



PUBLIC GUIDELINE ON SPECIFIC NEEDS FOR LOW MODERATE INNOVATION REGIONS

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EXECUTIVE SUMMARY

In the European Union, many efforts are taking place to promote innovation and entrepreneurship. For this purpose, the EU provides funding mechanisms such as grants, loans and equity, for example through Horizon Europe. In addition, institutions such as the European Investment Bank, Startup Europe and European Innovation Council strive to build the gap between research and innovation. Europe's ambitious research and innovation agenda has been, however, unable to harmonize the gap between the innovation and entrepreneurship capabilities and success of different EU Members States.

Since 2010, the performance of different European regions and countries in terms of innovativeness has been measured in terms of the business culture, work force skills, education and training institutions, innovation support services, technology transfer mechanisms, R&D and ICT infrastructure, the mobility of researchers, business incubators, new sources of finance and the local creative potential. In Low to Moderate innovative regions, the focus of this report, key recommendations to enhance these countries' innovativeness include:

- **Strengthen higher education systems**
- **Strengthen links between higher education and firms**
- **Support ideas into becoming start-ups and scale-ups**
- **Attract private and public funding towards innovative ideas**
- **Create innovation ecosystems** with universities, firms, funding agents and public institutions.

Deliverable 2.1 highlights how in these countries, support structures such as venture-building, are essential in securing start-up funding and ensuring startups remain in the region. To implement such a program, the key stakeholders identified are:

- **Universities**
- **Private Companies**
- **Angel Investors/ Venture Capitalists**
- **Institutions**

Representatives from each group of stakeholders was interviewed to identify their business models and job-to-be-done, and the following insights were developed:

- **Most venture-builders are funded at least in part by the creators of the program, with potentially some external funders.**
- **Whereas Universities and institutions build on their position within society, private companies and venture-capitalists must build up credibility in their specific sector to be able to successfully pursue venture-building.**

- **Creating a revenue stream from the startups is only feasible when the venture-builders have very specific expertise and credibility.**
- **There are two main strategies when it comes to the volume: a generalist approach is that relies on large numbers of potential ventures that produce a few outlier success cases, or a very deliberate, focused strategy.**
- **The more focused the strategy, the higher the importance attributed to in-person (rather than online) activities for the venture-building process.**
- **In low to moderate innovation regions, it was easier to find universities and institutions engaging in venture-building, than private companies and VCs/Angel Investors.**

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1 INTRODUCTION

The Entreprenedu project brings together different innovation stakeholders and educational entities from 6 different European countries, 3 low/moderate innovative regions (IT, BG, EL) and 3 high innovative regions (BE, DE, IE). The project aims at creating a highly replicable and scalable education model for both businesses and educational systems via a series of 3 Hackathons, developed at regional level, supporting developed concepts and ideas to become concrete solutions. The outcome will be a business plan for a new venture-building model specifically developed for moderate and low innovation regions.

This investigation, conducted by LUISS, focuses on the low and moderate innovation regions, where the Venture-building program will take place. This task will contribute to identify and map innovation needs of the countries in question, with the aim of improving flows of innovation resources between innovation ecosystems at various levels of developments. For this purpose, the deliverable also identifies how strong innovators and innovation leaders could support less capable innovators.

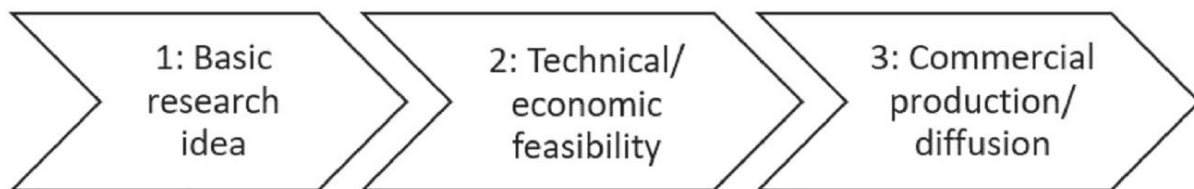
The document sets the context in which the ENTREPRENEDU project and the venture-building program take place, including the innovation landscape at EU level, the main sectors in which innovation is strong and those where more efforts are needed, the corresponding innopreneurship initiatives and funding schemes available (with reference also to deliverable 2.1). The needs of different countries, both the lesser innovators (Italy, Greece, Bulgaria) and the better innovators (Germany, Belgium & Ireland) are studied to identify the most critical areas and the most pressing needs in terms of venture-building and entrepreneurship. Based on this analysis, a series of stakeholders, that need venture-building programs and would be potentially willing to pay for such a service, are identified and interviewed. The results of the survey are illustrated, and preliminary considerations are made about the value proposition of a new Venture-Building program. Finally, the conclusions highlight some policy implications of the reports' findings.

Based on this document, the partners of the consortium will identify the first building blocks of the business plan to be prepared as a final output of the ENTREPRENEDU project. Indeed, the findings in this document will be useful to define the overall value-proposition and key structural elements of the business model to be proposed for the educational venture-building model, that can be used across low/moderate innovation regions.

2 INNOVATION LANDSCAPE AND CONTEXT

In the realm of innovation literature and practical application, a widely acknowledged concept is the existence of a 'technology valley of death,' where promising technologies struggle to advance due to inadequate investment incentives. Factors such as technical risk, uncertain markets, and the requirement for substantial investments create weak incentives for investors. This intermediate stage of innovation suffers from market and innovation system failures, leading to underinvestment.

FIG. 1 FROM R&D TO COMMERCIALIZATION



Source: Ford et al. (2008:10)

Political interference and the diversion of program goals for personal gains hinder technology support efforts. Furthermore, the argument against government intervention asserts that poor access to information implies 'governments should not pick winners [1]. Some argue vehemently that addressing the technology valley of death is futile because inherent government failures in democracies will thwart attempts to make technologies commercially viable.

The implication of government failures potentially outweighing market failures holds significant consequences for technologies struggling with real valley of death challenges. In such cases, these technologies might never gain widespread adoption.

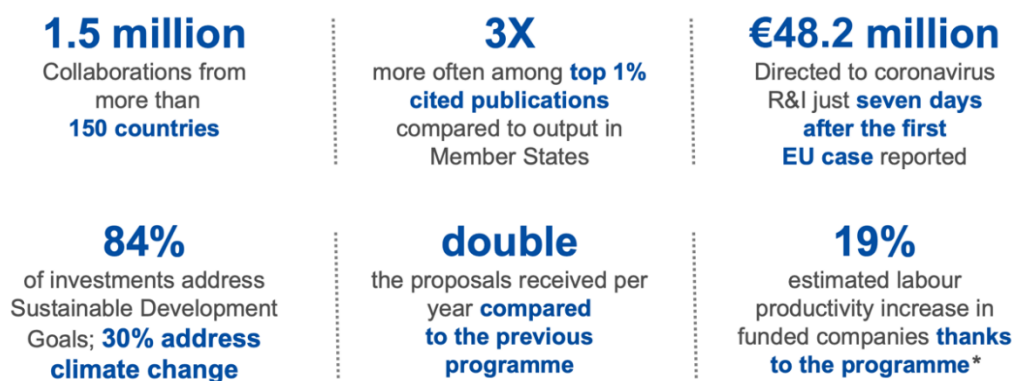
Frameworks have been designed by researchers to reduce the inefficiencies that then lead to the valley of death. A successful one has been the triple helix model of innovation, which consists of a virtuous relationship cycle between universities, firms, and local administrations to foster the practical application of the more basic research aiming at the creation of business models which can then result in jobs creation. The importance of this theory and the issues concerning the knowledge economy let new university conceptualizations arise: the entrepreneurial university. The entrepreneurial university and Triple Helix model are two closely interrelated concepts. One prerequisite of the Triple Helix model is that 'the university's enhanced relevance to technology transfer, firm-formation and regional renewal places it in a primary position in knowledge-based society in contrast to its secondary role in industrial society' [2]. All this newly born literature around a more entrepreneurial approach towards science has also impacted the European Union initiatives.

To support startups and promote entrepreneurship across its member states, some of the initiatives and programs undertaken by the EU to support startups include:

- Funding Programs:** The EU provides funding opportunities for startups through various programs such as Horizon 2020 and Horizon Europe, which offer grants, loans, and equity financing to innovative businesses. These programs aim to support research and innovation, enabling startups to develop new products and services. Horizon Europe stands as the European Union's primary funding initiative for research and innovation, boasting a budget of €95.5 billion (including €5.4 billion from NGEU – Next Generation Europe – program of EU for Recovery from COVID-19 crisis). Addressing climate change, advancing the UN's Sustainable Development Goals, and enhancing the EU's competitiveness and growth are among its core objectives. This program facilitates collaboration, amplifying the influence of research and innovation in the development, support, and implementation of EU policies while addressing global challenges. It promotes the creation and wider dissemination of cutting-edge knowledge and technologies. By generating employment opportunities, fully leveraging the EU's pool of talent, stimulating economic growth, enhancing industrial competitiveness, and optimizing investment impact within a fortified European Research Area, Horizon Europe contributes significantly. Participation is open to legal entities from the EU and associated countries. While we assume 2023 is still an early date to assess the results of Horizon, the activity metrics reported by the European Commission looks encouraging:

FIGURE 2 EU FRAMEWORK PROGRAMS. SOURCE: HORIZON EUROPE 2020 – EU COMMISSION

EU framework programmes proved powerful for research & innovation impact



statistics from Horizon 2020 evaluation and monitoring and *Framework Programme 7 JRC [research paper](#)



- **European Investment Fund (EIF):** The EIF, a part of the European Investment Bank Group, provides venture capital and guarantees to financial intermediaries, encouraging them to finance startups and small and medium-sized enterprises (SMEs).
- **European Investment Bank (EIB) Support:** The EIB offers loans and financial support to startups and innovative businesses. The bank's focus on innovation and technology helps startups access capital for research, development, and expansion.
- **Startup Europe:** Startup Europe is an initiative by the European Commission to connect startups, investors, accelerators, and policymakers across Europe. It aims to create a more cohesive and supportive ecosystem for startups by fostering networking, collaboration, and knowledge-sharing.
- **European Innovation Council (EIC):** The EIC provides funding, mentoring, and networking opportunities to high-potential startups and innovators. It supports breakthrough innovations and helps startups scale up their businesses. The core purpose is to support innovations with breakthrough and disruptive nature and scale up potential that are too risky for private investors. With funding exceeding €10 billion, the EIC backs Europe's most skilled and forward-thinking researchers and entrepreneurs on their journey from innovative concepts to triumph in both EU and worldwide markets. There are five mission areas concerning EIC which can be seen in fig. 3.

FIGURE 3: EU COMMISSION

Five Missions Areas



- Quoting the EU Commissions documents, the broad mission statements are the ones that follow:
 - Conquering Cancer: Mission Possible Targets by 2030: more than 3 million more lives saved, living longer and better, achieve a thorough understanding of cancer, prevent what is preventable, optimize diagnosis and treatment, support the quality of life of all people exposed to cancer, and ensure equitable access to the above across Europe.
 - A Climate Resilient Europe - Prepare Europe for climate disruptions and accelerate the transformation to a climate resilient and just Europe by 2030 Targets by 2030: prepare Europe to deal with climate disruptions, accelerate the transition to a healthy and prosperous future within safe planetary boundaries and scale up solutions for resilience that will trigger transformations in society.
 - Mission Starfish 2030: Restore our Ocean and Waters Targets by 2030: cleaning marine and fresh waters, restoring degraded ecosystems and habitats, decarbonizing the blue economy to sustainably harness the essential goods and services they provide.
 - 100 Climate-Neutral Cities by 2030 - by and for the citizens Targets by 2030: support, promote and showcase 100 European cities in their systemic transformation towards climate neutrality by 2030 and turn these cities into innovation hubs for all cities, benefiting quality of life and sustainability in Europe.
 - Caring for Soil is Caring for Life Targets by 2030: at least 75% of all soils in the EU are healthy for food, people, nature, and climate. The proposed mission combines research and innovation, education and training, investments and the demonstration of good practices using “Living labs” (experiments and innovation in a laboratory on the ground) and “Lighthouses” (places to showcase good practices).

Assistance from the EIC is provided through a combination of Open and Challenge-based calls within three fundamental programs: EIC Pathfinder aids in deep tech research and development; EIC Transition facilitates the transition of ideas from the laboratory to business; EIC Accelerator fosters the growth and scaling up of startups, inclusive of support from the EIC Fund, which offers investments from seed to early growth.

A visual description the EIC assistance steps follows:

FIGURE 4: EU COMMISSION



European Innovation Council

Support to innovations with breakthrough and disruptive nature and scale up potential that are too risky for private investors (**70% of the budget earmarked for SMEs**)

European Innovation Council – a one-stop-shop

- Helping researchers and innovators create markets of the future, leverage private finance, scale up their companies
- Innovation centric, risk taking & agile, pro-active management and follow up
- Mostly 'bottom up', but also targeting strategic challenges
- EIC Programme Managers to develop visions for breakthroughs and steer portfolios

Complementary instruments bridging the gap from idea to market

PATHFINDER

R&I grants
(from early technology to proof of concept)

TRANSITION

R&I grants
(proof of concept to pre-commercial)

ACCELERATOR

Grants & investment (via EIC Fund) for single SMEs & start-ups
(from pre-commercial to market & scale-up)



According to the 2023 EIC Tech Report, under Horizon Europe, the EIC has attracted over 10 000 proposals across its three core programs and funded over 700 projects. This has enabled the EIC to build on and develop a strong portfolio of activity in technological and economic sectors critical to Europe's future strategic autonomy and prosperity, such as renewable hydrogen, cell and gene therapies, quantum technologies, agrifood, among others.

Examining the main innovation areas funded from the Chapter 1 of the mentioned report, we can find:

- **Digital Single Market (DSM):** The EU's DSM strategy aims to create a seamless digital market across member states. This strategy benefits startups by providing access to a larger customer base, reducing regulatory barriers, and promoting e-commerce and digital innovation. It is founded on the idea of the common market, designed to remove trade barriers among Member States to enhance economic prosperity and foster 'an ever-closer union among the peoples of Europe.' This concept evolved into the notion of the internal market, characterized as 'an area without internal frontiers in which the free movement of goods, people, services, and capital is guaranteed.'
- **Regulatory Support:** The EU works on harmonizing regulations across member states, simplifying administrative procedures, and reducing regulatory burdens on startups. This effort aims to create a more business-friendly environment for entrepreneurs.
- **Skills and Education Programs:** The EU invests in education and skill development programs to equip individuals with the necessary knowledge and expertise to thrive in the

digital economy. By fostering a skilled workforce, startups have access to a pool of talented professionals.

- Collaboration with Local Ecosystems: The EU collaborates with regional and local authorities, industry associations, and innovation hubs to support startups at the grassroots level. These collaborations often result in initiatives that provide mentoring, networking events, and training programs for startups.

FIGURE 5. EIC-TECHREPORT-2023

DIGITAL, INDUSTRY & SPACE
ADVANCED MATERIALS
ARTIFICIAL INTELLIGENCE
NEXT GENERATION OF ELECTRONIC DEVICES, MATERIALS AND ARCHITECTURES
MEASUREMENT SYSTEMS
QUANTUM TECHNOLOGIES
SPACE
CLEANTECH
AGRI-FOOD
CONSTRUCTION
ENERGY STORAGE
RENEWABLE FUELS AND CHEMICALS
TRANSPORT AND MOBILITY
HEALTH
MEDICAL IMAGING
MEDICAL DEVICES
BIOTECH – THERAPEUTICS
BIOTECH – DISEASE MODELLING

3 INNOVATION NEEDS OF DIFFERENT COUNTRIES

Europe's ambitious research and innovation agenda has been, however, unable to harmonize the gap between the innovation and entrepreneurship capabilities and success of different EU Members States. Since 2010, the performance of different European regions and countries in terms of innovativeness has been measured and monitored. Factors along which the different regions are ranked comprise "the business culture, work force skills, education and training institutions, innovation support services, technology transfer mechanisms, R&D and ICT infrastructure, the mobility of researchers, business incubators, new sources of finance and the local creative potential" [3]. These elements are essential as the effectiveness of programs aimed at creating startups and innovation vary greatly with the characteristics of the regions in which they are deployed [4].

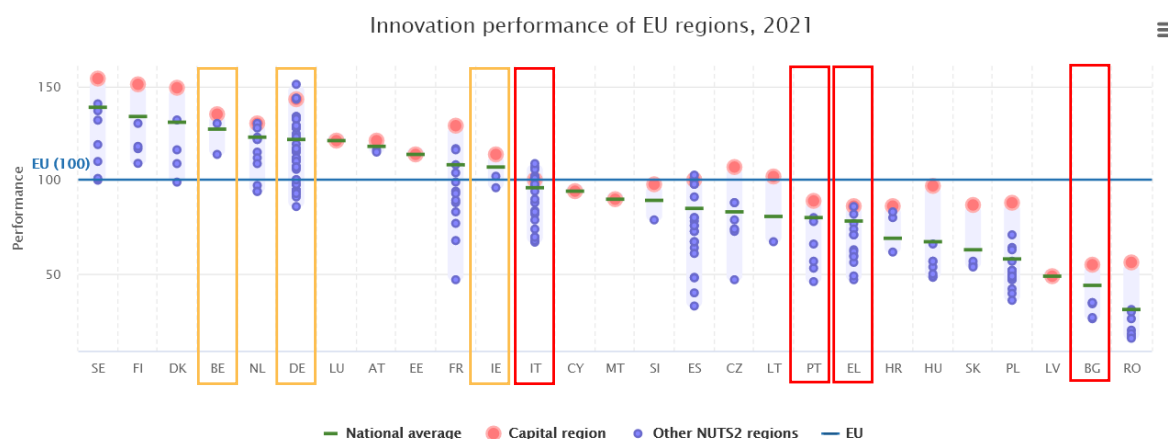


FIGURE 6 INNOVATION PERFORMANCE OF EU REGIONS - EUROPEAN INNOVATION SCOREBOARD (2021)

In particular, the European Innovation Scoreboard classifies European regions and countries on the basis of four clusters (Fig. 2): Emerging innovators (e.g. Bulgaria), whose innovation performance lies below 70% of the EU average, Moderate innovations (e.g. Italy and Greece) whose innovation score is between 70% and 100% of the EU average, Strong innovators (e.g. Ireland and Germany) with a performance between 100% and 125% of the EU average, and finally Innovation Leaders that are above 125% (e.g. Belgium).

The countries' innovativeness is measured against four sets of criteria, depicted in Figure 3, including framework conditions such as education and digitization, innovation measures, investments, and impacts in the form of sales, employment, and environmental sustainability. Each country is therefore assessed against each criterion, and the overall score is compared to the EU average. The EU analyses highlight how Moderate and Emerging innovators have suffered a slow improvement of their innovativeness, below the EU average. Therefore, the gap between their level of innovativeness and that of other countries is widening over time. There is, therefore, a strong need to reverse these trends and accelerate these countries' innovation activities. They are especially vulnerable in terms of investments and the ease of doing business, which is reflected in the innovativeness of their SMEs population.

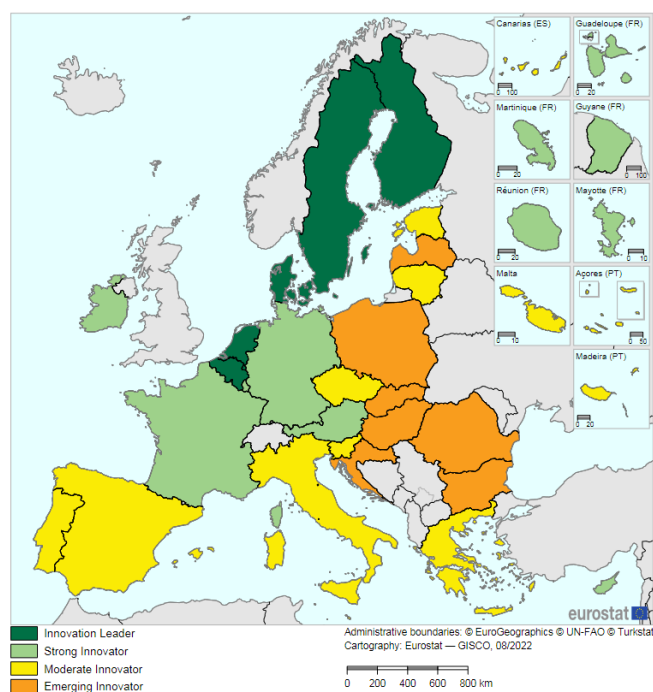


FIGURE 7 CLASSIFICATION OF COUNTRIES BY INNOVATOR STATUS IN 2022, EUROPEAN INNOVATION SCOREBOARD

Table 1: Measurement framework

FRAMEWORK CONDITIONS	INNOVATION ACTIVITIES
<ul style="list-style-type: none"> Human resources <ul style="list-style-type: none"> 1.1.1 New doctorate graduates (in STEM) 1.1.2 Population aged 25-34 with tertiary education 1.1.3 Lifelong learning Attractive research systems <ul style="list-style-type: none"> 1.2.1 International scientific co-publications 1.2.2 Top 10% most cited publications 1.2.3 Foreign doctorate students Digitalisation <ul style="list-style-type: none"> 1.3.1 Broadband penetration 1.3.2 Individuals who have above basic overall digital skills 	<ul style="list-style-type: none"> Innovators <ul style="list-style-type: none"> 3.1.1 SMEs with product innovations 3.1.2 SMEs with business process innovations Linkages <ul style="list-style-type: none"> 3.2.1 Innovative SMEs collaborating with others 3.2.2 Public-private co-publications 3.2.3 Job-to-job mobility of Human Resources in Science & Technology Intellectual assets <ul style="list-style-type: none"> 3.3.1 PCT patent applications 3.3.2 Trademark applications 3.3.3 Design applications
INVESTMENTS	IMPACTS
<ul style="list-style-type: none"> Finance and support <ul style="list-style-type: none"> 2.1.1 R&D expenditure in the public sector 2.1.2 Venture capital expenditures 2.1.3 Direct government funding and government tax support for business R&D Firm investments <ul style="list-style-type: none"> 2.2.1 R&D expenditure in the business sector 2.2.2 Non-R&D innovation expenditures 2.2.3 Innovation expenditures per person employed in innovation-active enterprises Use of information technologies <ul style="list-style-type: none"> 2.3.1 Enterprises providing training to develop or upgrade ICT skills of their personnel 2.3.2 Employed ICT specialists 	<ul style="list-style-type: none"> Employment impacts <ul style="list-style-type: none"> 4.1.1 Employment in knowledge-intensive activities 4.1.2 Employment in innovative enterprises Sales impacts <ul style="list-style-type: none"> 4.2.1 Medium and high-tech product exports 4.2.2 Knowledge-intensive services exports 4.2.3 Sales of product innovations Environmental sustainability <ul style="list-style-type: none"> 4.3.1 Resource productivity 4.3.2 Air emissions by fine particulates PM2.5 in Industry 4.3.3 Development of environment-related technologies

FIGURE 8 MEASUREMENT FRAMEWORK FOR INNOVATION PERFORMANCE, EUROPEAN INNOVATION SCOREBOARD 2022

3.1 NEEDS OF EMERGING AND MODERATE INNOVATORS

Each of the countries represented in the European Innovation Scoreboard [5] presents distinct characteristics, strengths, and weaknesses [6]. They therefore also present different needs in terms of policies and skills to become more proficient at innovating. However, some overall patterns can be identified that are common between the countries in these two groups. To identify the barriers and therefore the innovation needs, the emerging and moderate innovators that are represented within the ENTREPRENEDU project, i.e. Bulgaria, Greece and Italy and are examined more in-depth, and an analysis is presented of their strengths and weaknesses in regard to the European Innovation Scoreboard criteria, summarized in the table below (Fig. 3, Tab. 1).

TABLE 1. STRENGTHS AND WEAKNESSES OF SELECTED EMERGING AND MODERATE INNOVATORS. SOURCE: EUROPEAN INNOVATION SCOREBOARD (EC, 2022)

Country	Innovator Status	Relative Strengths	RELATIVE WEAKNESSES
BULGARIA	EMERGING	TRADEMARKS	HUMAN RESOURCES: LIFELONG LEARNING

		ENVIRONMENTAL TECHNOLOGIES DESIGN APPLICATIONS PRODUCT INNOVATION KNOWLEDGE-INTENSIVE SERVICES EXPORT	FINANCE AND SUPPORT: GOVERNMENT SUPPORT FOR BUSINESS R&D ENVIRONMENTAL SUSTAINABILITY: RESOURCE PRODUCTIVITY FIRM INVESTMENTS: INNOVATION EXPENDITURE PER EMPLOYEE USE OF INFORMATION TECHNOLOGIES: ENTERPRISES PROVIDING ICT TRAINING
GREECE	MODERATE	PRODUCT INNOVATIONS INNOVATIVE SMES COLLABORATING WITH OTHERS EMPLOYMENT IN INNOVATIVE ENTERPRISES SALES ON INNOVATIVE PRODUCTS BUSINESS PROCESS INNOVATORS	HUMAN RESOURCES: LIFELONG LEARNING ATTRACTIVE RESEARCH SYSTEMS: FOREIGN DOCTORATE STUDENTS USE OF INFORMATION TECHNOLOGIES: EMPLOYED IT SPECIALISTS FINANCE AND SUPPORT: GOVERNMENT SUPPORT FOR BUSINESS R&D SALES IMPACTS: MEDIUM AND HIGH-TECH GOODS EXPORTS
ITALY	MODERATE	PRODUCTIVITY PUBLIC-PRIVATE CO-PUBLICATIONS DESIGN APPLICATIONS BUSINESS PROCESS INNOVATORS GOVERNMENT SUPPORT FOR BUSINESS R&D	HUMAN RESOURCES: POPULATION WITH TERTIARY EDUCATION LINKAGES: JOB-TO-JOB MOBILITY OF HR IN SCIENCE & TECHNOLOGY FINANCE AND SUPPORT: R&D EXPENDITURE IN THE PUBLIC SECTOR VENTURE CAPITAL EXPENDITURES

There are several common themes that emerge from the in-depth analysis of the above-mentioned countries. First, the centrality of **education** is confirmed, with the need to improve education systems both at university level and for life-long learning which includes upskilling and reskilling the current workforce, as well as making the education systems more attractive to foreigners and thus creating an influx of highly educated human capital. The role of educational institutions matters also as a creator and disseminator of knowledge [7], which is a key ingredient for successful innovation. Another recurring theme is the **funding and financing** of innovation, be it through government-led financing or by private businesses.

However, this attribute is largely connected to a country's **absorptive capacity**, i.e., its capability to absorb public and private funding for innovation [8], which is ultimately determined by the quality of the **innovation ecosystem** [6], including the presence of companies that have innovation needs. Italy, Greece, and Bulgaria also score weakly on a measure of the **ease of starting a new business**, which negatively impacts the start-up scene and therefore also the translation of inventions into the market. In addition, the countries examined share a **lack of large private R&D spenders** and have a majority of **companies that are classified as non-innovators**. Indeed, deliverable 2.1 highlights how in these countries, support structures such as venture-building, acceleration and incubation services are much more essential in securing start-up funding and ensuring startups remain in the region.

The differing innovation performance of regions and their respective countries is also closely intertwined with economic performance and gaps between the regions as outlined in the 8th Cohesion report of the European Union [9]. Indeed, the countries with poor innovation scores are also those that produce less economic growth, and those that are often in a so-called "development trap", representing low growth for an extended period. Indeed, entrepreneurship and innovation are essential components of economic growth [10] [11]. However, these activities are often concentrated in large cities, and present very large gaps with rural areas [11]. For the above-mentioned countries, key policy recommendations include upskilling and reskilling the labor force by providing **education and training**, increase **investments in research and innovation** to improve the diffusion of innovation at national and regional level, the creation of **smart specialization strategies** at the regional level, to concentrate resources on building up excellence in certain industries, and **capitalizing on spillovers from international trade** and international value chains. Finally, the report highlights how the **twin digital and green transitions** may help to overcome some of the shortfalls of regions that are struggling with economic growth, for example by increasing productivity and citizen well-being [9].

Therefore, the key needs for moderate and emerging innovator regions can be summarized as follows:

- **Strengthen higher education systems**, especially in STEM-related subjects, to increase the skills of the workforce, to ensure re-skilling and upskilling of people already employed, and to attract qualified researchers into the country.
- **Strengthen links between higher education and firms**, to provide innovative ideas and technologies from research and contribute to companies' innovation activities.
- **Support ideas into becoming start-ups and scale-ups**, increasing the share of innovative ideas that goes to market.
- **Attract private and public funding towards innovative ideas**, especially funding made available from external and international parties.
- **Create innovation ecosystems** with universities, firms, funding agents and public institutions collaborating towards innovation outcomes.

- Strengthen international trade and **embed firms into international value chains and business ecosystems.**

3.2 ADVANTAGES OF HIGHLY INNOVATIVE REGIONS

Examining the different dimensions that make up the innovativeness score, there are several areas where the gap between the innovation leaders/strong innovators and the remaining regions are higher than others [5]. Therefore, moderate and emerging innovators may focus on these areas as priorities for improvement, at the same time striving to learn from those countries that are more advanced in this area. In particular, these include:

- **Use of information technologies and digitalization**
- **Environmental sustainability**
- **Attractive research systems**
- **Linkages**
- **Firm investment**

Therefore, collaborating between more and less innovative countries in these areas could help to bridge the gap in innovation capabilities that the less innovative countries are facing. The above-mentioned analysis once again points to the importance of the twin digital and environmental transitions as areas where different countries could collaborate and promote innovative and entrepreneurial activities. Since both the digital and environmental transitions involve cutting-edge technologies and require innovative solutions, a strong cooperation with higher education and research institutions, also abroad, may be beneficial to advancing less innovative countries' innovation efforts in these sectors, while contributing to the attractiveness of the countries' research activities. Since these sectors are attractive at the broader European level, as well as being the object of several EU-led funding schemes to promote innovation, a focus on these areas may also promote greater linkages between innovative research institutions and companies across Europe, thereby also improving the Linkages component of the scoreboard.

In line with the smart specialization strategy, emerging and moderate innovators should strive to increase their innovative activities by focusing on a subset of economic and industrial sectors that may provide a boost to their innovation activities. There may be several, starting from the digital and environmental sectors that have already been previously mentioned.

In the following section, we propose an overview of one such sector, indicating which features and dimensions make it especially attractive to increase national and regional innovativeness, while promoting entrepreneurial activities. Leading on from the analysis in the previous chapters, the technology areas that would be most appropriate for this type of endeavor should ideally promote and encourage people to study STEM fields, provide strong linkages between higher education and the workforce, support the creation of startups and scaleups, attract private and public funding, and promote the creation of innovation ecosystems and

international value chains. Ideally, it should also be a sector that is linked to the digital and environmental transitions.

While from an economic policy perspective, innovation systems had been framed at a national level, i.e., national innovation systems [12] [13], the innovation ecosystem approach has brought it down to a regional / local level [14]. The interactions between the actors of the ecosystem determine their effectiveness [15]. This highlights also the possibility of strong heterogeneity within national innovation systems paralleling arguments raised for entrepreneurial ecosystems. Therefore, it is appropriate to study specific, regional innovation ecosystems to understand the needs and opportunities.

3.3 CASE STUDY: MAPPING THE SPACE ECONOMY TO IDENTIFY KEY STAKEHOLDERS

One sector that respects the above-mentioned criteria is the so-called New Space Economy.

The space sector has recently seen a rapid growth of the private space industry in contrast to the government-run space programs that previously existed, also called “New Space”. New Space companies are typically driven by commercial opportunities and innovative approaches to space technology and exploration. The New Space industry encompasses a wide range of activities, including satellite manufacturing and launch services, space tourism, asteroid mining, and space-based internet services. New business opportunities and new players in the space industry are driving up the demand for STEM graduates that can fill an upcoming skills shortage in the industry. Space technology is high-tech, promoting the development of advanced skills in engineering and digital technologies, that can benefit society at-large, especially in regions with low innovation levels.

The New Space Economy is also one of the areas in which the EU’s industrial policy has focused on and that is receiving increasing public funding and support. For instance, the recently founded EU Space Agency (EUSPA) created in 2021 was endowed with a particular mandate to support SMEs and start-ups, promoting innovation across Europe [16]. In addition, the Copernicus Earth Observation program is one of the world’s most advanced and enables an in-depth monitoring and understanding of the environmental and social changes across the planet. The EU’s decision to provide full, free, and open access to all data for the creation of new downstream services has turned the program into an invaluable tool for researchers, policymakers, and businesses worldwide, fostering innovation and creating new opportunities for economic growth and sustainable development [17]. The IRIS2 (Infrastructure for Resilience, Interconnection & Security by Satellites) is a constellation for secure communications approved by the EU in 2022 with 2.4B€ budget, that will provide secure and encrypted communications across the EU [18]. Finally, individual countries are also benefiting from EU funding for innovative developments in space. For instance, Italy, a moderate innovator, has received 1B€ from the recovery and resilience funding, to build IRIDE, a small-sat constellation for environmental monitoring, disaster management, and infrastructure planning [19].

Space also attracts increasing amounts of private funding, for instance venture capital increased from 300m\$ in 2012 to 10B\$ in 2021 [20]. This represents huge funding opportunities if compared to the overall VC funding in Italy of about 2B\$ in 2021. In addition, the number of startups receiving funding has tripled between 2016 and 2020, showing a strong interest both from founders to pursue opportunities in this sector and from private investors to back these types of initiatives [21].

All the above-mentioned space-based services are also an essential backbone of the twin digital and sustainability transitions, providing both information and services to enable the transitions to advance successfully. Regarding sustainability, Earth Observation from space provides key data and insights on the status quo and the evolution of essential variables to monitor the causes and effects of climate change, including pollution levels in the air and in the water, land use, sea temperature and weather patterns [22] [23]. In addition, earth observation can be used to monitor and plan the use of natural resources, for example by identifying the most suitable areas for solar and wind plants, by monitoring rainforests, oceans, and other ecosystems to identify improper uses, and by highlighting changes in animal or vegetation populations [23] [24]. All the above-mentioned information can also be used to support sustainable development planning and execution, all the while promoting more sustainable practices from governments and industries [25] [26]. Regarding the digital transition, space-based services are essential infrastructures for secure and ubiquitous communications across the planet. For example, 5G networks will enable new applications such as IoT and the transition to Industry 4.0 by enabling many devices to connect to the internet and communicate at high speeds simultaneously [27] [28] [29] [31] [31]. Satellites also play an increasing role in providing secure communications and data encryption [32] [33] [34]. Finally, satellite constellations are gearing up to provide connectivity in rural and under-served areas, thereby boosting overall global connectivity [35] [36].

Finally, space companies are used to working in international collaborations on large, capital-intensive, and cutting-edge innovative projects within an innovation ecosystem. An example is the Copernicus program, the EU's flagship program for earth observation [17]. The program has seen the involvement of a host of actors, from space agencies to research centres to a host of private companies. The satellites have been built by Airbus Defence & Space (FR/DE), and Thales Alenia Space (FR/IT). OHB Systems (DE) has provided the platform for the satellites, while Telespazio (IT) and CGI (CA) provide the infrastructure for data storage and processing. A network of universities and research centers has established partnerships to organise the dissemination of data in every continent¹.

The support and promotion of innovation in any sector requires the involvement of the entire innovation ecosystem, including a diverse set of key stakeholders to support nascent initiatives. For this purpose, it is suggested that each initiative should map the stakeholders within the sector they wish to tackle, identifying key groups of actors. Indeed, ecosystem mapping is the first step in enabling local entrepreneurial ecosystems [37], thus creating a vision of future actions and possible strategies.

¹ <https://sentinels.copernicus.eu/web/sentinel/missions/international-cooperation/partners>

The following factors have an impact on the entrepreneurship and economic growth in a region [38]:

- **Formal Institutions.** that provide the necessary resources for a suitable business environment and support the ease of starting and managing businesses.
- **Entrepreneurship Culture,** networks, and ties between entrepreneurs foster information flow and stimulate the circulation of labor and capital. This is provided by networks and associations, conferences and fairs, universities and service companies
- **Infrastructure.** Physical and startup infrastructures are considered to have a direct impact on processes within the ecosystem and ease the accessibility of locations within the region and reach to the population.
- **Talent and Leadership.** Highly skilled workers and role models.
- **Finance.** Investment and finance support of risky ventures.
- **New knowledge.** The new market, technical, university and entrepreneurial knowledge, generated by public and private institutions or interactions with experienced founders and mentors, is another source of entrepreneurial opportunities.
- **Intermediate Business Services** Firms are necessary to assist entrepreneurial initiatives, lowering the barriers to entry for new business ideas and reducing time-to-market for new launches and innovation. These include accelerators and incubators.

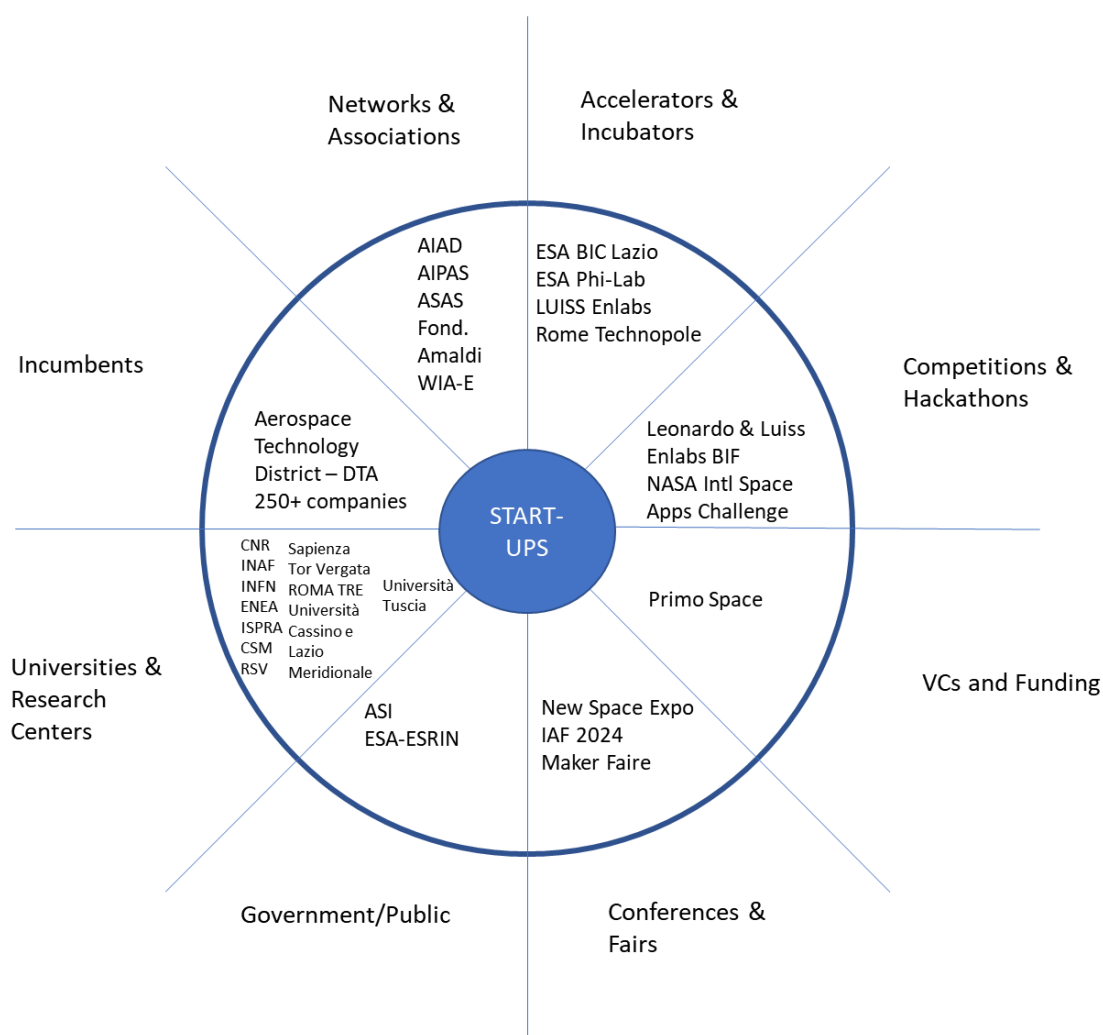
3.3.1 SPACE ACTIVITIES IN ITALY

Among the Entreprenedu participating countries, the New Space Economy could be particularly interesting for Italy, which has a strong history in the space sector and already sees the presence of a strong ecosystem which is well-poised to support new and innovative ideas.

The space sector has enjoyed decades of investment and growth, positioning Italy as one of the key players in the European and global Space landscape. Currently, the sector sees around 2B€ of yearly revenues, with over 400 companies from large players to start-ups, and more than 7000 highly qualified professionals mostly with a STEM background. The activities in the space sector are estimated to produce 7€ of returns for each 1€ invested. These are not only direct commercial outputs, but also important benefits in terms of research and innovation [39]. Therefore, the Space sector is one of the sectors that contribute to raise the overall innovativeness of the country as a whole.

Following from the analysis in the previous paragraph, the map of key space sector stakeholders in the Lazio region of Italy was identified as an example. It is recommended that a subset of these actors or of these categories of actors be involved in the upcoming Hackathons and the ensuing follow-up activities.

FIGURE 9 MAP OF THE LAZIO REGION IN ITALY'S ENTREPRENEURIAL ECOSYSTEM IN THE SPACE SECTOR



3.4 CONCLUSIONS

Countries that are low and emerging innovators have a series of common needs that can be addressed through entrepreneurial activities. Specifically, Venture-Building, which the Entreprenedu project is concerned with, is one of the activities that could support innovation in these countries. Indeed, Venture-building supports **ideas into becoming start-ups and scale-ups**, increasing the share of innovative ideas that goes to market. By giving startups credibility, it helps to **attract private and public funding towards innovative ideas**, especially

funding made available from external and international parties. It also favours or directly impacts the **creation of innovation ecosystems** with universities, firms, funding agents and public institutions collaborating towards innovation outcomes.

4 STAKEHOLDER IDENTIFICATION AND SURVEY

Following from the previous chapters and building on the key innovation needs of emerging regions, the following stakeholders are identified as potential sponsors of venture-building programs and startup support: universities, private companies, public institutions, and venture capitalists.

Universities are looking for ways to promote their third mission, building upon the knowledge they have created to exploit new opportunities with the wider regional ecosystem in which they are based. This is paramount in emerging and moderate innovators where strengthening higher education systems is one of the key recommendations to promote regional growth. Since the venture-building program will focus on student entrepreneurship, they will be essential actors in the ecosystem.

In addition, **private companies**, through their innovative endeavors, provide essential growth opportunities for regional innovation and provide also excellent outlets, through their collaboration with universities, for innovative ventures to achieve market reach. Indeed, many university programs provide connections to corporates to offer additional opportunities to students (see deliverable 2.1)

To support ideas in becoming start-ups and scale-ups, private and public funding towards innovative ideas is also paramount. Therefore, **Angel Investors** and **Institutions** also have a stake in participating and setting up venture-building programs, respectively as a business or as a societal benefit.

Indeed, several examples were found in both Italy and Greece of all four types of actors already involved in venture-building programs, with different degrees of involvement and motivation. In line with the startup studio model identified in Deliverable 2.1, the programs are examined based on the six key variables for venture-building programs: The Guild, The Control, The Idea, The Funding, The Volume, and The Focus (see deliverable 2.1).

The following table lists the actors interviewed and summarizes the details of the venture-building programs they were involved in².

Country	Stakeholder Type	Stakeholder Name	Venture-Building Program Name
Italy	Angel Investor	FoolFarm	FoolFarm
Italy	Angel Investor	WDA	WDA
Italy	Private Company	WDA	WDA
Italy	University	Università Roma Tre	Dock3
Italy	Institution	City of Rome	Casa delle Tecnologie Emergenti
Greece	University	University of Thessaly	Startup Greece
Greece	Institution	Municipality of Athens	THEA Accelerator

² The interview results are found in Appendix 1

4.1 VENTURE-BUILDING MODELS FOR STAKEHOLDERS

Each of the groups of stakeholders interviewed enabled us to create a model of their Venture-building activities as follows³:

Universities

Guild: Universities tend to compose teams from internal affiliates only (students, researchers, faculty, alumni), without providing external or expert CEOs and other key staff.

Control: Universities typically hold no control over the startups they create through venture-building

Idea: Idea generation is generally internal and is deputized to the students

Funding: Universities typically provide no funding for the startups, beyond some small awards (sometimes from external partners).

Volume: Universities tend to produce many businesses concurrently, to accommodate all the students with an entrepreneurial vocation. Out of all the groups built, there is an award at the end for a handful of the best ideas and executions.

Focus: Universities tend to be generalists in their focus, in line with their vocation as multidisciplinary institutions, but mirroring the disciplinary areas where their research efforts are present or strong.

Additional information: Universities often create these programs as part of their third-mission. The key metrics they mentioned were the number of startups created, the number of students participating in the program, and the market cap of all the startups created over time.

Institutions

Guild: Institutions rely on external participants to form teams, without providing key staff

Control: Institutions typically hold no control over the startups they support

Idea: Idea generation is typically external and is entirely up to the startups

Funding: Institutions may provide funding, but it's generally limited to seed capital or capital to sustain the acceleration phase.

Volume: Institutions tend to produce several businesses concurrently

Focus: Institutions tend to be generalist, while focussing on broad issues for the municipality or region where they are embedded (e.g. smart cities, transportation, tourism)

Additional information: Institutions reported wanting to accelerate local innovation and inject new technologies into the current ecosystem as their main motivation for creating a venture-builder. They rely on partnerships with key actors from the local ecosystem to create

Corporations

Guild: Corporations tend to provide all the staff internally from their company

Control: Corporations tend to maintain at least partial control over the startups they create through venture-building

³ See Appendix 1 for interview outcomes and Appendix 2 for coding examples

Idea: Ideas are created internally by employees and managers

Funding: Corporations typically provide seed funding for the startups and further funding for a subset.

Volume: Corporations typically focus on small to medium volumes

Focus: Corporations tend to have a more specialised outlook with a focus on their key markets and technological areas

Additional information: Corporations are looking to capitalize on internal under-used knowledge to open up new markets and new revenue streams. They often rely on external partners for the Venture-building program at least at the outset, because specialised knowledge is necessary to create a successful venture-builder. They fund the venture-building programs themselves.

Venture-Capitalists and Angel Investors (VCs)

Guild: VCs often provide the CEO and other key personnel in the venture. They typically look for professionals or researchers with technical expertise who need the complementary management expertise. They either personally participate in the ventures or look for capable managers within their personal network.

Control: VCs take a percentage of control of the final idea, to sustain their business model.

Idea: Ideas are typically scouted from the external landscape, both the professional world and the research and university sector.

Funding: VCs may provide their own funding to start-ups and seek to attract external funding from other VCs. In this case, credibility of the venture-building staff is critical to attract and retain funding sources. Credibility implies having already created successful businesses in the sectors they focus on.

Volume: VCs typically go for very low volumes, as the venture-building staff is personally invested in each venture and is part of the founding team.

Focus: VCs are often sector-specific and pursue a sectoral or even more narrow focus, where they are the most knowledgeable and credible.

Additional information: VCs and Angel Investors treat venture-building as a business, in which they obtain returns by providing all the building blocks to sustain great ideas. Their credibility is thus on the line with each new startup. They use their own funding, however, may also resort to external investors such as other VCs, banks, and private companies.

These actors especially report seeking ideas in more peripheral or less-served regions, where they reportedly can find original ideas and motivated individuals and where there is less “competition” from other startup support mechanisms such as accelerators and incubators.

Jobs-to-be-done.

In the case of these different stakeholders, there are very different jobs to be done for the venture-builder itself, which can be summarized as follows:

Universities: provide an entrepreneurial path for students, contribute to outreach and commercialization of internal ideas.

Institutions: Raise local innovativeness, boost well-being in the region, create jobs

Corporations: provide further avenues for business growth
Venture Capitalists: generate a revenue stream.

It's clear that there are many different models from which to support venture-building, stemming from different objectives that the stakeholders pursue. All the models can contribute to the expansion and strengthening of regional innovation and the creation of an entrepreneurial ecosystem, albeit from different perspectives.

A few important considerations that emerge from the interviews and analysis can be summarised as follows:

Most venture-builders are funded at least in part by the creators of the program, with potentially the addition of external funders. Therefore, sufficient internal funds and a clear investment strategy for the program and the startups is essential for a successful initiative.

Whereas Universities and institutions build on their position within society, private companies and venture-capitalists must build up credibility in their specific sector to be able to successfully pursue venture-building. The type of funding of venture building programs is a crucial issue also for its sustainability (which is not exclusively related to financial availability but to key stakeholders' decision preferences). If we draw from the analogy of acceleration programs and the emergence of corporate acceleration programs, we can get insights for potentially corporate sponsored venture building programs. Corporate acceleration programs tend to have a limited lifespan [40]. Continued funding might be subject to funding options, program expectations, corporate priorities and top management changes. The little existing evidence shows that there are no regional differences explaining the end of corporate acceleration programs. However, corporate acceleration programs with non-overlapping technologies (i.e., the technologies of the accelerated projects are distant from the corporates' core activities) as well as programs in research intensive industries last longer provided that the corporations have a patient investment strategy [41]. Thus, applied to venture building, a mix of private and public funding might be preferable to pure corporate sponsoring unless it is provided by venture capitalists.

However, creating a revenue stream from the startups themselves is only feasible when the venture-builders have very specific expertise and credibility in the creation of start-ups, stemming from successful exits they have done themselves, or when the startups use knowledge and ideas from the venture-building institutions (e.g., universities or private companies). In all other cases, the venture-building relies on public funding to sustain its operations.

There are two main strategies when it comes to the volume. Either a generalist approach is followed, that relies on large numbers of potential ventures that produce a few outlier success cases, or a very deliberate, focused strategy is enacted that only produces a few startups per year from the outset. Ultimately, however, both strategies result in a few start-ups per year going on to become businesses.

The most promising ideas will tend to gravitate towards the instances with most funding sources, and therefore towards venture capitalists and angel investors if they need venture-building expertise. Indeed, VCs and Angels report using ideas from universities or from established professionals to create new businesses, placing them in competition with universities and corporations for the best ideas and talents.

The more specific the focus of the activities, the more venture-builders must search outside the large cities and entrepreneurship hubs to find ideas and technologies to turn into new ventures. This is, however, an expensive endeavour and requires larger up-front capital endowments.

Also, the more focused the strategy, the higher the importance attributed to in-person activities for the venture-building process. While some stakeholders still performed some steps of the process in digital formats, they all agreed on the importance of in-person interactions for critical moments such as the team formation, coaching activities, and the graduation phase from the program.

Finally, in low to moderate innovation regions, it was easier to find universities and institutions engaging in venture-building, than private companies and VCs/Angel Investors.

5 CONCLUSIONS

Different countries are heterogeneous in terms of their strengths and weaknesses related to innovation, as well as their key capabilities. Countries that are less strong in their innovation efforts share a set of common needs, that are centered around strengthening education and research systems, boosting the creation and funding of innovating startups and of companies' innovation efforts, and embedding their companies in international innovation ecosystems and value chains. The Entrepredu project aims to organize a series of hackathons in moderate and emerging innovator countries as a precursor to creating a new venture-building program for moderate and low innovation regions.

Within these countries, there may be different stakeholders and different venture-building models associated with each stakeholder. Each stakeholder type has a distinct job-to-be-done for their venture-building program, that also informs the overall organization and structure of the venture-building program. According to the type of stakeholder and the objectives and success metrics of the venture-building program, different models may be more appropriate.

Rather than exploring entirely new sectors, the smart specialisation strategy would suggest focussing on emerging sectors that are building on the unique knowledge and skills that each country possesses, and leveraging these looking at future developments that could create new businesses, that could open the doors to international collaborations, and that could attract funding.

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APPENDIX 1 – INTERVIEWS STAKEHOLDERS

Interviewer Name and Affiliation	Paola Belingheri
Interviewee Name	Andrea Dal Piaz
Interviewee Title	Responsible for Dock3 – The Startup Lab
Interviewee Type (VC/Angel, University, Institution, Company)	University (Roma Tre)
<p>Questions and feedback:</p> <p>1. Describe how the venture-building program works</p> <p>Every year a call for individual applications is issued, looking for students, graduates and researchers from any university at EU level, who either have a business idea or are interested in entrepreneurship. Applicants submit a CV and motivation letter. 100 participants are selected on the basis of experience, motivation, interdisciplinarity and early application.</p> <p>The participants have one month to attend team-building sessions and come up with interdisciplinary teams of 3-5 students and a business idea.</p> <p>There are around 20 teams who then undergo lean startup training: Customer discover, MVP, Lean Metrics, pitch preparation and pitch practice</p> <p>Finally the best 10-15 groups are admitted to the Demo Day in front of a jury of investors who selects the best three ideas. They typically receive a cash prize from the VCs themselves or from external partners (such as Lazio Innova, the innovation agency of the regional government)</p> <p>Teams must found the company to redeem the prize money</p> <p>A community is created out of all participants and winners (circa 50 people per year are added)</p> <p>2. What type of startups does it cater to? (e.g. specific technology or sector, specific groups)</p> <p>There are no restrictions on the sector or type of startup idea proposed for the program.</p> <p>3. Where is the venture-building program based, is it online or in presence?</p> <p>There are several parts of the program such as the team-building, the business definition workshop and two pitch trials that are held in-person, the rest is remote.</p> <p>4. Why was there a need to set up the venture-building program? Who benefits?</p> <p>There were many students interested in entrepreneurship but no path for them to get there</p> <p>5. Who is funding the venture-building program and what do they get in return?</p> <p>The initiative was a bottom-up independent initiative of the university's professors. It is entirely funded through European Projects funding. Private investors don't contribute</p>	

to the program but only directly to the startups, or give in-kind support such as teaching workshops or coaching the teams. The University has never contributed funding to the initiative.

6. Any other useful information

The original vehicle used to set this up was an NGO founded by the organizers, it was active from 2005 to 2015. This is a future step. Every year at least one of the startups gets seed funding. The combined capitalization of the firms created through the program since 2005 is roughly 50M€.

Interviewer Name and Affiliation	Paola Belingheri – Luiss
Interviewee Name	Andrea Cinelli, Alessandro Giaume
Interviewee Title	Founder and CEO of FoolFarm
Interviewee Type (VC/Angel, University, Institution, Company)	Angel Investors

Questions and feedback:

1. Describe how the venture-building program works

FoolFarm is a startup factory. Its aim is to roll out new companies built from scratch every three months.

The program starts with a technology or an idea, which may come from a university or from their own internal R&D – they have a competence centre with more than 100 competences. They recruit a CEO, which is more like a project manager, and take them through a SCRUM-based three-month cycle where they build the company and the team. This embryonic company is then pitched to investors and only those that raise at least 150k then found the startup and enter a 12-month cycle of building up the product and getting traction, followed by a final funding round before they become independent.

During the 15 months, the CEO is a project manager, and the development of the company is very closely controlled like in a factory setting.

The model echoes that of the Italian “bottega dell’arte” where Cinelli and Giaume, both veteran entrepreneurs, act like the masters that are passing on the art of being entrepreneurs. They work with every single company in batches of 4-5 every 3 months. The FoolVillage concept is instead targeting universities, where the same model is applied to students with promising master theses in the deeptech space.

2. What type of startups does it cater to? (e.g. specific technology or sector, specific groups)

FoolFarm is vertically embedded in the deeptech sector and its applications. They have a program for professionals and another that targets students that have interesting master theses that can become startups.

3. Where is the venture-building program based, is it online or in presence?

The venture-building program is strictly in presence. They currently have two physical spaces, 1500sqm in Milan and another in Lecce. They also do popup instances, especially with students, in other PERIPHERAL cities such as Sassari, Trento, Bolzano, etc.

This is especially important for their model. They realized that the major return comes from cities where there is a huge number of students that usually end up emigrating because there is no future (e.g. in Lecce 99% of students emigrate after their studies). Here there are bright students that are hungry for a future near their hometowns and are willing to go the extra mile to build complex startups. There is also a lack of opportunities in terms of accelerators/incubators and general entrepreneurial knowledge and resources.

The venture-building program not only helps the startups along, but also builds the ecosystem in the locations, drawing on their sponsors, their network of investors, their funds and they are now building a 50M€ investment vehicle ATLAS SGR.

4. Why was there a need to set up the venture-building program? Who benefits?

In Italy there was a lack of both the knowledge and the ecosystem components to build complex and high-tech startups. However, university research is of great quality and therefore there was a need to bridge the gap between the birth of the company and the myriad of acceleration and incubation programs that exist.

Indeed, if you look at university graduates becoming entrepreneurs, in the USA it's close to 10%, in Germany it's 5-6% and in Italy we're at 1% and they are mostly family members of entrepreneurs.

The FoolFarm and FoolVillage concepts were born to tap into this potential and transform it into business opportunities. The founders see this both as a concrete business but also to transform the Italian landscape and bring innovation to more peripheral and decentralised locations, especially in the south of Italy-seeing as the large cities such as Milan, Rome, Bologna are already in a much better position.

5. Who is funding the venture-building program and what do they get in return?

The venture-building program is built up as a private for-profit company that foresees to go public in 2027. Current investors include KPMG (consulting), CRIF, Banca IBL, Family offices, Salini (Corporate) and another 30 smaller investors. They are on board for the financial gains, as the firm has now built a portfolio of roughly 30M€ in valuation.

6. Any other useful information

The model can be extended to other areas of the globe where there is a lack of entrepreneurial competences, and they are currently looking for an international partner to help with this.

When going to decentralised places, it's fundamental to think about building the entire ecosystem and not just the startups.

There is currently a lack of training of professional figures that can work in venture-building programs and know how to build companies. This is something that business schools should think about.

Interviewer Name and Affiliation	Paola Belingheri, Luiss
Interviewee Name	Roberto Macina
Interviewee Title	Co-Founder WDA
Interviewee Type (VC/Angel, University, Institution, Company)	VC/Company

Questions and feedback:

1. Describe how the venture-building program works

WDA has the aim to create digital companies across different markets, operating on behalf of different type of "Originators": Professionals, SMEs and Corporates. For professionals and SMEs, the VB Program takes digital ideas and builds a company around them. For corporates, they set up and run entire intrapreneurship programs, helping the internal ideas become successful spin-offs outside the corporation. The Originators are all in-depth and senior industry experts (average age 45 years old), so they bring the technical expertise, while the VB Program will validate the idea and complete the team with more managerial competences.

WDA is a venture-building company that operates according to the stage-gate model in three phases:

1 Benchmark: verifying whether there is a need and a market that is large enough for the proposed idea.

2 Designing and validating the MVP

3 Execution: that brings the startup to its creation and launch on the market

In total the program lasts 18-24 months.

2. What type of startups does it cater to? (e.g. specific technology or sector, specific groups)

The startups are all digital companies based on digital ideas, although no specific industrial sector is targeted.

3. Where is the venture-building program based, is it online or in presence?

The program is offered in blended mode either online or in presence in Rome

4. Why was there a need to set up the venture-building program? Who benefits?

This VB Program was set up as a business, to provide venture-building as a service and to be profitable for the co-founders. In Italy there is still a cultural gap w.r.t venture-building, which makes it an interesting challenge and implies there is a large untapped potential.

5. Who is funding the venture-building program and what do they get in return?

The Originators themselves are currently funding the program. Each idea that is run through the program needs to pay a one-time fee and gives up a 15% ownership stake in the company in favour of WDA. In addition, the Corporates pay a separate fee for the creation and management of the venture-building program.

WDA was unable to secure funding in the form of an investor fund to attach to their program. Therefore, the startups pursue funding independently, and WDA offers them access to their network.

6. Any other useful information

You need to have “credibility” if you want to run a Venture-Building program that attracts investors. Therefore, you need to have deep knowledge of the sector in which the startups are operating, and you need entrepreneurial experience.

If you don’t have funding handy, it’s very difficult to tap into ideas from outside the large cities, as the founders will have much more difficulties in securing funding rounds.

In addition, companies from smaller centres tend to have less visibility of mainstream market trends and sectoral trends so they tend to propose more niche ideas that have so far been rejected.

Universities have a huge untapped potential for venture-building programs, but you need funding to tap into that, as it will be much harder to get outside VCs for a university-based team.

Interviewer Name and Affiliation	Emanuele Viglierchio
Interviewee Name	Paolo Di Giamberardino
Interviewee Title	Funzionario servizi ICT presso Roma Capitale
Interviewee Type (VC/Angel, University, Institution, Company)	Institution

Questions and feedback:

1. Describe how the venture-building program works

First of all, it has to be said that this is the attempt of a public institution which is the closest to a venture building program, despite it is not working as a typical one. CTE360 was not only pursuing the purpose of creating startups tackling severe challenges for the PA, but also deals with technology transfer from SMEs to PA. In this scenario, the program aims at providing the best matchmaking.

The Casa delle Tecnologie Emergenti di Roma (CTE of Rome) is an innovation space coordinated by Roma Capitale and the development of the innovation ecosystem and the experimentation of solutions related to emerging technologies and applications of 5G. To guarantee the achievement of its objectives, the project has been designed and

is being developed thanks to a public-private-scientific partnership involving the following actors

- University partners: Sapienza University of Rome, Luiss Guido Carli, University of Rome Tor Vergata, University of Rome Tre;
- Technical partners: Innova srl, LVenture Group spa, Peekaboo srl;
- Corporate partners: Acea, WINDTRE, TIM.

Initially, there had to be the following structure in the programme:

- Phase 1 (X-Labs): 12 students from the partner universities get selected after an initial open call. They build up teams to respond to one (or more) of these challenges Rome is facing: Mobility/Transportation; Energy, Telcos, Infrastructure & Industry/Manufacturing; Earth & Wellbeing.
- Phase 2 (Docktraining): Training about the following topics: - Lean Management , problem identification; customer discovery; qualitative interviews; Lean Metrics; MVP; Business Model; Investor pitch
- Phase 3: Further support (seminars, mentoring, hackathons).

The change in the administration of the city hall has slightly moved the plans of the program, which has now worked as it follows:

- Phase 1: there has been a federation of services between X-Labs from Luiss and Dock3 from Roma Tre.
- Ideas which are eager to continue the journey until the PoC can publicly apply for a further program and are onboarded in “Accelera Impresa”, a 3-months-program, intermediated by LVenture and Peekaboo.

The first experience has ended in June and has got 5 startups interacting with the public administration.

Concerning the program for the technology transfer, the steps are designed as follows:

- Universities provide their portfolios of technologies, patents and know-how.
- SMEs participate to an open call where they apply by identifying one or more tech which may help to improve their solution to the challenges faced by the city.
- Innova starts a training with the SMEs accepted after the screening to provide knowledge about:
 - Design & Prototyping

- Legal mentoring

- The first program for tech transfer started in June and has led 6 SMEs to work through the program with Innova.

To be completely honest, despite this tech transfer program started to be focused on the city challenges, it opened up its borders and now we are having a company building drones and one making IoT access control systems enrolled in it.

2. What type of startups does it cater to? (e.g. specific technology or sector, specific groups)

- The startups needed to be composed by complementary skilled people, coming from different partner universities. The focus was anyway “agnostic”, given the respect for the challenges focus: Mobility/Transportation; Energy, Telcos, Infrastructure & Industry/Manufacturing; Earth & Wellbeing.

3. Where is the venture-building program based, is it online or in presence?

It is thought to be as physical as possible, while online is not forbidden anyways. The location chosen is at Stazione Tiburtina, where an innovation space has been opened for all the participants. It does not work as a completely open space for anyone. You need to get accepted by the receptionist, who can check you're part of the programme.

4. Why was there a need to set up the venture-building program? Who benefits?

The need was for mainly two reasons.

- Roma Capitale does not have an innovation function in its organizational chart. A venture building program which narrows its focus on the main challenges of the town, is a way to address this problem.
- The absence of a formal tool for the matchmaking of SMEs solutions to current challenges which Roma Capitale is facing gives room for a programme for SMEs as well which target the tech transfer issue.

5. Who is funding the venture-building program and what do they get in return?

In order to fund the project until 2024, there has been a funding of approximately €6 ml.

These funds have mainly come from:

- MISE, now the “Ministry for Business and Made in Italy”
- A direct investment made by Roma Capitale
- Corporate investments by TIM, Acea and Wind)

Besides the cost of the education and training, funds have been heavily invested in the infrastructures (innovation spaces to be renovated, leased) and the cost of personnel.

6. Any other useful information

Interviewer Name and Affiliation	Achilleas Barlas, Project manager
Interviewee Name	Eleni Foti
Interviewee Title	Director
Interviewee Type (VC/Angel, University, Institution, Company)	Chamber-Municipality

Questions and feedback:

How Does the Venture-Building Program Work?

THEA Accelerator deploys a multi-faceted approach to venture-building, featuring a time-bound program that spans approximately six to twelve months. The journey commences with an exhaustive selection process that assesses venture viability, innovation, and potential impact. Subsequent phases encompass comprehensive training modules, mentorship from industry experts, and an opportunity to pitch before an array of investors. This integrated architecture ensures that ventures are nurtured holistically, from inception to market readiness.

Who Is It Addressed To?

Our program is inclusive but concentrates on startups and entrepreneurial endeavors within the Athenian community. As a co-initiative with the Municipality of Athens, we hold a special focus on engaging local entrepreneurs, SMEs, and civic organizations. Nevertheless, we also welcome participation from the broader Greek and European entrepreneurial ecosystem.

Sectoral Focus

THEA Accelerator accentuates sectors that align with the strategic objectives of both the Athenian community and contemporary market demands. Specifically, we target

social entrepreneurship, sustainable tourism, and technology-oriented **solutions**. The decision to focus on these sectors stems from their alignment with Athens' development goals and the prospective long-term impact they may engender.

Mode and Locale of Delivery

We employ a hybrid model that harmonizes online and in-person activities. The in-person interactions are hosted at our dedicated facility in Athens, which boasts contemporary amenities and technologies conducive to entrepreneurial growth.

Motivation for Establishment

The primary impetus for launching THEA Accelerator emanated from a joint desire of the Municipality of Athens and our stakeholders to bolster the local entrepreneurial landscape and address civic challenges through innovation. The initiative aims to serve as an incubator of ideas that can drive economic resurgence and contribute to sustainable development.

Funding Mechanisms

Financial underpinning for THEA Accelerator is sourced from a synergistic blend of public and private funds. As a co-founded venture, a significant proportion of our budget is subsidized by the Municipality of Athens. Additionally, we receive grants, donations, and contributions from private investors, NGOs, and various European Union funding mechanisms.

Interviewer Name and Affiliation	Achilleas Barlas, Project manager
Interviewee Name	Yeoryios Stamboulis
Interviewee Title	Ass, Professor
Interviewee Type (VC/Angel, University, Institution, Company)	University

Questions and feedback:

This program was meticulously crafted to align with both contemporary business trends and the academic integrity that UTH is renowned for. Below is a thorough exposition of the program's operational architecture, targeted demographics, sectoral focus, delivery mode, origination, and funding mechanisms.

How Does the Venture-Building Program Work?

The venture-building program is organized in a phased manner, spanning an approximate period of six to twelve months. It commences with a rigorous selection process, followed by training sessions, mentorship programs, and culminates in an investor pitch day. The curriculum is structured to incorporate experiential learning, seminars, workshops, and frequent evaluations to optimize venture feasibility and scalability.

Who Is It Addressed To?

This program aims at serving a diverse constituency, including but not limited to undergraduate and postgraduate students, alumni, and faculty of UTH, as well as external entrepreneurs. Moreover, we entertain participation from early-stage startups that exhibit the potential for sustainable growth and significant societal impact.

Sectoral Focus

While the program adopts an inclusive stance, there is a pronounced emphasis on high-tech sectors such as artificial intelligence, biotechnology, and sustainable energy. The rationale behind this focus is multifold; these sectors are not only at the vanguard of contemporary entrepreneurial discourse but also resonate with UTH existing research capabilities.

Mode and Locale of Delivery

The program operates in a hybrid model, offering both online and in-person components to ensure accessibility and quality of engagement. Physical activities are primarily hosted at Volos, outfitted with state-of-the-art facilities to facilitate venture development.

Motivation for Establishment

The program was conceived in response to a burgeoning entrepreneurial ethos within the university and the wider Greek economy. The intention is to serve as a conduit for innovative ideas and to bridge the gap between academia and industry, thus fostering a sustainable entrepreneurial ecosystem.

Funding Mechanisms

Financial sustenance is derived from a consortium of stakeholders, which includes UTH funds, governmental grants, and private-sector partnerships. We are continually in the process of securing additional funding from venture capitalists, angel investors, and other institutional partners to scale the program and broaden its impact.

APPENDIX 2 – INTERVIEW CODING

The following table shows which interview questions were used to inform the different parts of the Venture Building model.

Question	Guild	Control	Funding	Volume	Focus	Job to be Done
Describe how the venture-building program works	X	X		X		X
What type of startups does it cater to? (e.g. specific technology or sector, specific groups)					X	
Where is the venture-building program based, is it online or in presence?					X	
Why was there a need to set up the venture-building program? Who benefits?						X
Who is funding the venture-building program and what do they get in return?			X			X