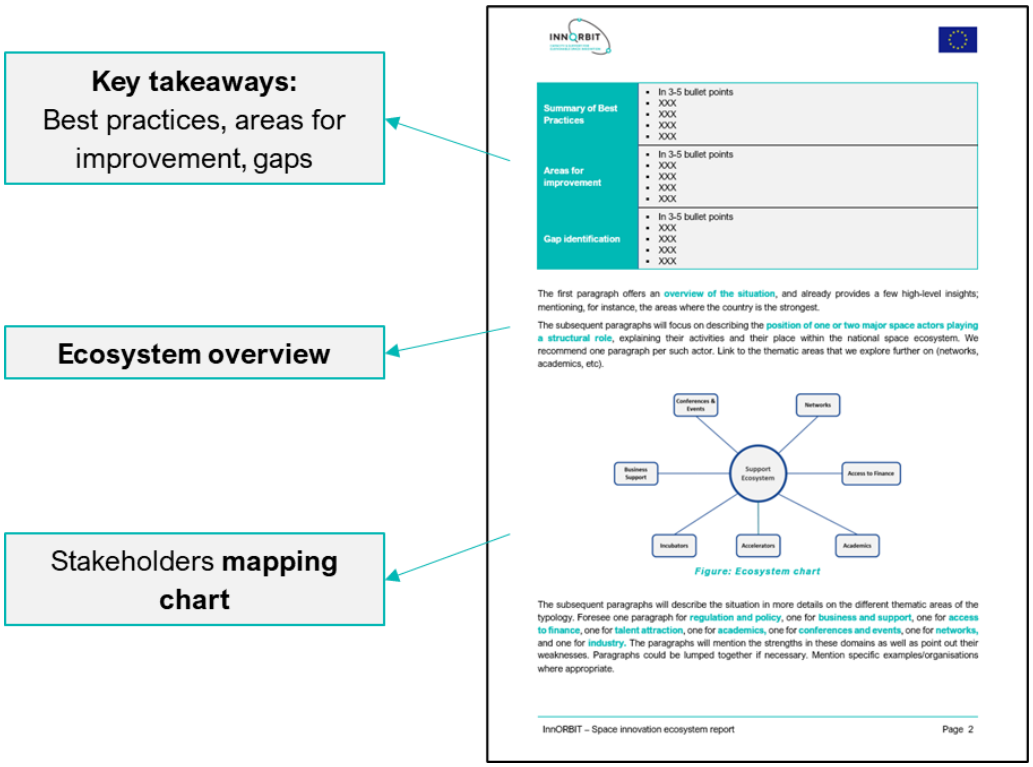


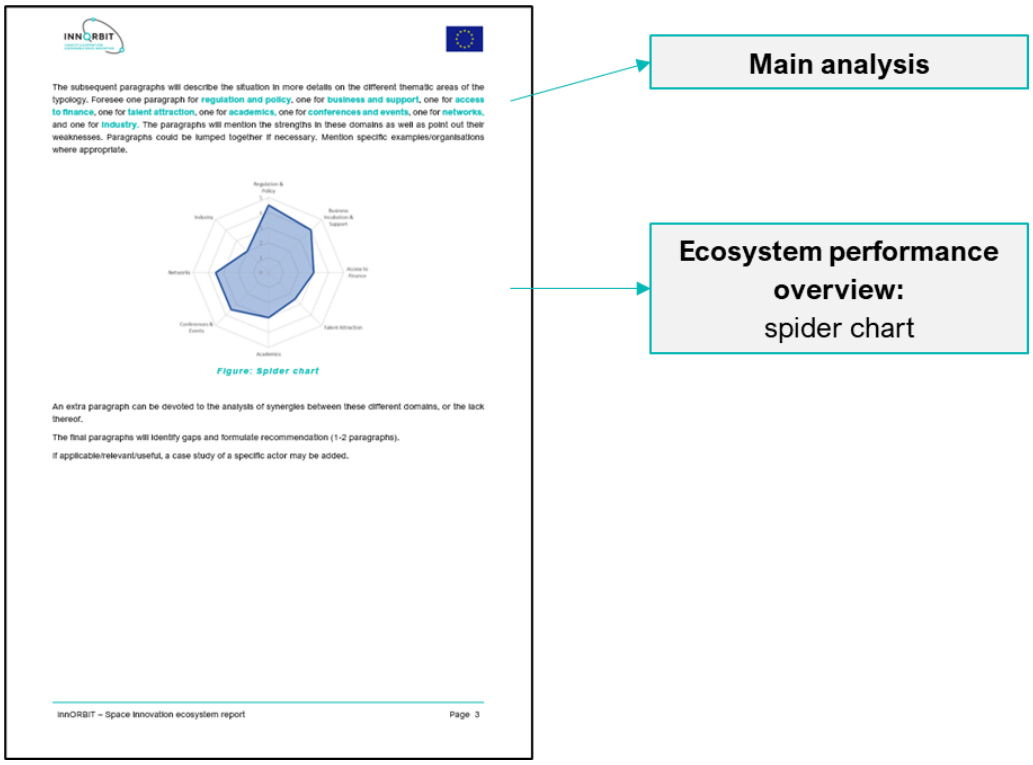
Step 3: Synthesis & reporting

- Consolidate the information from desk research and interviews, extract trends and patterns.
- Assess the performance of the ecosystem in each of the areas of interest.
- Elaborate the ecosystem analysis report.

3.3 Working documents: Ecosystem dossier

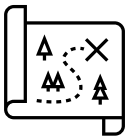
The **ecosystem dossier** is the **core document** to consolidate all the information gathered through desk research and consultations. The template contains four elements: (i) **ecosystem overview and in-depth analysis**, (ii) **key takeaways (synopsis)**, (iii) **stakeholders' mapping**, and (iii) **spider chart for ecosystem assessment**.



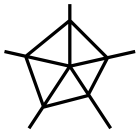


3.4 Supporting documents

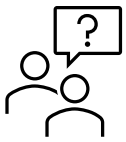
The following support documents are designed with a view to facilitate the organization and implementation of the ecosystem mapping exercise. Three documents are available: the **typology matrix**, the **level matrix** and the **interview guide**. The intended use of each is described below. All documents are available for download at the end of the chapter.



The **typology matrix** is a brief table that explains the key dimensions of the ecosystem analysis methodology along with examples. **This document is essentially a map to the terminology used for this exercise and a guide for its correct use.**



The **level matrix** is a reference table that transforms different scenarios to a five-point scale corresponding to the maturity level of the ecosystem in each of its key dimensions. **The level matrix is practically a guide that supports the consolidation of desk research and interview results into the spider chart**.



The **interview guide** is a pool of questions **to structure the interviews with key ecosystem players** during the consultation phase, to motivate further research and support the assessment of the ecosystem status. The suggested questions are open-ended and grouped in line with the key dimensions of the ecosystem.

Example: Ecosystem mapping and assessment in Croatia

Summary of Best Practices

- Strong ecosystem support for generic start-up development
- A high number of incubators, accelerators, and other business support organisations

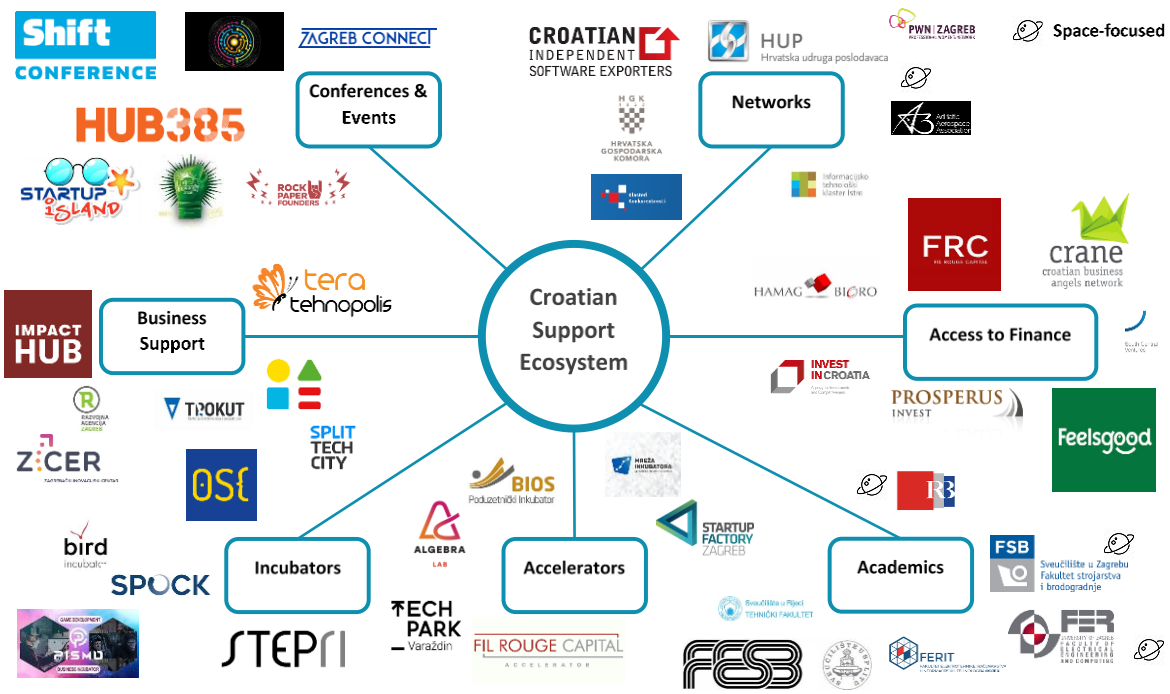
Areas for Improvement

- Better funding support for early-stage start-up development
- Stronger cohesive factor among different stakeholders to benefit networking
- Private/public tension: with private institutions focusing on offering the best possible services for start-ups, and institutions dedicated to securing funding
- Centralization and sustainability of events and networks

Gap Identification

- Space-focused initiatives are scarce, focused on research, with few SME initiatives
- Lack of cooperation between certain stakeholders (start-up – industry)
- Difficulty in transferring technology from the research stage to market

Figure 7: Overview of the Croatian Space Ecosystem



Example: Ecosystem mapping and assessment in Greece

Summary of Best Practices

- An active industry with strong technical expertise, supportive networks and clusters
- Strong mentality for international collaborations
- Business incubation and acceleration programmes for start-ups and SMEs

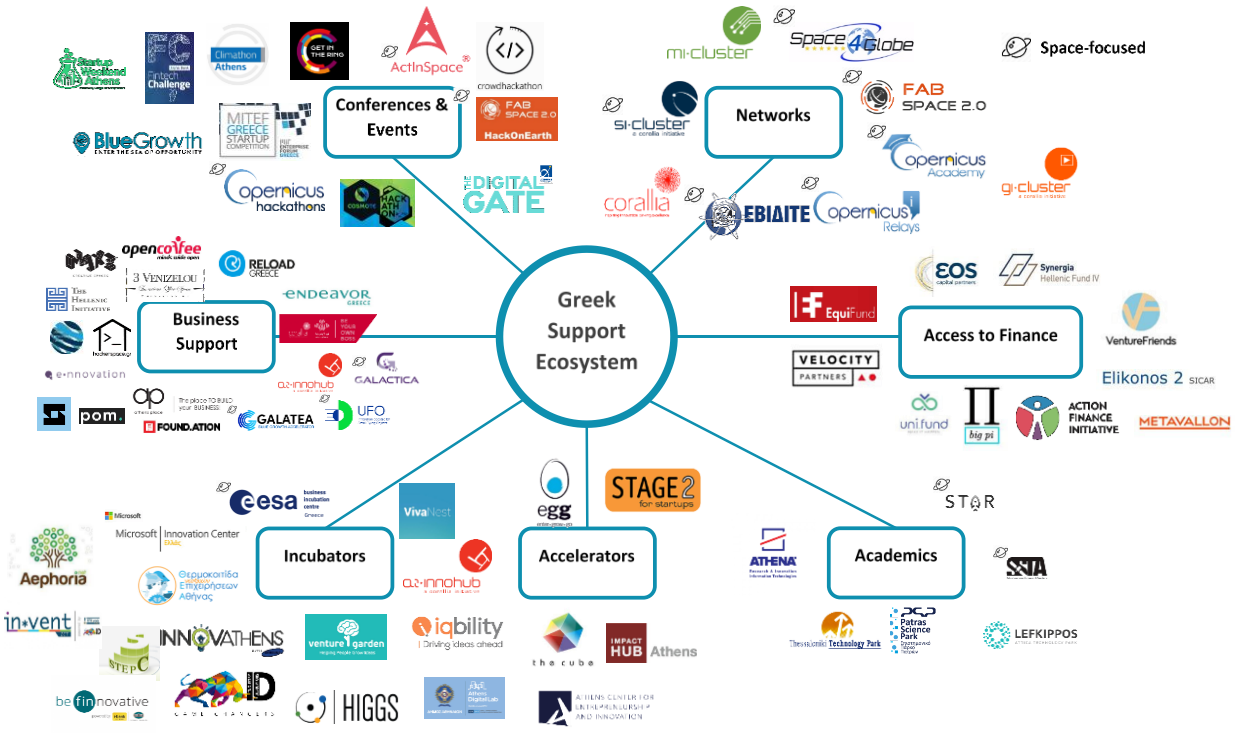
Areas for Improvement

- An active industry with strong technical expertise, supportive networks and clusters
- Strong mentality for international collaborations
- Business incubation and acceleration programmes for start-ups and SMEs

Gap Identification

- Lack of coordinated public support for space and a clear and coherent legal framework for entrepreneurship
- University studies are decoupled from entrepreneurship
- Lack of high-scale space infrastructure

Figure 8: Overview of the Greek Space Ecosystem



Additional material and resources

The templates and support documents for the ecosystem analysis are available for download. The files can be adjusted to the needs of your organization and ecosystem.

InnORBIT material

- **Template: Ecosystem dossier**
- **Support document: Level matrix**
- **Support document: Typology matrix**
- **Support document: Interview guide**

Part B - Building space innovation ecosystems

4 The journey towards a comprehensive support framework

This chapter aims to illustrate the basics of which and how to run different types of initiatives. The next pages will guide you as an intermediary in walking the road towards a fully set-up innovation support framework in the space sector.

InnORBIT's experience in deploying initiatives together with local intermediaries is wrapped inside this section!

4.1 Crafting a fully assembled intermediary

1 **Community building**

The first step in developing a solid innovation support framework is **building a community around space**. It could also dig in specific topics such as Earth Observation, IoT satcom or micro launching.

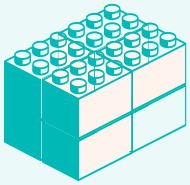
2 **Ideation**

When a community is built, the next step could be aiming towards **generating business ideas or deal flow generation**. Instruments such as hackathons, innovation competitions, sprints or specific challenges agitate the community to foster ideation.

3 **Incubation & Acceleration**

To protect entrepreneurial seeds and potential business ideas, an innovation ecosystem shall **incubate start-ups until go-to-market or even accelerate their growth, reaching faster the next level**.

4 **Fundraising**



Fundraising to scale-up the revenue generation is achieved by attracting public and private capital to invest in the portfolio of start-ups offered by the intermediary.

4.2 Selection of initiatives

In this page, we will show you with a use of an example how to **analyse your ecosystem**, **locate yourself**, and **assess how to master your innovation support framework**.

Example intermediary *A*:

An intermediary has an ecosystem with experience in previous activities in space but without established start-ups in its ecosystem or a continuation of them across time.

Reflections about the innovation ecosystem of intermediary A:

- → Small community. The ecosystem needs awareness and expansion to attract talent. Consider establishing cafés, meet-ups, regular info days or start-up events to awaken interest in space.
- → Previous start-ups, alumni and experience could be leveraged to develop potential new ideas. Challenges could bring interesting deal flow to the ecosystem. The number of ideas depends on how deep the previous reach was.
- → Incubation, acceleration and fundraising activities are out of scope since the ecosystem is too young to grasp those opportunities. Spending resources here should be avoided.

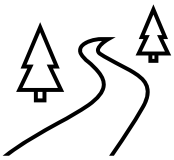
5 Introduction to local space initiatives

5.1 Phase 1 - Community Building

The goal

To create a sustainable community of space enthusiasts that take an active role in the intermediary's activities, populating the events, creating debate and agitating the participation with their input.

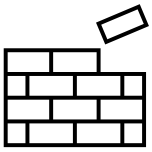
In the long run, **innovators of this community will spark to ideate business solutions** that might grow into actual start-ups.



How?

A community is **crafted by bringing space enthusiasts together at regular events**. Regularity in attending the events will slowly build relations among participants ultimately consolidating a network of shared interest.

The **triggering factor is attracting participants to join regularly**, scrapping the network to **find these enthusiasts**. After a series of events, **the innovation intermediary will become a lighthouse in that certain topic**.



Initiatives

Recommended initiatives to promote community building include:

- **Cafés or meet-ups**
- **Info days and start-up events**
- **Innovators' training**

Factsheet: Space Coffee

Description

A series of events where a group of **space enthusiasts meet and discuss space related topics**.

It is a relaxed, informal, affordable and straightforward event with a strong focus on community building and networking.

Specifications

Main Objective

Raise awareness, cooperation, networking & matchmaking

Format

Regular series of events / Online, Hybrid, or Physical

Content

1-4 keynote speeches, each followed by a Q&A session in panel format and closes with an informal networking opportunity.

Preparation

1-2 person-days work for each café

Duration

1-4 hours per café / can extend to several months

Venue

Preferably an actual cafe, bar, etc

Audience

No previous knowledge / Ecosystem Stakeholders

Factsheet: Info Days

Description

An info day is usually an **open event / webinar** for providing space-related information.

It is an official, affordable and straightforward event with a **strong focus on raising awareness.**

Specifications

Main Objective

Raise awareness

Format

Single

Content

Usually thematic - with 2-3 keynote speeches and a short Q&A in the end.

Preparation

1-2 person-days

Duration

1-2 hours per event (Info days are usually linked with other major events)

Venue

Usually online

Audience

No previous knowledge / General Audience

5.1.1 Tips on organizing space coffee

What is it about?

A space coffee is a type of event - virtual or physical - where **a group of space enthusiasts meet and discuss space-related topics** with an emphasis on New Space, trends and the latest market news **considering its potential for start-ups.**

It is a **relaxed, informal, affordable and straightforward event with a strong focus on community building and networking**. The particularity that gives it its name and makes it unique is that the event takes place over coffee, drinks, lunch or dinner, and less frequently in a simple setting without food and drinks.

Figure 9: 3rd "space coffee" event in Romania (ROMSPACE, 2022)

Format & resources needed

The event has a **very informal setting**, which arouses curiosity because of the **spontaneity of the conversation**. Despite is useful for the organiser to have a **hidden or fake fixed agenda**, it shall not convey this perception to the audience.

It usually has the outline of a keynote speech led by a presenter, followed by a Q&A session in panel format and closes with an informal networking opportunity. This chorus can be repeated a few times, depending on the organisers, the attendance of the audience and the attrition of the speeches.

The audience consists typically of **space and non-space students, and professionals**. Although the organisers could invite a limited number of drinks, usually participants pay for their own food and drinks.

The **gathering is inexpensive as it does not require a lot of preparation time and hours**.

The **venue can often be found for free**, usually an eatery, a bar or even a university. **Speakers tend to participate pro bono while they are invited for a drink or lunch**. Nevertheless, finding the proper speaker may represent the hardest challenge for a gathering. For example, in a series of 10 space coffee events, having 20 keynote speakers may be a difficult task if the ecosystem is not very well developed.

If you want to know more about the organisation of **local space initiatives for community building,** check the following examples and InnORBIT material:

Additional resources

- Geoawesomeness digital meet-up
- Global space café
- EUSPA EO space café
- Space Brewery Munich

InnORBIT material

- Training video: How to organise a “space coffee” initiative
- E-learning: Training material for entrepreneurs

5.2 Phase 2 – Ideation

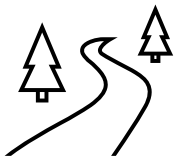
The goal

To generate business ideas or a sustainable deal flow of opportunities that might begin a start-up in later stages. Ideation is the creative process in which innovators come up with an idea to solve a specific problem.

To ideate is necessary **to rely on an already seasoned community of space knowledge**. They should already be familiar with opportunities and problems that could be tackled using space technology

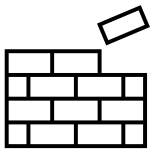
How?

New ideas are born out of need. So, to promote the creation of new ideas, **the ecosystem should be stimulated**. Challenges and any competition variants are useful tools to **aligning new ideas with the market or society needs.**



When designing challenges, innovation intermediaries should **make use of the space knowledge of their innovators' ecosystem** and mobilise their network to **receive support in the design of the challenge mechanics**.

For instance, competitions using downstream data of Copernicus might rely on using remote sensing imagery or datasets requiring Python processing.



Initiatives

Suggested initiatives for the ideation phase include:

- **Competitions and challenges**
- **Sprints**
- **Hackathons**

Factsheet: Space Hackathon

Description

A **prize competition** which requires accommodation for a number of days, guaranteed supplies, technical means and manpower.

Hackathons are moderately **expensive** and **time consuming**.

Specifications

Main Objective

Stimulate the community, attract talent and fresh ideas, networking, matchmaking, and access to funding

Format

Single event / Online, Hybrid, or Physical

Content

Specific theme on a domain / Several Challenges

Preparation

> 20 person days - Extensive preparation is required ... challenges, data, tools, infrastructure, experts, screening, committees, moderators, sponsors

Duration

1-3 days (usually during weekends)

Venue

Very Important - Facilities, Infrastructure, Catering, ...

Audience

Good knowledge level - Participants most often form groups of 3-10 people, and their background may differ.

Factsheet: Space Sprints

Description

Sprints are **short mentoring events** that aim to seed or improve early-stage start-ups.

Sprints are usually low cost, with design sprints being one of cheapest options

Specifications

Main Objective

Fast track Business training / mentoring

Format

Series of cycles / Online, Hybrid, or Physical

Content

Strongly thematic and follow nowadays challenges

Preparation

2-3 months - emphasis on mentors

Duration

Short cycles from 1 week to 1 month

Venue

Facilities, catering, etc. (not applicable for virtual events)

Audience

Very early immature seed stage groups, depending on the programme definition

5.2.1 Tips on organizing space hackathons

What is it about?

A **space hackathon is a competition that seeks to solve a challenge with a specific theme that is relevant to space**, the economy and society. The competition runs normally during the weekend, ensuring the availability of the participants. It is time-based; a race to finish before the deadline and provide the best output.

Figure 10: 3rd CASSINI Hackathon in Greece (Corallia, 2021)

Participants range from students to young professionals. However, depending on the scope of the challenge it could include professionals and experienced researchers also. Hackathons receive different names based on the type of challenge: ideathons (ideas competition), datathon (data processing hackathon), climathon (climate change-oriented hackathon), etc.

Format & resources needed

Designing the challenge is a cornerstone in the planning of a space hackathon. Expert advice is necessary to define the challenge as well as what data is to be made available and how. **Earth Observation data is widely used due to its accessibility**, but cloud storage and processing power may require support. Copernicus DIAS may help with this if negotiated in advance since they are interested in promoting their services.

The hackathon format involves several participants meeting at a specific location for a certain period. This implies that the venue, facilities, food, and related supplies will have to be secured for all. Critical factors are related to the cost of the venue, furniture, subsistence, accommodation and staffing. It is also critical to define:

- Jury, although it can be external and high-level people
- Technical experts to collaborate in the definition of the technical parts, the technical challenge to solve. Business experts for market validation.
- Moderator and facilitators. Mentors, around 1 per team during the days of the event, with teams of around 3 to 10 hackers
- Organisation and planning, which can take around a natural month

To help to reduce costs, **sponsors should bring on-kind benefits** (the pizzas and red bulls, IT material) for advertising slots. The organisation shall be a collaborative matter to keep costs down, and it is important to find partners. Other requirements are the cash prize, the business canvases to guide the process, and the advertising and promotion to find quality participants. Participants are asked to bring their laptops. However, furniture will have to be considered: tables, rooms, printouts, electricity distribution, technical support, internet, etc.

The usage of **online platforms facilitates the organisation and management of the participants** (DEFPOST, Junction, TAIKAI, ETC, etc.)

Examples

- CASSINI Hackathons (https://www.cassini.eu/hackathons)

InnORBIT Training

- **How to organise space hackathons** - available on the InnORBIT e-learning platform

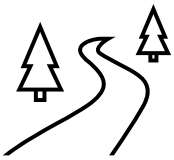
5.3 Phase 3 - Incubation & Acceleration

The goal

Incubators and accelerators aim to provide start-ups access to training, financial aid, and mentoring, enhancing their success rates.

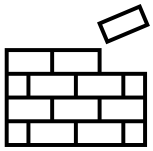
How?

Incubation and acceleration programs are **resource-intensive** and **time-consuming initiatives** aimed at different stages of the innovation chain.



- Incubation supports teams coming **from challenges or competitions**, while acceleration may target start-ups from **previous incubation programs**.
- Intermediaries **scout the ecosystem**, seeking the most promising start-ups for success and **guide mentees to follow through the programmes** .
- Accelerators and incubators provide **a physical space** that fosters cross-fertilization of ideas among teams

Initiatives



- **Incubators** – mentoring programs where teams collaborate in a physical space, accessing facilities to develop seed ideas into products or services.
- **Accelerators** – mentoring programmes, usually including funding, aiming to reduce the time of go-to-market and failure risk. Start-ups work at the intermediary's premises and collaborate with other innovators in the ecosystem.

Factsheet: Space Incubators

Description

Incubators work with **start-ups in early stages** prior to raising funds.

Incubators can be quite expensive depending on the overall duration and participation, as well as provision of funding.

Specifications

Main Objective

Extensive Business training / mentoring

Format

Series of cycles - Yearly Planned / Online or Physical

Content

General and not too restrictive

Preparation

4-6 months with special emphasis on the mentors and venue

Duration

6-month cycles

Venue

Very Important - Facilities for cross fertilisation, working spaces, etc.

Audience

No sectoral knowledge is required as it is a common and early-stage space.

Factsheet: Space Accelerators

Description

An accelerator can be defined as an **incubator on steroids**.

Accelerators **can be quite expensive** depending on the overall duration and participation, as well as due to the provision of funding.

Specifications

Main Objective

Extensive Business training / mentoring with a view to develop and introduce new services, products or market validation

Format

Series of cycles - Yearly Planned / Online or Physical

Content

Usually thematic - strong mentoring on space-related knowledge

Preparation

At least 6 months for 2-5 people with special emphasis on mentors, venue, sponsors or government funds

Duration

Between 3-month and 6-month cycles

Venue

Very Important - Facilities for cross fertilisation, working spaces, etc.

Audience

Good knowledge / High Quality Candidates

5.3.1 Tips on organizing space incubators / accelerators

What is it about?

Incubators and accelerators are forms of innovation support that **dedicate time, mentoring and funds to start-ups to help them move through their growing stages faster**. These initiatives have a **strong mentoring or tutoring relationship**, along with the **possibility of funding**. In incubators, the training might come also from the shared ecosystem, while accelerators should have more personalised funding coexisting with intense mentoring.

Figure 11: Copernicus Accelerator (SpaceTec Partners, 2021)

Due to the **long time required to implement these initiatives,** about half a year for scouting and planning, and at least another half a year for implementation, an action plan is important to allocate resources to about **2 to 5 yearly full-time equivalents for half a year programme**.

Format & resources needed

Incubators work with teams or start-ups in the initial stages prior to raising funds. Having a physical location promotes cross-fertilization and encourages learning between and from entrepreneurs. This is complemented by training and mentoring where they are guided through their gaps, usually associated with the business side. An **accelerator can be understood as an incubator on steroids**. Accelerators have lots of mentoring and usually funding. In some cases, the accelerator takes a share in the equity of the start-up taking an active role in the development and growth.

Accelerators and incubators are definitely long-term programmes, more of a **continuous process**, where scouted start-ups **apply on a series of cut-off dates**. The large organisational workload for an innovation intermediary means that these initiatives require specific funding. Incubators are **government-funded as non-repayable** or at highly discounted rates. Accelerators follow this trend but the larger amount of training, mentoring, and funding for the start-up demands also look for **corporate sponsors**, especially important to complement the income. Despite some accelerators rely on the benefits won in

the equity participation in the start-ups they accelerate, **few accelerators survive only from equity investment.**

Themes are generic for incubators; no sectoral knowledge is required as it is a common and early-stage space. **Accelerators are thematic** - about space - and will **require specific knowledge**.

Examples

- Copernicus Accelerator (https://accelerator.copernicus.eu)

InnORBIT Training

- **How to organise design sprints, incubators & accelerators for space** - available on the InnORBIT e-learning platform

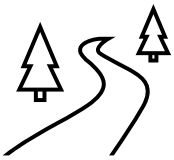
5.4 Phase 4 - Fundraising & scaling-up

The goal

This is the **ultimate goal of an innovation intermediary in supporting the life cycle of its start-ups**. The funds are needed to begin the start-up production line, i.e. to have the resources to provide its services or the facilities to build its products.

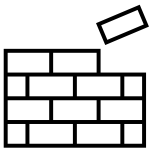
If successful, the start-up will become a company. Some authors use the concept of **scale-up** to differentiate mature start-ups with large investments from established companies.

How?



Fundraising can be achieved with 3 **types of funding: grants, equity or debt**. It is a complex task relying in various factors that relates to the type of funding requested, including the: **size of start-ups, expected outcome after funding and** the **maturity of the funded company.**

Initiatives



- **Fundraising and networking events** where business angels, private investors and start-ups are put together in pitching competitions and speed dating to foster collaborations (Space Tracks).
- **Attracting government funds** to distribute within your start-up ecosystem, as an innovation intermediary, through incubation or acceleration programmes.
- **Supporting your start-ups in their quest for government funds (Horizon, ERDF, etc.)** by helping them in their proposals for receiving government aid.

Factsheet: Space Investment Tracks

Description

A dedicated event for pitching to investors, find partners, and expand ecosystems.

It is an official, resource intensive event with a **strong focus on access to financing and funding.**

Specifications

Main Objective

Access to financing and funding / Training may be included

Format

Single events / Online, Hybrid, or Physical

Content

Several pitching sessions, networking and matchmaking, as well as other activities

Preparation

>6 months of planning - special focus on the venue, investors, and screening of candidates

Duration

1-3 days

Venue

Usually part of a larger investment event. Physical location to allow presentations, interaction, networking and matchmaking.

Audience

Excellent knowledge / High Quality Candidates

5.4.1 Tips on organizing space tracks

What is it about?

A Space Track is an event that enables interaction between space companies and specialised investors to facilitate creation of partnerships and access to finance. **This initiative has a strong emphasis on the investment readiness of the companies and the suitable investors depending on the company development stage** – seed, start-up or scale-up.

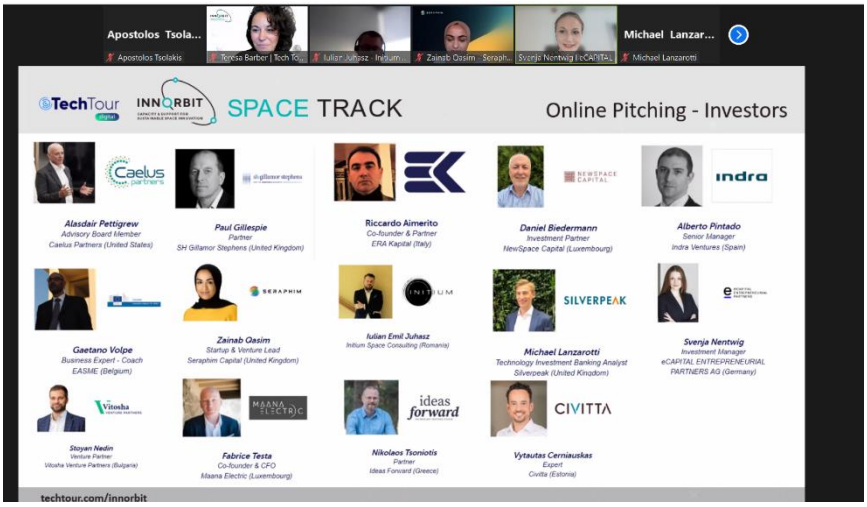


Figure 12: 1st InnORBIT Space Track (Online)

For that reason, call for applications and selection of companies is very often required, with sometimes the members of the company selection panel, usually prominent space investors, experts or stakeholders, being asked to nominate companies from their ecosystems.

Space Track is an international event as usually the local/national ecosystem is very limited in number and specialisation of investors and companies. A Space Track is about interaction between companies and investors in exploring partnerships and financing opportunities and for this reason it is often a part of a bigger event like dedicated space, or multi-sector conference.

Format & resources needed

A Space Track is resource-consuming so **consider carefully the format** whether it is an on-site/physical, online or hybrid event. It shall have **at least 1 pitching session** involving **minimum 5 space-tech companies and 5 specialised investors**.

Allow 6 months for **preparation activities** such as company application and selection process and recruitment of investors. The pitching session/s dedicate 5-8 minutes for pitch and 5-7 minutes for questions from investors for each company with **strict time management** to provide equal opportunities for all companies.

An award for the best 1-2 companies from each pitching session may prove a good incentive for participation, apart from the good contacts established. In some cases, especially if the companies are at earlier growth stage, it may be good to organise also a pitching academy (dry run) to prepare the companies for their pitch. The pitching academy usually mimics real pitch and allows the presenters to master their pitch prior to the Space Track. It takes place two to three weeks before

the Space Track to allow companies adjust their slide decks for the pitch following recommendations from experts and mentors at the pitching academy. The resource intensity may be relieved by asking for payment of reasonable fee from either investors or companies, depending on the scope and development stage of the latter.

Examples

- InnORBIT Space Track

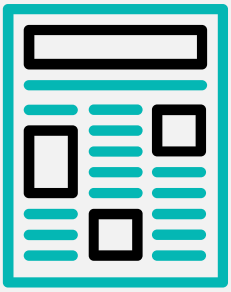
Part C
Business Planning for innovation intermediaries

6 Essentials of business planning

We'll cover the basics of what is a business plan, why it is important for your new and existing local space initiatives and the variety of uses a business plan can have all the way from conceptualization to the commercial exploitation of a new local space initiative.

6.1 What is a business plan?

Designing a new space initiative might seem a great strategy for your organisation to enter or improve its position to the space market, while introducing new services and opportunities for your clients. Business modelling and business planning is an important step to check if your new initiative is financially and commercially sustainable, provides your organisation a competitive edge and also promote the goals set in its general strategic plan.



*A business plan is a document that **describes a company and its objectives, its products and services and how it plans το achieve its goals**. A business plan **outlines the marketing, financial and operational aspects of a business, product or service.***

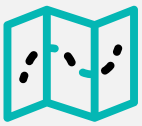
6.1.1 Six reasons to start writing a business plan!

Business plans are traditionally used to attract investment and acquire much needed funds for your new initiative. But the value of a business plan can be much more than that, as it is a highly versatile tool and can serve multiple business goals!

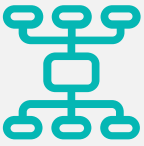
Key to external funding

Brainstorming tool

Opportunity to research and understand your market



Blueprint for implementation

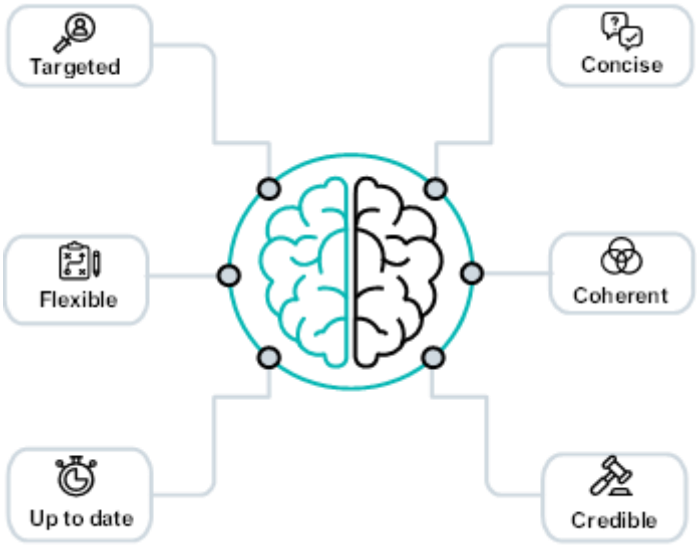


Internal communication and evaluation tool

External communication tool

6.1.2 Qualities of a good business plan

In this section we provide useful tips and tricks to create a strong business plan that effectively communicates your business case and inspires trust to the intended audience, be it investors, partners or other stakeholders.



A business plan should be:

- **Targeted**: Information of the business plan should be aligned with the profile / function and interests of the target groups reached.
- **Concise**: Present only necessary information to build a compelling business case. Keep it short and use simple language.
- **Flexible**: Adapt your planning to new events and opportunities in the market worth exploring.
- **Coherent**: Avoid contradictory statements in different parts of the business plan, especially the financial plan. Use internal references where possible to facilitate reading.
- **Credible:** Support any arguments and claims in your business plan with reliable data and sources, as much possible.
- **Up to date**: Business plans are living documents and should reflect the latest changes in the internal or external business environment.

A business plan should also be S.M.A.R.T.[1]

Specific

A specific plan conveys a clear implementation pathway and promotes accountability of team members.

Measurable

The success or failure of your initiative should be measurable, to support quick situational assessment and adjustment of the plan.

Attainable

Make sure that you set feasible goals within your business' resource limits (time, funds), available assets and partnerships.

Realistic

Make realistic claims and assumptions in your business plan and set realistic expectations.

Time-bound

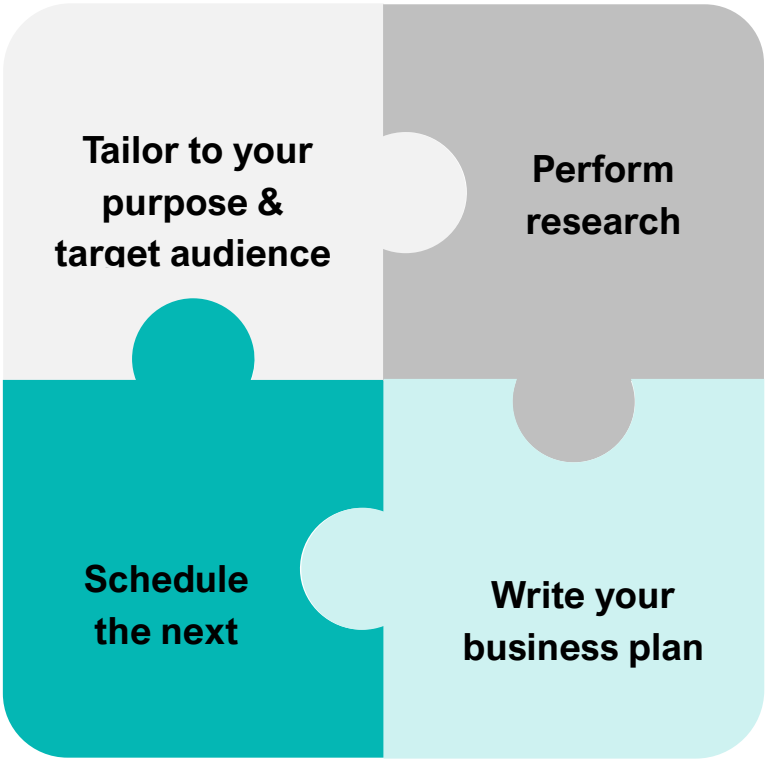
Set a concrete timeline and milestones for your local space initiative, define intermediate steps and responsibilities to get there.

[1] *George Doran, Arthur Miller and James Cunningham in their 1981 article "There's a S.M.A.R.T. way to write management goals and objectives"*

6.1.3 How to write a business plan

This section outlines the process of elaborating a business plan as a living document that supports the commercial success of your local space initiative. We also guide you through the typical structure and elements of a business plan, on which we'll delve into for the rest of this guide.

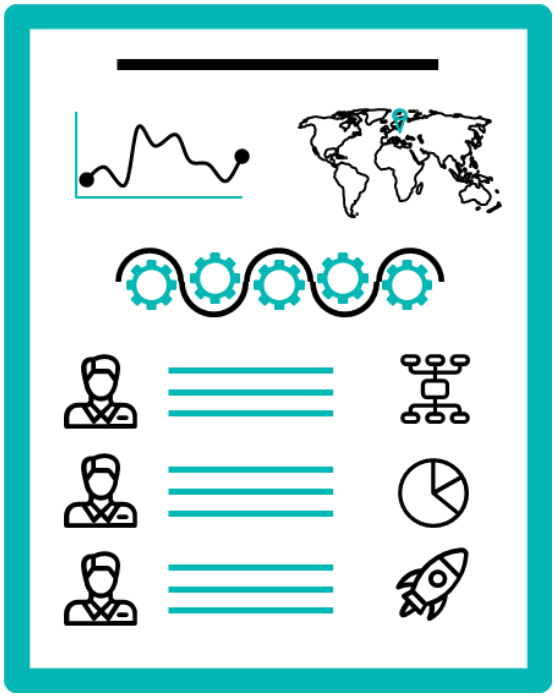
Outdated business plans can be dangerous for business in many ways. Writing a business plan is an **iterative** process, as the idea evolves, and new developments happen in the market. Setting a regular updating schedule will ensure that both your business and your new local space initiative remains **up to date**, while adding **flexibility** to your planning and design.



Pro tip

Do not do it alone! Invite members of the team to research and write the parts of the business plan that make the best use of their knowledge and expertise. The result will be better, and you will save on time and resources.

6.1.4 Typical structure of a business plan



Company Identity

Presents the company, its values, mission and history. Contains a short overview of the products and services provides, customers, and distinctions / achievements. Essential contact information is included.

Local space initiative (your service)

The main features and characteristics of the local space initiative are described. Most importantly, the solutions provided to market / customer needs should be explained. The service development process is also of relevance.

Market Analysis

Outlines the current status and potential for growth in the target market(s). This section studies the market dynamic and demographics (customers, competitors, collaborators), assesses the general business, political, technological and economic context and positions the company and the local space initiative in this environment.

Marketing Strategy

The strategic plan that governs customer relationships and engagement. Communications and awareness raising for commercial growth based on a targeted audience / clientele. Here, the pricing models are designed and justified.

Operational Plan

The operational plan describes the configuration of the team involved in the development and growth of the local space initiative. Skills, expertise and complementarity of team members should be clearly explained, suggesting how this venture will be led to success.

Risk Analysis

Analysis of the risks associated with the operation of the local space initiative, that might endanger its commercial prospect. Risks can emerge both from within and outside your company. This section shows responsiveness and agility to a continuously changing environment.

Financial plan & funding request

Consolidated financial projections for the local space initiative, including revenue, costs, capital requirements. This section showcases that the initiative is financially viable and a good investment. Funding requests should be explicit when sharing business plan with investors and financing institutions.

Executive Summary

The executive summary is probably **the most important part of a business plan**, as it may motivate or discourage a time-constraint individual from further reading. The executive summary is placed **at the beginning** of the business plan **and summarises all information in 1-2 pages**. Contrastingly to its place on the document, the executive summary is written after the business plan writing process is finished. The reader should be able to get the whole picture of your plan just by reading the executive summary.

Pro tip

Keep it short! The main body of the business plan should present all relevant sections of the business plan in a **concise manner**. The **ideal length of a business plan should be 15 to 30 pages**. In case you need to provide further detail on specific topics, **using an Appendix is highly recommended and include references in the body.**

7 Presenting your local space initiative

7.1 Company overview

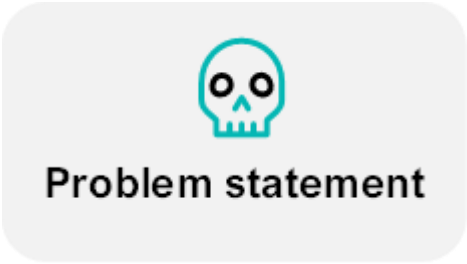
Presenting your company is very important to establish a strong business plan, regardless of being a relatively new or well-established entity. Before reading about your new space initiative, your audience will need to know who you are and trust that you know what you do!

The main objective is to provide a brief but at the same time concise overview of your organization, its contribution, its values and history.

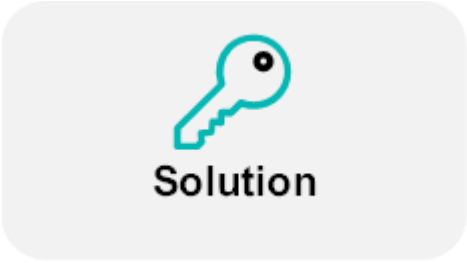
7.2 Business Concept & Initiative description

Before going deeper into the details of your business plan, **you should first describe the local space initiative you are set out to launch**. The local space initiative is the conceptual point of focus of the business plan, so readers will expect to understand **why you decided to launch** this new initiative, **what benefits it promises to its customers / end-users** and **how does it work**.

The second part of the InnORBIT Replication Guide provides guidelines for the design of new space initiatives. You may use information from the design phase here and **present it from a commercial point of view**. To successfully present the business concept and your local space initiative, you should successfully address the following topics:



- Identify real problems in the market and think of ways to innovate.
- Learn about customers' needs, pain points and inefficiencies of currently used solutions.
- Ask prospective users to validate your assumptions.



- Decide and describe how you intend to provide a solution for the market problems you've identified.
- Present your solution to potential users and observe their reactions, to ensure a good fit to customer needs.

- Explain in more detail how your solution works.
- Present how different functionalities and processes work towards delivering value to customers.
- Use clear and relatable language

8 Market analysis

In this section you will learn how to perform a market analysis to build the foundation for a more effective marketing strategy for your local space initiative**.** You will learn how to use the **"5 Cs of Marketing" methodology** to collect and organise valuable market intelligence.

	Context	Customers	Competition	Collaborations	Company
Scope	• Describes the general / external economic, political, legal and technological environment. • Describes the market, its current trends and dynamics.	• Describes the customers within the target industry • Profiles customer segments according to demographics, needs, behaviours, and other aspects.	• Maps direct, indirect and potential competition , i.e., other initiatives serving the same or similar customers, needs • Comparative assessment of competitors to own initiative.	• Profiles the most important organisations, institutions or initiatives suitable for partnerships, alliances and outsourcing of activities. • Collaborations can be strategic or need-based.	• Assesses the internal environment within the company such as processes, employees, capacity. • Identification of positive and negative elements as objectively as possible.
Focus	External	External	External	External	Internal
Tools	PEST or PESTEL analysis	Customer analysis	Competitor matrix	Collaborators matrix	SWOT Analysis

8.1 Target market

Market analysis can be a demanding exercise that requires resources and time for research. Therefore, it is very important to **first identify the target market(s) of your local space initiative before moving on to in-depth research**. This information is important for the readers too, in order to understand the business context of your initiative. In this overview, you only need to provide basic information about the market.

Based on the InnORBIT experience, initiatives that support space entrepreneurship primarily fall under the **Space Economy market** and more specifically **NewSpace**. Local space initiatives may as well be targeting **non-space innovators** by adding / enhancing elements and themes related to space technology in initiatives supporting general entrepreneurship (i.e. incubators, accelerators, hackathons among others).

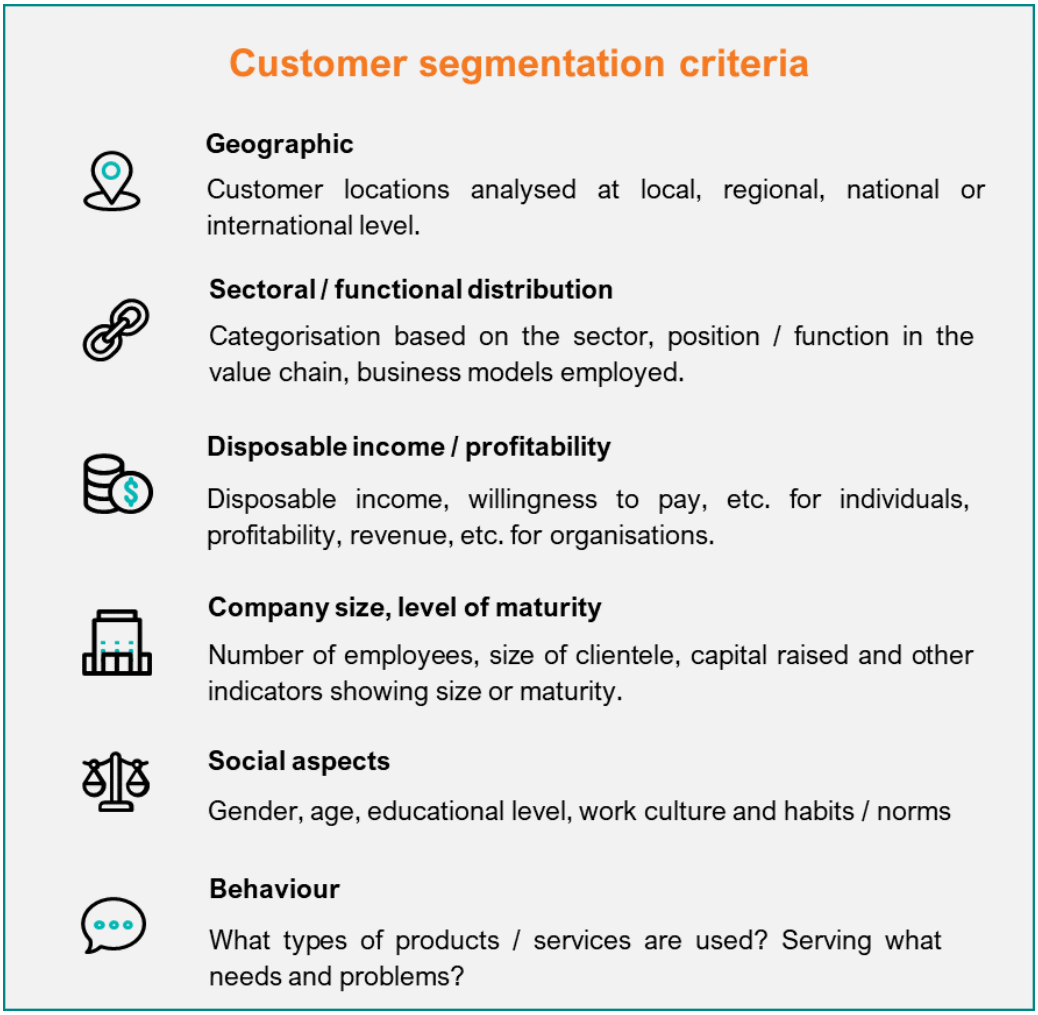
8.2 Customer Analysis

Having successfully identified the target market and its potential for growth, it is now time to focus on customers that make up this market. Map the **universe of customers** within the market you aim to address and perform categorisations based on meaningful data.

The purpose of this analysis is to identify **customer segments** and **model behavioural patterns** such as problems, needs, customs and behaviours of different actors using available data.

At the first step of this analysis, you should define what data are essential to know about your customers. **We provide some tips on the box below.** Moreover, it is important that you define the level of analysis. For instance, you may consider as customers whole organisations or individuals.

Later on in your business plan, **you will define on which customer segments you will focus on** (targeting) and how you to provide **unique value to your target groups** (positioning) to stay ahead of competition.



8.2.1 Taxonomy of space economy markets & niches

The table provides **useful taxonomies for market niches within the space economy** which your local space initiative might be targeting using alternative classification criteria that may be used in combination (if possible).

Note that the very definition of the space economy and the classification of activities might vary among sources, either official or unofficial.

Similar classifications may be used for other target markets beyond the space economy that, for brevity, are not explained in this guide.

Figure 13: Value chains and application areas in the sapce sector

Value chains[1]	Technologies[2]	End Users[4]	Geographical coverage	Ecosystem actors	Application sector (non-space industries)[3]
Upstream segment: - Fundamental & applied research - Ancillary services - Scientific and engineering support activities - Material and components supply - Manufacturing of space systems / subsystems, equipment, telemetry, tracking and command stations	Artificial Intelligence	B2G: Government (civil)	Global / International	Large corporates	Mining
	Electronics	B2G: Government (military)	EU-27	SMEs & Scale-ups	Energy & Utilities
	Sensors	B2B: Civil (Commercial)	Europe (incl. non-EU)	Start-ups	Fisheries, agriculture, aquaculture
	High Precision Manufacturing	Civil (Other)	Central Eastern Europe	Entrepreneurs	Transport & Logistics
	Robotics	B2C: Civil (Cosnumers)	Southeastern Europe	Students & Alumni	Manufacturing
Downstream segment: - Space operations for terrestrial use - Products / services whose function relies on satellite technology, signal and data (satellite broadcasting, selected GIS / GNSS enabled devices)	Additive Manufacturing		Northeastern Europe	Academia & Research	Education
	Synthetic biology		National	Government & Policymakers	Healthcare
				Investors, Venture Capitals, Business Angels, Funds	Finance
				Banks and other financial institutions	Safety & Security
					Environment

Sources:

[1] Measuring the Space Economy, European Space Agency (ESA)

[2] Technologies - New Space Capital

[3] Applications – New Space Capital

[4] Value Chain of the Space Economy – RAND Europe

8.3 Competitor Analysis

Understanding competition is of utmost importance for business planning, as it enables you to build strong value propositions for target customers to and stay ahead.

Competition can be distinguished in three forms:

- **Direct competitors:** Businesses / organisations offering the same or very similar services, catering to the same needs and targeting the same customer segments as your local space initiative.
- **Indirect competitors:** Businesses / organisations offering similar services but target a different target audience than your local space initiative.
- **Replacement competitors:** Businesses / organisations that offer services that could be chosen as a substitute over yours by the same target audience.

Make sure to look out for **potential** and **future** competitors, meaning businesses that could easily enter the same market and compete with your service or those being ready to enter.

The **competitors' matrix** is a useful tool to map competition and organise key information about their service, activities and market positioning. This template can be as simple as the example provided, or can be much more comprehensive, assessing competition to a finer detail.

Figure 14: Competitors' matrix

Competitor name	Products / Services	Offerings	Market Segment	Location(s)	Pricing models
Competitor #1	Hackathons	Employment opportunities Access to talent	University alumni Start-ups Corporates	10 cities in the country	Registration fee (X EUR / person) Advertisement space

Pro tip

"There is no competition!" You should not use this statement lightly, as most likely is not true. Investors and stakeholders will get suspicious that your market research is not comprehensive enough and lose trust on your business venture. You probably need to refine your research!

8.4 Collaborations

Any business venture at some point may rely to external parties to ensure that the services, products and their underlying value are successfully and uninterruptedly delivered to customers.

- **Outsourcing or supply-based collaborations:** partnership acquire services or products in better terms.
- **Strategic collaborations** may be agreed upon with a view to expand the outreach, visibility, reputation and quality of the initiative and create alliances.

Such alliances though may **restrict** the business planning of your local space initiative. Discuss and consider such restrictions and base your decision on the cost-benefit ratio of the collaboration.

Below an example of the collaborators' matrix is provided.

Figure 15: Collaborators matrix

Collaborator name	Organisation type	Scope of collaboration	Expected benefits	Requirements and restrictions
Incubator X	Incubator	Provision of working space for events	Convenient location, known to local ecosystem, appropriately equipped for hackathons.	Usage fee and use of logo in promotional campaigns / material
Provider Y	Marketing agency	Elaboration of promotional material, visuals, initiative web page	Reduce personnel effort in reasonable cost and achieve better quality of visual material.	Service fees and provision of texts, guidance on content

Below we provide types of collaborations that are pertinent to the organization of local space initiatives organized in the frame of InnORBIT. The list is not exhaustive.

Initiative collaborators:

- Owners of venues, conference rooms or working spaces
- Suppliers of ICT equipment, software / platforms, graphic design, and/or web design services.
- Professional networks, initiatives, associations for wider outreach, sponsorship or joint organization.
- Universities, businesses and professionals for the procurement of data and technical material or to deliver speeches, act as jury, mentors, coaches.

8.5 Context - PEST Analysis

In its simpler and most concise form, PEST analysis can be performed using a 2x2 matrix (or 3x3 matrix for PESTEL), the quadrants of each are dedicated to each of the contextual factors. The example below showcases the type of information that usually inform a PEST(EL) analysis.

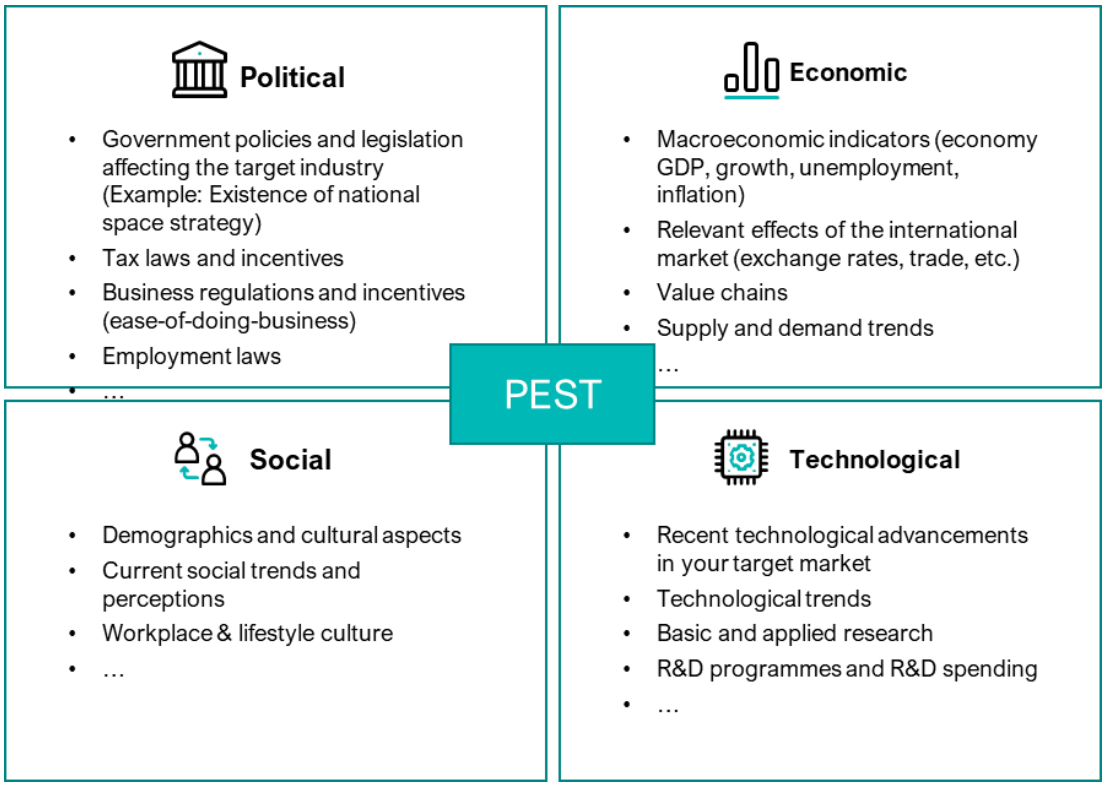
The context in which a business operates is most often analyzed with the use of **PEST analysis**. This framework studies the **political, economic, social and technological factors and developments** that might affect business ventures in a particular industry. Such contextual factors and their change have effect that goes beyond the company or organization level, which has limited to no control over these changes happening.

Understanding the context can support timely decision-making towards gaining competitive advantage or mitigating risks and negative effects. As the business environment may change rapidly or suddenly, it is crucial to **keep up** with these changes and **pivot your strategy** as needed.

An alternative to the PEST analysis is its enhanced version, the **PESTEL analysis**, that takes also into account environmental and legal factors. PESTEL can be used when such aspects define the core industry your local space initiative operates in.

The example below showcases the information that usually informs a PEST(EL) analysis.

Figure 16: PEST Analysis framework



8.6 Company – SWOT Analysis

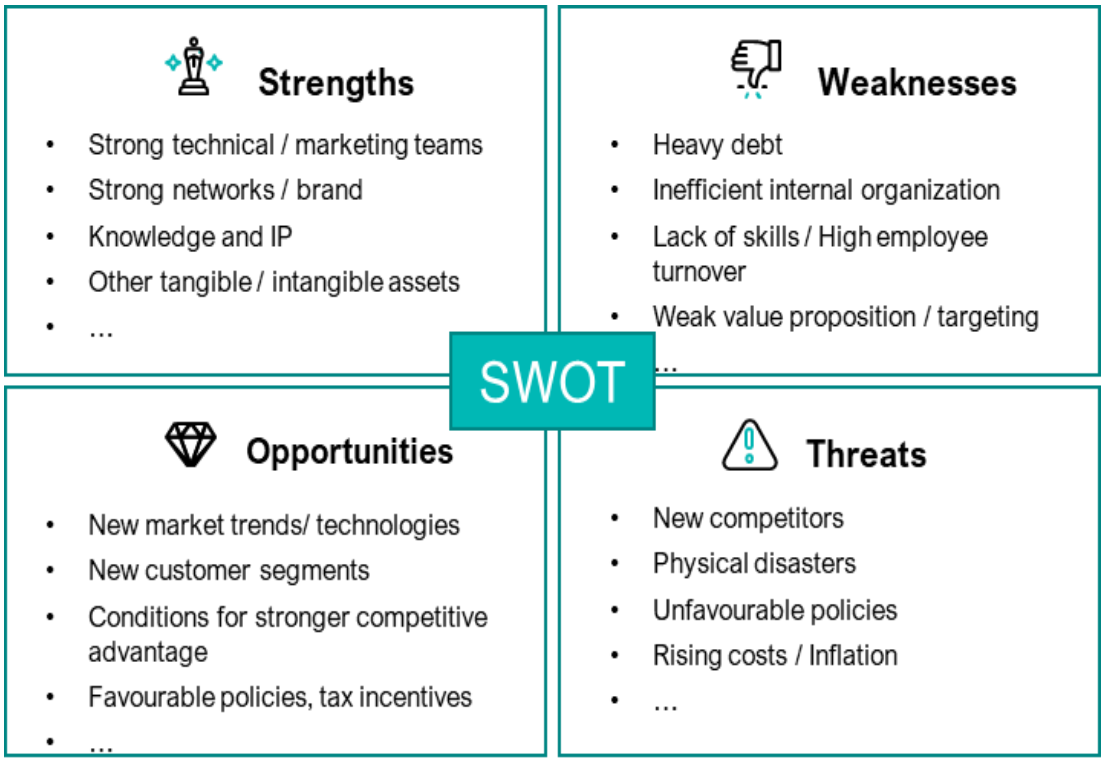
SWOT analysis is a comprehensive, and quite powerful strategic tool to assess the factors that may benefit or harm the commercial success of a local space initiative.

SWOT focuses both on factors arising from the internal operation of the organisation / company and on its ability to prepare for and react to changes and events from the environment it operates into. The standard way of conducting SWOT analysis is by using a 2x2 matrix, each quadrant of which is summarising the **strengths**, **weaknesses**, **opportunities** and **threats of your initiative.**

The distinction among SWOT sections sometimes can be fuzzy. This is how to untangle the purpose of each sections:

- **Strengths and Weaknesses** focus on positive and negative aspects that are related to **internal processes** of the organization. Moreover, their identification requires **research within the organisation**.
- **Opportunities and Threats** originate from the external environment that may have positive or negative impact on business. The business **has minimal control** over their manifestation, except to prepare to mitigate adverse effects or maximise benefits when or if they do. Identification of such factors **requires research on the market**.

Figure 17: SWOT Analysis framework



9 Marketing strategy

In this section you will learn how to develop a comprehensive marketing strategy for your local space initiative. You will learn tools for market positioning, setting pricing strategies in place and developing promotional campaigns to reach out to customers.

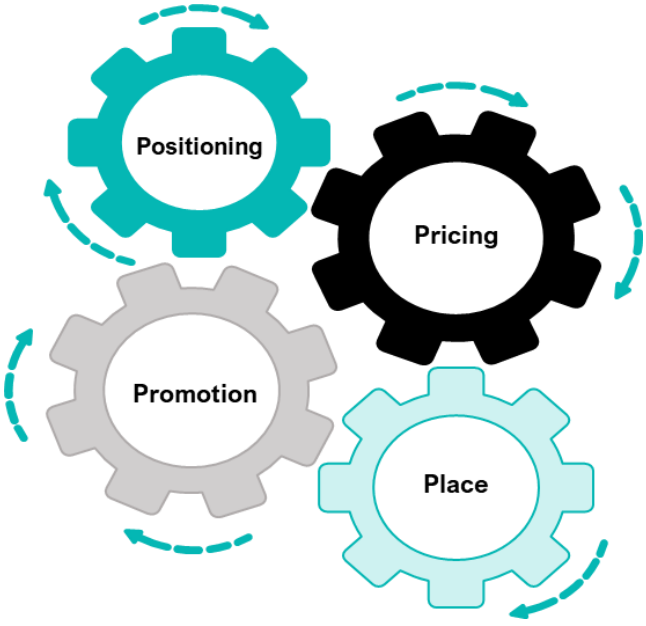
The marketing strategy outlines the approach your business will follow to reach out to potential customers and convert them to actual customers. The marketing strategy aims to communicate the value propositions of the local space initiatives and present the advantages for them over competitive services or initiatives. The messages delivered to prospective customers are **tailored** to respond to their needs, problems and behavioural patterns.

Beyond the message itself, key contributors to successful marketing include the choice of content, communication channels, timing, place, promotional methods. Although trends and standards exist, no method or tool is universally accepted or without drawbacks, so each selection should be made with care, using a mix of available data/information, context and instincts.

Convenient or innovative pricing strategies and schemes can effectively boost marketing efforts and make your services more appealing to prospective customers.

Marketing strategies can be subject to trade-offs, as the choice of specific channels, strategies and content can become very costly and blow-up the budget. Choices should be evaluated and compared against each other using an underlying logic / criterion, with the safest option being on optimising the cost-benefit ratio, within budget limits.

The **4 essential elements a marketing strategy** are summarized in the figure below and will be examined in the following pages.



9.1 Positioning

To start defining your marketing strategy, start by identifying the positioning strategy of your local space initiative **in a way that your service promises unique value to each of the customer segments**. Intricate understanding of the customer profiles and a well-defined product are required to do so.

Next, identify the positioning of competitors' products/services to similar customer segments and show how you perform better or differently from them.

Unique Selling Points are statements that explain how your initiative provides **superior value** to customers compared to your competition.

Positioning statements are **compact** declarations that explain your product, the intended customers, their needs and the benefits offered by your initiative to cater to their needs. Positioning statements can be used in your promotional activities as the **key message** that is communicated to distinct customer segments.

The following table provides an example for mapping the positioning of your local space initiative to cater the needs of the different customer segments.

Figure 18: Market positioning table

Customer segment	Needs & Desires	Competitive solutions	Competitors' positioning	Unique Selling Point
Start-ups	Develop clientele and partnerships	Initiative X	Networking events	B2B matchmaking with international clients

In the next page, we provide some useful tips for constructing positioning statements that will enable you to create more targeted marketing strategies and develop tailored communication messages for your customers.

There are several formulas to construct a positioning statement, although quite similar in their nature.

> ***For _____(target customer) who _____ (statement of the need or opportunity), our (product/service name) is _____ (product category) that (statement of benefit) _____.***
>
> Source: Horizon Peak Consulting

One of these formulas is provided along with an example from an InnORBIT local space initiative.

> ***"For university graduates in STEM fields who seek opportunities in the rapidly growing space industry, the Croatian Space Café is a great space community event that will bring young talent in contact with professionals for inspiration and new career opportunities in space."***
>
> Example based on the Croatian Space Cafe, an InnORBIT initiative organized by Algebra LAB in Croatia.

9.2 Revenue streams

A local space initiative may require lots of effort, capital and costs to be operational and deliver value to the local space ecosystem. Establishing revenue streams is one of the most effective methods to keep the local space initiative financially sustainable, at the minimum, or even a source of profit for your organization. Revenue streams can be combined with other methods of financing and funding.

For some local space initiative types, such as incubators, revenue may be **sourced directly from the end-users / customers** who benefit from the service offered. In other cases, revenue may be **sourced outside your customer base (indirectly)** such as from sponsors or contractors in exchange for visibility or a desired outcome. Such agreements require that your organization assumes agency on sponsor / contractor interests, meaning that relationships are no different that the one with customers.

During the initial steps of your local space initiative or for specific customer segments, **implementing direct revenue streams may undermine market penetration** and community building and, thus, should be chosen wisely. Of course, revenue streams either direct or indirect may be used in combination.

9.3 Pricing

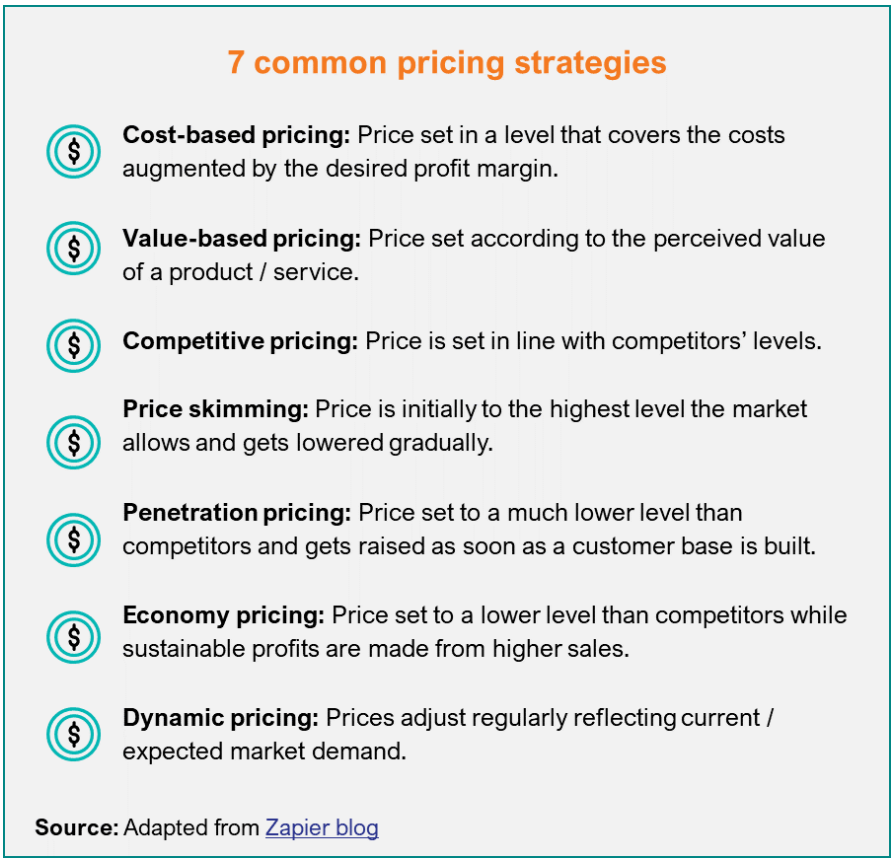
Selecting the most appropriate pricing strategy might be challenging and should match the profiles, needs and habits of your target customers. In any case, the price level should be justifiable by the **perceived value** of the service provided to the customer segments, as long as this is communicated effectively through the positioning and promotional strategies of the business plan.

A **good understanding of the market** is essential to set price levels, especially in schemes that take competition into account.

The following table provides an example for the pricing models put in place for different activities and customer segments of your local space initiative.

Figure 19: Pricing models table

Pricing model	Service offered	Customers	Price
Ticket sales	Networking event	VCs, investors	Y EUR/person



Source: Adapted from Zapier blog

9.4 Promotion

Promotion of the local space initiative is essential to generate traction, build a community and convert your target customers to actual customers. Today, an abundance of tools, content and channels are at your disposal and are quite easy to use. The main goal is to design a curated and carefully selected **promotional mix** to reach out to different audiences sporting different needs, preferences and behaviours.

Diversifying promotional methods, channels and content is a safer and more modern approach, as customer segments respond differently to stimuli and have distinct preferences or find convenience in using different channels.

The 5 most used promotional methods are outlined here:

- **Advertising:** Paid promotion using traditional and digital means or channels
- **Direct marketing:** Targeted campaigns, tailored to the profiles of customer segments with a view to build strong relationships and loyalty.
- **Public relations:** Participation activities that promote the positive image/ visibility of the initiative.
- **Personal selling:** Direct interaction of the sales team with customers to sell products/ services.
- **Sales promotion:** Short-term techniques to boost revenue (seasonal sales, offers, bundles).

Below you will find an example listing the core elements of your promotional strategy in your business plans.

Figure 20: Promotional activities table

Promotional activity	Place / Channel	Target audience	Key messages	Content
Advertising	Social media	Students	Opportunities for careers in space	Testimonials and open calls

Figure 21: Content types and promotional channels

10 Operational Plan

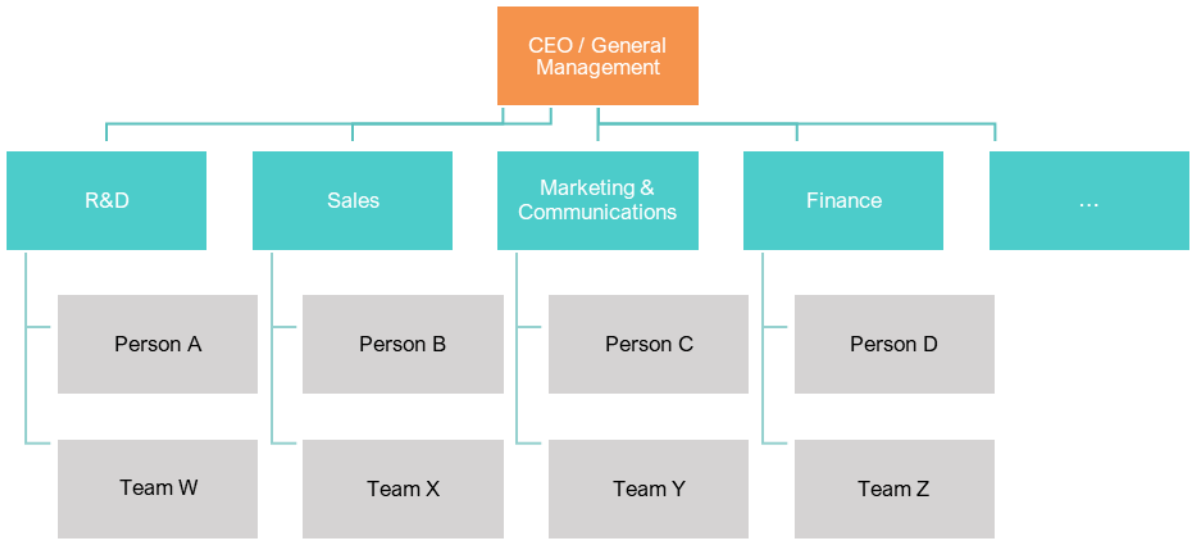
In this section you will learn how to structure the operational plan of the business plan. We will show you how to present the skills and responsibilities of the implementation team, identify the most important physical and intellectual assets and, finally, how to map cost-generating activities of your business plan.

You will also learn how to identify risks that might harm your business venture, how to assess their importance **and how to construct mitigation plans** to survive an ever-changing market.

10.1 Team

The operational plan describes **the legal structure of your business**, along with the **organisational chart** from top-level management down to the **execution team** that will be in charge of running and growing your local space initiative. **Consider using abstractions in your organisational chart** by omitting information about unrelated departments or structures within your organisation.

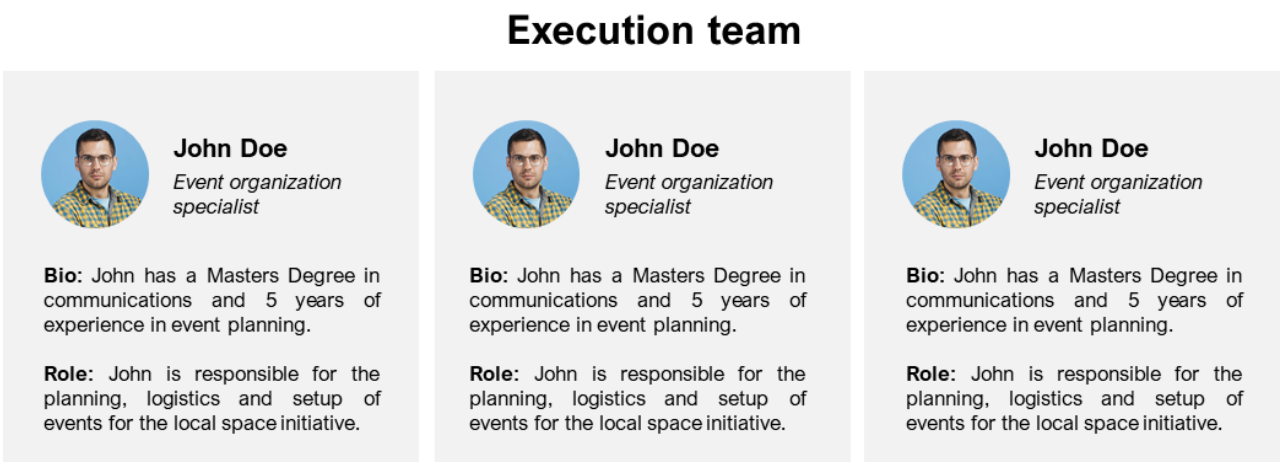
Figure 22: Organisation Chart example



The next step is to present the core team working for your local space initiative. **Showcase the expertise and skills** of your team members while **demonstrating relevance** with your local space initiative.

Present short biographies and photos of your team members to create a sense of familiarity to your audience! Showcase complementarity of roles and skillsets to build confidence on your team's ability to steer a new local space initiative to success.

Figure 23: Presentation of team members(example)



10.2 Tangible assets & Intellectual Property

Describe any necessary tangible or intangible assets that supports the operation of the local space initiative and how you've planned to acquire and use them to deliver value to the target customers/audience.

- **Physical (tangible) assets** may include premises, offices, venues or buildings, ICT or other technical equipment, merchandise and products, among others.
- **Non-physical (intangible) assets & Intellectual Property** including theoretical frameworks and models, data, technical solutions, software, algorithms, designs, visualisations and other products of intellectual and creative processes.

The following table provides an example for listing tangible and intellectual assets of your initiative within the business plan.

Figure 24: Asset table

Asset	Type (Physical / IP)	Description	Protection (for IP assets)	Owner	Conditions to use
Venue	Physical	Venue at location X that will be used for events. Capacity of 100 people fully equipped.	-	Own	N/A
EO dataset for applications in tourism	IP	Dataset with 20000 datapoints on X,Y regions covering weather, pollution variables and location information for applications in tourism.	Copyright	University X	Written consent

Pro tip

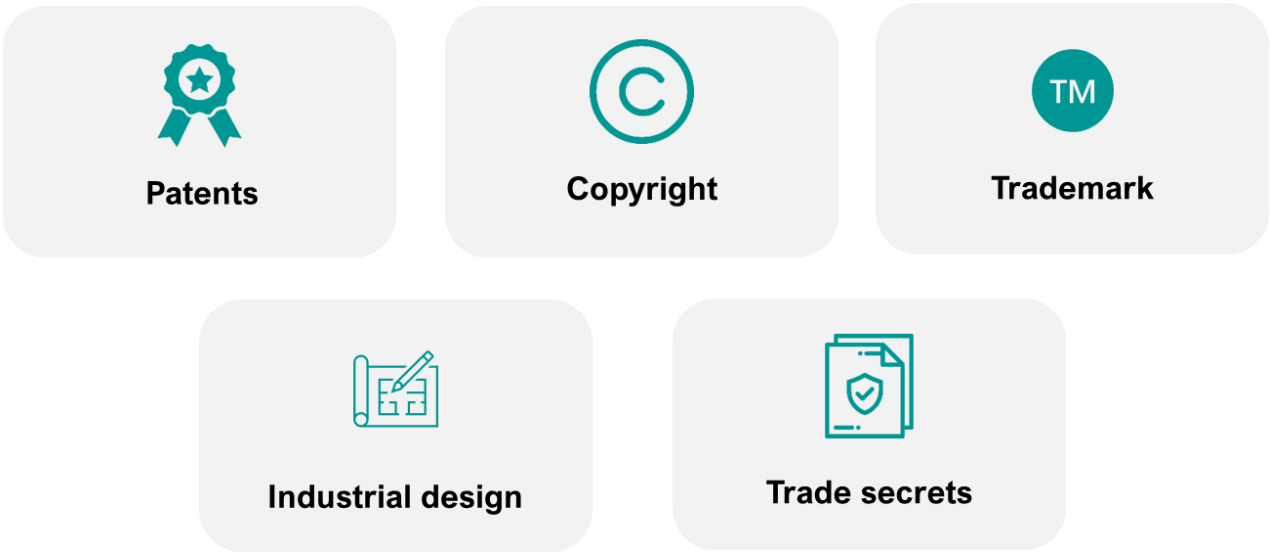
Protect your assets! Be careful when sharing sensitive business information with third parties, with Intellectual Property being one of the most important. First make sure to have them protected from unauthorized use and appropriation, by applying appropriate IP protection measures.

How to protect your intellectual property assets

It is important to know the basics IP protection measures, before deciding to protect your intellectual assets. Each measure covers different types of assets (e.g. software, processes, mock-ups, publications, etc.). Please note that some methods require time and costs to be implemented (such as patents), while others are automatically attached to your assets (for instance copyright). Note that **certain outputs of intellectual effort are not covered by IP protection methods**, including ideas and concepts.

EUIPO offers useful **IP learning resources** in their learning portal. To seek for help, you can always consult with the European IP helpdesk or a trusted professional.

The most common IP protection methods are listed below:



10.3 Time plan & Milestones

Having defined the core strategies to bring your local space initiative from the idea stage to the market, it is now the time to focus on the implementation timeline for setting up, launching and scaling up your local space initiative.

Milestones are mostly of strategic nature, showing the roadmap for the development and growth strategy. Milestones may include launch dates, gradual addition of features, topics and entrance to new audiences among others.

Time plans are more detail-oriented and focused on the implementation of activities, including the breakdown of work in steps, allocation of responsibilities and timing. Depending on whether the audience is internal or external to your organization, the level of detail can be increased or reduced respectively.

Business planning period: The rule of thumb is to define the implementation plan for the preparation phase and the first 3 years of initiative operation. The planning of the period up to the 1st year of operation should be detailed to inspire confidence in readers.

Tools: As this process is quite essential in the project / product management industries, it is expected that you may already have a preferred method or software for creating timelines. In the simplest form it can be an action list in a spreadsheet, or a GANTT chart.

Pro tip

Work on milestones first! By doing so, the elaboration of a detailed time plan will be easier, starting from the milestone and working backwards. Of course, the process may require additional repetition, in case a milestone cannot be achieved on time based on the work requirements.

Milestones	February 2022	March 2022	April 2022	May 2022
MS1	Confirmation of date, time, location and venue			
MS2	Design of marketing plan			
MS3		Draft event agenda		
MS4		Communication activities	Communication activities	
MS5		Contributors/Mentors/ Judges on board	Contributors/Mentors/ Judges on board	
MS6		Hackathon's challenges	Hackathon's challenges	
MS7			Organisation of complementary events & testing of the IT equipment	Organisation of complementary events & testing of the IT equipment
MS8				Implementation of the hackathon

Figure 25: Hackathon organisation timeline example (InnORBIT D3.2 "Support Initiative Deployment Plan for Greece")

10.4 Performance Monitoring

To ensure the successful implementation of your business strategy, it essential to set a **performance monitoring framework** to define what success means in the context of your local space initiative. Moreover, they support the execution team to focus on the goal and support the management / executives to make informed decisions.

Key Performance Indicators (KPIs) and **metrics** are the main elements of a performance monitoring framework. KPIs monitor critical elements of the strategic plan, while metrics are focusing on everyday activities of the team.

Indicators and metrics are usually **quantitative (numerical)** which can be easily summarised, analysed and reported, but if poorly designed, they might be incomplete and biased. **Qualitative information** may be used as well, which offer more detailed insights and pinpoint more easily to cause-effect relationships, however there is a risk of misunderstanding as people have unique communication styles.

Both approaches have their pros and cons, and the safest option would be to use a mix of quantitative and qualitative data.

How to design good indicators

- **Use clear descriptions** to avoid misinterpretation, including the units of measurement.
- **Define success explicitly**, in the form of a target value or range. Performance can be defined in a binary form (success / failure) or using multiple layers.
- **Define and design data collection methods** to know how KPIs and metrics are fed with data (surveys, analytics, feedback forms, attendance sheets, etc.).
- **Specify the data collection frequency** and the people responsible for it.

Pro tip

Be selective. Monitoring progress can be a time-consuming and costly procedure. Some indicators and metrics can be too expensive to track or other might not be that essential. Prioritise the most critical metrics and indicators.

10.5 Cost Categories

At this section, the main cost categories associated with the operation of the local space initiatives are outlined in a concise but informative manner.

To identify cost categories, **you may refer to previous sections of the business plan.** In each section, identify the costs implied for personnel, use of physical spaces, equipment, the acquisition or protection of pertinent Intellectual Property rights and other cost-generating activities.

The broad cost categories can be summarised in a simple table that describes the cost type, the associated activities and other categorisations, such as the distinction between variable and fixed costs (i.e. costs that change or not proportionately to the scale of activities).

An example of how cost categorisation can be implemented is provided on the table. You may find appropriate on adding more granular detail or other types of cost categorisation.

Detail financial assumptions and cost estimations are provided in the "Financial Plan" section later on in this guide.

Figure 26: Cost categories table

Cost Category	Cost Description	Fixed / variable cost
Personnel costs	Wages, salaries of personnel involved in the setup, promotion, execution and marketing of the local space initiative.	Variable
Equipment and ICT/ software costs	Purchase of technical equipment for use during events, competitions and conferencing related to the local space initiative.	Fixed
Research and development	Costs for research on topics, industry developments to create content for the local space initiative.	Fixed
Premises	Costs for using venues and physical spaces for the organization of events related to the local space initiative.	Fixed

10.6 Risk Analysis

In this final section, you should identify any risks that may affect the implementation and commercial success of your local space initiative. Risks may arise equally from the internal or external environment of your organisation.

Risk analysis can entail very complex and sophisticated methods and models, but it can also be used in its **simplified version** and still be an **invaluable business tool**.

The main parameters of basic risk analysis include:

- **Probability of risk materialisation (or shortly Probability):** Measures the likelihood of a risk occurring, usually in a 3-grade scale, with levels being characterised as "High", "Medium" and "Low".
- **Impact of materialised risk (or shortly Impact):** Measures how severe a risk could be for business in case it happens in reality. The same scale is used as in probability.
- **Mitigation measures:** Processes and actions set in place to either prevent a risk from happening or to "shield" the business from negative effects, wholly or partially.

An example is provided in the table that follows:

Figure 27: Risk analysis

Risk description	Probability (Low / Medium / High)	Impact (Low / Medium / High)	Mitigation measures
Intense competition in the market, due to increasing appeal of the space sector.	Medium	High	- Increase outreach to experts in promising fields of space tech and research.
Low interest from sponsors to support the event	High	Medium	- Build emergency fund to finance activities during slow periods. - Tailor key messages to the needs of potential sponsors.

Pro tip

How to spot risks: Start by looking for potential risks in the Market Analysis section of your business plan and more specifically the PEST and SWOT analysis. Look carefully for weaknesses of your initiative against competition, financial uncertainties and flaws in your team / organisation. Before adding risks to the bucket, consider if you can change your planning.

11 Financial Plan

In this section we will cover the basics of financial planning for business ventures. We will show you how to form assumptions, develop scenarios and make financial projections to solidify your local space initiative's commercial success.

11.1 Basic assumptions

The financial planning section aims to demonstrate that the proposed design for a new local space initiative can be financially viable and robust. It also indicates the soundness of chosen plans for marketing, operations as well as effectiveness in use of resources.

Financial forecasting entails projections about the initiative's **revenue streams**, **capital expenses** and **operating expenses** over a mid-term period which ranges from 3 to 5 years.

When preparing a business plan for investors or funding institution, requirements can be quite stricter, and you will need to produce a financial plan of financial statements, such as **income sheets, balance sheets and cash flow statements.** In such case, it is highly advisable to address the financial department of your organization or to seek support from your financial advisor. In our guide **we will not cover this scenario**, as the legal and accounting systems may vary from country to country, while investors may have different expectations and requirements for business plans.

General assumptions

These are statements / hypotheses that you will use before making projections, such as a specific pattern in revenue generation, customer acquisition as well as tax and inflation rates etc. Finally, you should elaborate on potential restrictions that you expect to affect the financial forecasting.

Description	Value (example)
Examined Period (in years)	3
Office equipment depreciation rate (annual)	10%
ICT equipment depreciation rate (annual)	20%
Depreciation method applied	Straight line
Loans	0€
Salvage value for all assets (at the end of their economic life)	0€
Tax Rate	20%
Inflation	1st year: 2nd year: 3rd year:
Interest rate	1st year: 2nd year: 3rd year:
…	…

Figure 28: Financial assumptions table

11.2 Revenue projections

Estimate the revenue of your local space initiative for the first years of implementation. If you address multiple customer segments and use multiple pricing models, simplify your analysis by addressing each separately to derive your total income / revenue.

To calculate revenue, **estimate the number of customers served annually and multiplying by the price per unit sold**. To estimate the number of customers served, you can use the data you have collected on customers in the market analysis section of the business plan. Also, consider the gradual introduction of new customers over time.

Figure 29: Revenue streams calculation table

Revenue stream	Amount		
	1st year	2nd year	3rd year
Total for customer segment #1			
Revenue stream #1			
Revenue stream #2			
Total for customer segment #2			
Revenue stream #1			
Revenue stream #2			
Total revenue			

11.3 Cost projections

Personnel costs, marketing and operating expenses

- **Personnel costs** consider salaries and wages of employees working in development, research, promotion, management and other activities of the local space initiative.
- **Marketing costs** include the procurement of promotional material, web development, advertisement, event organisation and selling costs.
- **Operating expenses** include the cost of utilities, rent, consumables and other expenses (e.g. travels). Project costs based on the previous sections of the business plans, using information about salaries and rates for different specialties (marketeers, managers, developers, etc.).

Figure 30: Costs forecasting table

Cost	Amount		
	1st year	2nd year	3rd year
Personnel costs			
Marketing expenses			
Operating Expenses			
Total			

Capital expenses

Purchases of equipment and physical assets, including buildings, office equipment, electronic equipment. **Capital expenses are not considered costs**, as the assets have a lifetime lasting over one year. Project these expenses based on the typical market prices of such assets and the needs of your local space initiative.

Depreciation

Depreciation is **the value loss of equipment and physical assets**. Depending on the accounting system in your country and organization, it can be a fixed percentage of the assets' book value (linear depreciation) or otherwise. **Depreciation is considered as cost and is deducted from taxable income.**

Figure 31: CapEx and depreciation forecast table

Cost	Amount		
	1st year	2nd year	3rd year
1. Expenditure for office equipment			
2. Expenditure for ICT equipment			
3. Expenditure for other physical assets			
4. Total Capital Expenditure (1 + 2 + 3)			
5. Depreciation of office equipment			
6. Depreciation of ICT equipment			
7. Depreciation of other assets			
8. Total depreciation (5 + 6 + 7)			

11.4 Income statement

In the previous pages we presented the building blocks for compiling the **income statement** which presents the profitability and cash flow for your local space initiative. On the right, we provide **a simplified income statement template**, in which you can plug in your revenue and cost projections, to assess your **initiative's profitability**.

It is important to show investors or funding authorities that your local space initiative **reaches a financially sustainable state within a reasonable timeframe**, although not necessarily in the first year of operations. If this is not the case, you should revise the business plan by spotting potential inefficiencies or by cutting down on expenditure that is not key for its development.

Figure 32: Simplified income sheet template

(Amounts)	Year 1	Year 2	Year 3
1. Turnover			
2. Costs (personnel, marketing, operational expenses)			
3. EBITDA (1 – 2)			
4. Financing costs			
5. Operating profit/loss (3 – 4)			
6. Depreciation			
7. Other income / expenses			
8. Pre-tax profit/loss (5 – 6 – 7)			
9. Loss carried forward			
10. Taxable income (8 – 9)			
11. Taxes			
12. Profit / loss – after taxes (10 – 11)			
(+) Depreciation			
(-) Capital expenditure			
(+) Equity Injection			
(-) Amortization of loan			
(+) Liquidity account withdraws			
Cash flow			

11.5 Expressing your funding request

If you aim for funding and reaching out to investors or funding authorities, it is necessary to explicitly state your financing request. Include the **requested amount,** the **duration of funding,** the **intended use of funds** and the **payback strategy**.

11.6 Sensitivity analysis

A good practice to develop **more robust financial plans** is to employ a **sensitivity analysis**. If you are able to prove the financial sustainability of your initiative in the worst possible conditions, it's easier to convince investors or lenders to trust you.

Performing a sensitivity analysis can be quite a straightforward exercise, **since your business plan represents the baseline scenario**.

Try to develop specific and measurable scenarios, reflecting the impact of good or bad events on your financials (for example, Event X would decrease personnel costs by 5% in the 2nd and 3rd year of operations).

The **expected scenario** of your business plan is already outlined in the previous sections, provided that it is based on realistic and attainable assumptions.

The **best-case scenario** should be described briefly, explaining which are the areas you may expect to be affected and by how much. For instance, you may find that strategic partnerships with important networks are much easier than expected, leading to 20% increase in registrations and revenue.

The **worst-case scenario** considers aspects related to your local space initiatives that could go badly. For instance, you might consider higher than expected competition that could slow down your revenue by 10% due to loss of customers over competitive solutions.

Pro tip

Don't know where to start? To develop a worst-case scenario, revisit the risk analysis section of your business plan. You already have an estimate of the likelihood and impact of bad events to use here. Reflect on your plan and find points where your expectations might be slightly conservative to work on the best-case scenario.

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Space innovation ecosystem mapping

Ecosystem dossier

Methodology developed by SpaceTec Partners

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Annex I – Ecosystem dossier

Summary of Best Practices	▪ In 3-5 bullet points ▪ XXX ▪ XXX ▪ XXX ▪ XXX
Areas for improvement	▪ In 3-5 bullet points ▪ XXX ▪ XXX ▪ XXX ▪ XXX
Gap identification	▪ In 3-5 bullet points ▪ XXX ▪ XXX ▪ XXX ▪ XXX

The first paragraph offers an **overview of the situation**, and already provides a few high-level insights; mentioning, for instance, the areas where the country is the strongest.

The subsequent paragraphs will focus on describing the **position of one or two major space actors playing a structural role**, explaining their activities and their place within the national space ecosystem. We recommend one paragraph per such actor. Link to the thematic areas that we explore further on (networks, academics, etc).

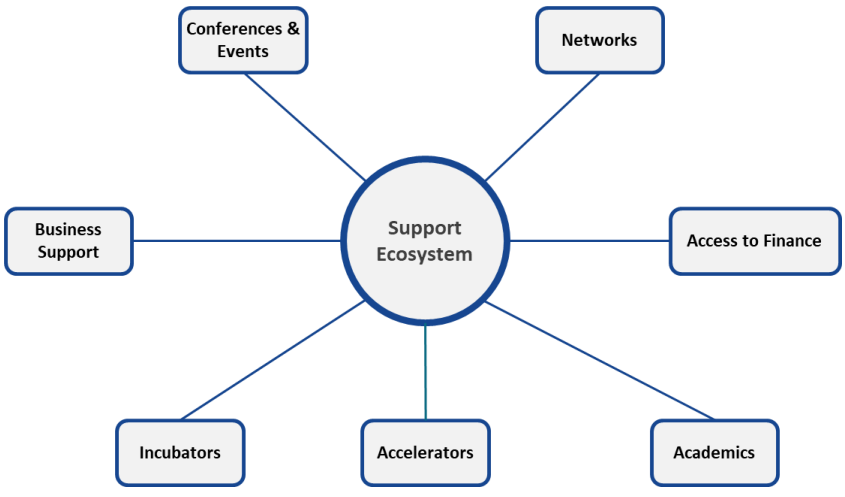

Figure: Ecosystem chart

The subsequent paragraphs will describe the situation in more details on the different thematic areas of the typology. Foresee one paragraph for **regulation and policy**, one for **business and support**, one for **access to finance**, one for **talent attraction**, one for **academics,** one for **conferences and events**, one for **networks,** and one for **industry.** The paragraphs will mention the strengths in these domains as well as point out their weaknesses. Paragraphs could be lumped together if necessary. Mention specific examples/organisations where appropriate.

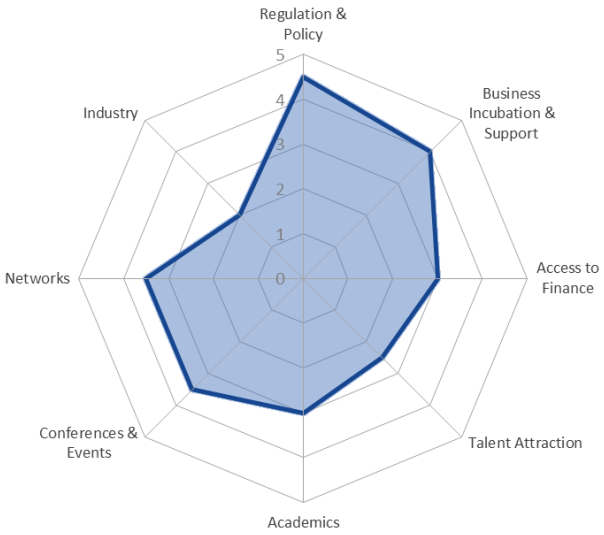

Figure: Spider chart

An extra paragraph can be devoted to the analysis of synergies between these different domains, or the lack thereof.

The final paragraphs will identify gaps and formulate recommendation (1-2 paragraphs).

If applicable/relevant/useful, a case study of a specific actor may be added.

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Level Matrix

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Annex II – Level Matrix

Initiative type	Level 1 Beginner	Level 2 First Traction	Level 3 Active Engagement	Level 4 Advanced Progress	Level 5 Full Swing
Regulation and policy	Burdensome administrative procedures for companies, little or no government support for space-related initiatives.	First proposals for measures or better regulation to support the space ecosystems being formulated at a governmental level. Awareness of the importance of the sector.	Presence of some regulations that aid the formation of new firms and growth of innovation such as competitive grants and subsidies schemes, reduced tax rates for small firms, etc. Space policy or strategy does not exist as such, but strategic measures for the sector are formulated in relevant regulation.	Simplified business regulations and tax policies for young firms. A specific space strategy is being formulated with attention to space entrepreneurship.	High ease of doing business. Special advantageous regimes for space companies, high institutional support for space activities overall. Strong space policy or strategy is regularly developed with a clearly linked workplan of actionable measures with a strong focus on space entrepreneurship.
Business incubation and support	Lack of training or support initiatives that support the development of start-ups or SME's.	Pilot initiatives to support start-ups and SMEs. Some incubators/accelerators exist but not yet well-known and well-connected.	Private and public initiatives that offer premises and/or support to entrepreneurs of technology companies. Generic incubation or accelerator programmes.	On the top of generic programmes, space-focused accelerators emerge. Growing landscape of space-focused entrepreneurial education programmes.	Several private and public training and educational opportunities with a focus on space and technology that instil entrepreneurship skills; mentoring and coaching programmes to help new entrepreneurs; premises for young companies. Accelerator or/or incubators with space as one of its themes.

Initiative type	Level 1 Beginner	Level 2 First Traction	Level 3 Active Engagement	Level 4 Advanced Progress	Level 5 Full Swing
Access to finance	Absence of local financing opportunities private or otherwise.	First public or private initiatives to provide access to finance to start-ups.	Access to dedicated private or government financing solutions for technology related start-ups and SME's.	Growing number of financing opportunities from different actors.	Ample provision of both private and government financing opportunities, including both debt and equity finance for space related start-ups and SME's.
Talent attraction	Insufficient remunerations and career advancement opportunities, unwelcoming work culture towards newcomers, strong hierarchical structures. Sub-standard quality of life (for OECD standards). Situation of brain drain.	Strengthening of transparency in job opportunities. Signs of cultural shifts towards more openness. Increasing remunerations. First programmes to help worker relocation and settling.	Easy identification of various job opportunities, financial incentives that attract new workers and businesses and a community that facilitates the transition into a new environment and aids in settling in.	Growing number of companies competing for talent, fostering a healthy environment for international workers.	Excellent remunerations and quality of life can be expected, healthy competition between companies to attract talent. Sophisticated recruiting models and easy job identification. Environments that promote inclusivity and embrace diversity.
Academics	Absence of public institutions with a focus on space research or development or programmes that foster entrepreneurial development.	First space-focused research centres or university departments. First top-level grants being won, but they do not yet play a structuring role locally.	Public institutions that fund local research activities in various branches of science. Institutions that support and coordinate activities to raise awareness for research and educate the public on scientific progress.	Increased interconnectedness between the different emergent space research-intensive clusters. Strengthening of entrepreneurial education programmes.	Several public institutions engaging in space research and development and working with related technologies. Educational programmes for all levels and external training programmes that foster digital competencies and encourage entrepreneurial skill development.

Initiative type	Level 1 Beginner	Level 2 First Traction	Level 3 Active Engagement	Level 4 Advanced Progress	Level 5 Full Swing
Conferences and events	Generic business events with no dedicated focus on technology, space or related applications	First small-scale events focused on technology and entrepreneurship.	ICT and technology events with high visibility and high-profile speakers, however no dedicated focus on space or related applications	First visible space-focused events, possibly as a side-event to a bigger, high-profile tech conference.	Several dedicated events on the space industry, with high attendance numbers (real and virtual), high profile speakers and firms. Ease of collaboration and networking between attendees.
Networks	General support networks for start-ups and SME's. No particular focus on technology or related applications.	First pilot programmes to build networks for technology-focused start-ups.	Several support networks for start-ups and SME's with a focus on technology and innovation.	First initiatives for dedicated space-related networks.	Several public and private dedicated support networks for start-ups and SME's focused specifically on space-related industries and technologies.
Industry	Presence of some sizeable companies in the technology or manufacturing sector (e.g. software, cryogenics, engineering) but no space-related activity whatsoever.	First important dedicated space company emerges, often as a regional branch of a larger foreign company. Usually a downstream segment company, but not necessarily.	Emergence of at least one prominent indigenous company, which is able to carry out complex space-related activities on behalf of its national space agency, and act as a rally point for the first space start-ups (burgeoning ecosystem).	National champions gain international recognition and first contracts from ESA. The increased recognition activates a virtuous circle bringing in investment and talent.	Presence of a developed ecosystem of dedicated space companies, with one or several large players having international presence, and many specialised space SME's and start-ups. Players active in all three segments (upstream, midstream, downstream)

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Typology Matrix

Methodology developed by SpaceTec Partners

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Annex III – Typology Matrix

Support ecosystem component	Description	Examples
Networks	Committees, clusters, industry association, etc. These can be networks of governments, public agencies, industry or users.	▪ HUP
Access to finance	Venture capital, business angel networks, start-up competitions involving cash prizes, public funding mechanisms which have a space application focus, such as grants, prizes, pre-commercial procurement, PPP, etc. This includes funding guides and informational workshop on access to finance.	▪ Eurobank
Academics	Prominent research centres, university departments, or professors who can influence the research agenda, draw in international talent, and in the case of space, win contracts for major spacecraft instrumentation proposals or data analysis.	▪ National Observatory of Athens
Accelerators	Presence of for-profit companies offering time-limited support (coworking space, legal advice, connection with investors), typically in exchange for equity in the company.	▪ ESA BICs
Incubators	Presence of (typically non-profit) well-connected associations which help entrepreneurs define a minimum viable product, provide them with initial guidance, help them make a financial plan, and provide them with opportunities for networking with investors.	▪ Start it @CSOB
Business support	Organisations disseminating information about opportunities and support programmes for start-ups.	▪ Startarium
Conferences and Events	Physical or virtual events with the main objective to network, share information on own activities (commercial activities, use cases, general outreach of research projects and best practices) and do business development. Typical examples would be trade shows, sales conferences, and other industry-driven events. It could a non-technical side event of a larger conference.	▪ Startup Island
Industry	Local space hardware or space software company with important European/international activities.	▪ Planetek Hellas

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Interview guide for consultation rounds

Methodology developed by SpaceTec Partners

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Annex IV – Interview guide for consultation rounds

Please select a number of questions from the longlist below depending on the stakeholder being interviewed. Mark beforehand the questions that relate to the areas that you would want to develop your understanding further, and where you believe the stakeholder can provide insight.

Start the interview with an introduction on this analysis and ask the stakeholder to introduce their organisation and relation to the space ecosystem. Prepare your analysis with desk research on the ecosystem starting from the KOM materials on the ecosystems provided by ALG, COR, ROM. Have the ecosystem chart ready during the interview, as well as an initial spider diagram to spark the discussion if necessary.

Policy context

General topics: current policy work, importance of space sector for government.

Question examples:

- What policies are in place to support the start-up ecosystem in general? For example, ease of starting a company, tax benefits, start-up grants, etc.
- What is the overarching strategy for space in the country and which space domains are of particular interest?
- Are in policies in place that caters specifically to space entrepreneurship?
- What are key enablers or key challenges for companies / start-ups / SMEs to do business effectively in Croatia/Greece/Romania?
- What are research centres and space SME's asking from the government? Do they feel supported?
- What is your assessment of Croatia/Greece/Romania's space policy / priorities?
- Do you see your government considering space as a strategic sector?

Academic landscape and talent

General topics: availability of space-related courses and degrees, national and international cooperation, quality of relationship with private sector, talent attraction

Question examples:

- What do you feel is the quality and relevance of the universities and research institutes in Croatia/Greece/Romania in your domain and in general? What are their key strengths in your view?
- Do the universities or research institutes maintain a space programme / course / research group?
- How do you benefit from the academic sector in Croatia/Greece/Romania in terms of resources, knowledge, etc.? Or do you compete?
- How do you cooperate with the university or research institutes? How would you assess is your relationship if not a formal partnership?
- What are the efforts in terms of commercialisation i.e. technology transfer & spin-out? What is the quality of such programmes? Do you see spin-offs from the academic sector relevant for your business both in terms of companies or patents?

- What changes would you like to see in order to maintain local talent or attract international talent more easily?
- Do you believe that there is a gap between local and foreign competencies/talent?
- What are the reasons for the low ranking of Croatia/Greece/Romania for the skills of future workforce in the global competitiveness report in your opinion?

Innovation actors and financing

General topics: how easy/difficult is it to access funds, how good are current support structure and what do they need to improve

Question examples:

- What support instruments for new and/or existing business do you believe are lacking in Croatia/Greece/Romania? At what maturity stage?
- Which entrepreneurship instruments/initiatives have a space focus or have had a few space start-ups as participants?
- What would be your recommendations to those setting up a entrepreneurship initiative for space? What support would you expect?
- What are good examples from other regions/abroad that you may have experienced?
- Would your organisation be likely to get involved in a space entrepreneurship initiative/programme?
- What's your experience with venture capital? Do you feel there is sufficient VC money or private money in general available in Croatia/Greece/Romania? Business Angels vs. VC A-round vs. VC B-round.
- What is your opinion about the commercial banks, what is the ease of access to loans for your/local company (and for young companies / start-ups in general)?

Industrial cooperation, networks and events

General topics: industrial cooperation, quality of networks and events dedicated to tech in general, or if existing, (aero)space

Question examples:

- Do you work together with start-ups or vice versa with industry? Do you feel there are enough opportunities to network? Where do you do this specifically?
- Who do you have difficulties connecting to and how could this be improved?
- What do you think of Event X / Network Y?

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Business planning for innovation intermediaries

Business Planning Template

Developed by Q-PLAN INTERNATIONAL

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Annex V - Business Plan Template for innovation intermediaries

Executive Summary (1 page)

Instructions: This section to be filled at the end, summarising important info described in the rest of the plan.

About your company

Your text here

Need

Your text here

Solution: The local space initiative

Your text here

Market(s)

Your text here

Competition / Collaborations

Your text here

Financial projections

Your text here

Company Overview (1 page)

Instructions: Shortly introduce your company, its history, your service portfolio and target markets.

The organisation

Your text here

Vision / Mission statement

Your text here

Industry and target market(s)

Your text here

Service/ Product portfolio

Your text here

Business concept (0.5 – 1 page)

Instructions: Describe the problem and/or market needs that motivate the creation of your local space initiative.

Problem

Your text here

Market need

Your text here

The local space initiative (1 - 1.5 pages)

Instructions: Describe your local space initiative, making sure that your narrative presents your initiative as the solution to the problems and market needs mentioned in the previous section.

Overview

Your text here

Activities

Your text here

Value propositions

Your text here

Market and competition analysis (3 - 4 pages total)

Instructions: Describe the target market(s) of your local space initiatives and categorise the universe of customers within the market into meaningful categories, based on location, age, sector, function, etc.

Markets

Your text here

Market segmentation

Your text here

Market #1

Geographic	Sectoral	Development stage / Functional

Target customers

Instructions: Focus on and describe the customer segments that are the most relevant to your initiative.

Customer segment	Segment #1	Segment #2
Typology	-	-
	-	-
	-	-
	-	-

Competition & Collaborations

Instructions: Use the following table to list your competitors and collaborators. If the list is long of if you find it more convenient, split the table in two; one for competitors and one for collaborators.

Market	Name of organisation	Region	Target customers	Value propositions	Potential for collaboration

PEST Analysis (Context)

Instructions: Using the following table to list the most important factors that describe the business environment your initiative operates in.

Political	Economic	Social	Technological
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

SWOT Analysis

Instructions: Assess your organisations' internal environment and fill in the table accordingly. Note that strengths and weaknesses are factors that control can be exercised over (e.g. change of a company policy or strategy). Conversely, opportunities and threats are external to your organisation but can be exploited / avoided by making changes in your internal organisation.

Strengths	Weaknesses	Opportunities	Threats

Marketing Plan (1 – 1.5 pages)

Revenue streams and pricing

Instructions: Describe how you will generate revenue streams (e.g. from event tickets, registration fees, equity, sponsorships, etc.) and describe the pricing model applied if relevant.

Branding

Instructions: Present the branding used for the promotion/recognisability of your local space initiatives, mention relevant connections to your company identity.

Promotion

Offline promotional activities

Instructions: Describe offline activities to increase outreach to your target audience, e.g. meetings, info days, networking, offline news outlets etc.

Digital marketing

Instructions: Describe the digital marketing mix used for the promotion of the local space initiative (e.g. dedicated social media or website, newsletters, podcasts, etc.), or alternatively how your corporate channels will be employed for the promotion of the initiative.

Operational Plan (1 – 2 pages)

Organisational Chart

Instructions: Please provide a simplified chart with the key administrative roles, departments and teams etc. in your organisation reaching down to your initiative team.

Personnel / Team

Instructions: Fill in the table with the information about team members. You may opt for a visual approach, as shown in the business planning guide (photo, short bio) about the team members.

Name	Skills	Experience level	Roles	Engagement (FTE)

Tangible assets and Intellectual Property

Instructions: Describe any physical or intangible assets needed for your initiative implementation. Describe conditions of use if you are not the owner.

Asset	Type (Physical / IP)	Description	Protection (for IP assets)	Owner	Conditions to use

Cost categories

Instructions: Provide a high-level description of the costs associated with your initiative implementation. In this section you need not to provide estimates (see Financial Plan section at the end of the business plan template).

Cost Category	Cost Description	Fixed / variable cost

Time plan and milestones

Instructions: Describe key moments regarding the implementation of your initiative (preparation phase, launch dates, operational milestones, end of the initiative). You may use a table or a GANTT chart.

Key performance indicators and metrics

Instructions: Describe the KPIs used to measure the success of your initiative, including a definition/measurement unit of the KPI and the target.

Risk Analysis

Instructions: Fill in the table with identified risks associated to your initiative. Estimate the probability and impact using a "Low/Medium/High" scale or any scale that works for you.

Risk description	Probability	Impact

Financial Plan

Instructions: Fill in the financial plan using the guidelines of the business planning guide. You may opt for a different structure depending on your work style. Always check formal sources when applying for grants, loans and investment.

Assumptions made for the financial projections

Variable	Assumption
Length of examined period:	3 years
Inflation rate:	<percentage based on estimates>
Tax rate:	<percentage based on estimates>
Depreciation rate (office equipment):	<percentage, typical: 10%>
Depreciation rate (ICT equipment):	<percentage, typical: 20%>
Depreciation method applied:	<linear, non-linear; typical: linear>
Salvage value of assets (at the end of their economic value):	<value in EUR; can be 0>
Loans	<This probably is not relevant; 0>
Market penetration	<percentage of estimated penetration>
…	…

Revenue Projections

Revenue streams (in EUR)	Year 1	Year 2	Year 3
Customer Segment 1 – Location X – Sector Y			
Customer Segment 2 – Location X – Sector Y			
Total revenues (in EUR)			

Cost Projections

Capital expenses and depreciation

	Amount		
	1st year	2nd year	3rd year
1. Expenditure for office equipment			
2. Expenditure for ICT equipment			
3. Expenditure for other physical assets			
4. Total Capital Expenditure (1 + 2 + 3)			
5. Depreciation of office equipment			
6. Depreciation of ICT equipment			
7. Depreciation of other assets			
8. Total depreciation (5 + 6 + 7)			

Personnel, marketing and operational costs

Cost category	Year 1	Year 2	Year 3
Personnel salaries			
External Advisors (legal, tax, IT, etc.)			
Marketing Campaign costs			
Operating Expenses			
Total revenues (in EUR)			

Income statement

(Amounts)	Year 1	Year 2	Year 3
1. Turnover			
2. Costs (personnel, marketing, operational expenses)			
3. EBITDA (1 – 2)			
4. Financing costs			
5. Operating profit/loss (3 – 4)			

(Amounts)	Year 1	Year 2	Year 3
6. Depreciation			
7. Other income / expenses			
8. Pre-tax profit/loss (5 – 6 – 7)			
9. Loss carried forward			
10. Taxable income (8 – 9)			
11. Taxes			
12. Profit / loss – after taxes (10 – 11)			
(+) Depreciation			
(-) Capital expenditure			
(+) Equity Injection			
(-) Amortization of loan			
(+) Liquidity account withdraws			
Cash flow			

Scenario Analysis

For each scenario, please explain in 2-3 lines how you expect the initiative to evolve in the following years. Make your narrative as relevant as possible to your financial assumptions. You may used a condensed version of the income statement for the comparison of the different scenarios.

- **Baseline scenario:** Already described in the previous section, may be summarised here.
- **Best-case scenario:** Your text here
- **Worst-case scenario:** Your text here

Income statement – Best case scenario

(Amounts)	Year 1	Year 2	Year 3
1. Turnover			
2. Costs (personnel, marketing, operational expenses)			

(Amounts)	Year 1	Year 2	Year 3
3. EBITDA (1 – 2)			
4. Financing costs			
5. Operating profit/loss (3 – 4)			
6. Depreciation			
7. Other income / expenses			
8. Pre-tax profit/loss (5 – 6 – 7)			
9. Loss carried forward			
10. Taxable income (8 – 9)			
11. Taxes			
12. Profit / loss – after taxes (10 – 11)			
(+) Depreciation			
(-) Capital expenditure			
(+) Equity Injection			
(-) Amortization of loan			
(+) Liquidity account withdraws			
Cash flow			

Income statement – Worst case scenario

(Amounts)	Year 1	Year 2	Year 3
1. Turnover			
2. Costs (personnel, marketing, operational expenses)			
3. EBITDA (1 – 2)			
4. Financing costs			

(Amounts)	Year 1	Year 2	Year 3
5. Operating profit/loss (3 – 4)			
6. Depreciation			
7. Other income / expenses			
8. Pre-tax profit/loss (5 – 6 – 7)			
9. Loss carried forward			
10. Taxable income (8 – 9)			
11. Taxes			
12. Profit / loss – after taxes (10 – 11)			
(+) Depreciation			
(-) Capital expenditure			
(+) Equity Injection			
(-) Amortization of loan			
(+) Liquidity account withdraws			
Cash flow			