



D2.1 INVENTORY OF THE SUCCESS CASES AND GO-TO-BUSINESS SCENARIO



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Authors	Christian Lechner, Federica Brunetta, Chiara Bartoli
Reviewers	Eleonora Lombardi, Ina Todorova, Achilleas Barlas
Abstract	<i>THE AIM OF THE ENTREPRENEDU PROJECT IS TO CLOSE THE INNOVATION AND EDUCATIONAL GAP BETWEEN DIFFERENT REGIONS OF THE EU, CAUSING UNBALANCED BUSINESS ACTIVITY AND FEWER JOB OPPORTUNITIES IN LESS DEVELOPED ENTREPRENEURIAL ECOSYSTEMS. THIS REPORT SPECIFICALLY FOCUSES ON THE CURRENT SCENARIO, AND PROVIDES EXAMPLES OF SUCCESS CASES WHILST DESCRIBING THE EUROPEAN CONTEXT AND GO-TO BUSINESS SCENARIO. HOWEVER, A CLEAR UNDERSTANDING OF ENTREPRENEURSHIP IS NECESSARY TO AVOID HASTY CONCLUSIONS LEADING TO ERRONEOUS POLICY MEASURES. THIS IS WHY THE REPORT SPENDS LARGE EFFORTS IN FRAMING THE CONTEXT AND RELATE IT TO THE PROJECT OBJECTIVES.</i>
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EXECUTIVE SUMMARY

The aim of the ENTREPRENEDU project is to close the innovation and educational gap between different regions of the EU, causing unbalanced business activity and fewer job opportunities in less developed entrepreneurial ecosystems. This report specifically focuses on the current scenario, and provides examples of success cases whilst describing the European Context and go-to business scenario. However, a clear understanding of entrepreneurship is necessary to avoid hasty conclusions leading to erroneous policy measures. This is why the report spends large efforts in framing the context and relate it to the project objectives.

The report is divided in four main sections.

It initially depicts the presence of a power law distribution within entrepreneurship and delves into the potential effects it may have in hindering or fostering robust entrepreneurial ecosystems, underlying the pivotal role of innovative educational models.

Then, it focuses on the Role of Incubation, Acceleration Programs, Venture Building Programs, i.e. entrepreneurship support structures at large, in different geographical areas and attention is devoted to exploring their roles in facilitating startup financing, recognizing the variances in effectiveness based on regional disparities.

Since understanding how to strengthen entrepreneurial education for students, particularly in the European scenario, is a pivotal element for the development of the ENTREPRENEDU project, the report then proceeds with an inventory of success cases, examples and descriptions of the current scenario of Education and Student Entrepreneurship in Europe, underlining the necessity of fostering an environment conducive to student entrepreneurship.

Finally, given ENTREPRENEDU's aim to create an highly replicable and scalable Venture Building Program, it also describes the role of acceleration and venture building programs in Europe and describes the potential go-to business scenario.

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1. INTRODUCTION: POWER LAW DISTRIBUTION IN ENTREPRENEURSHIP AND ITS IMPLICATION FOR ENHANCING ENTREPRENEURIAL ECOSYSTEMS VIA INNOVATIVE MODELS FOR EDUCATION

1.1 CONTEXT OF ENTREPRENEDU

In recent years, student entrepreneurship has emerged as a dynamic force driving innovation and economic growth worldwide. A vital part in stimulating entrepreneurship are entrepreneurial support structures such as incubator, accelerator or venture building programs (VBP, when we refer here to support structures, we refer to acceleration and venture building programs and viceversa). The premise of ENTREPRENEDU is that there is a lack of structured VBP in low- to mid-innovative regions and, thus, also in their respective entrepreneurial ecosystems and that access to resources might be difficult.

Despite policy efforts globally to set up support structures, most of them do not produce the desired results [1]. Understanding their effectiveness is therefore crucial. Student entrepreneurship includes all entrepreneurial activities started by students while pursuing their education at universities or college or within a couple of years after graduation. Although some could imagine student entrepreneurship confined into something purely theoretical, some of the most nowadays worldwide known companies were founded by students. Few examples include Facebook, created by Mark Zuckerberg during his studies at Harvard, the computer company Dell, started by Michael Dell and his roommates at the University of Texas, and Google, started by a Stanford PhD student, Larry Page [2]. Moreover, student entrepreneurship is more frequent than academic entrepreneurship - understood as new ventures started by researchers or professors - with comparable outcomes [3]. Therefore, fostering student entrepreneurship is an important policy objective. From this perspective, support structures that equip students with the necessary capabilities to start new ventures might be a strong driver for entrepreneurship even if the understanding of their effectiveness is not very developed [4].

As for any practical actions, such as the development of a replicable venture-building program, as foreseen by ENTREPRENEDU, for regions with low and medium levels of innovation, it is crucial to assess the context in which these actions are situated and how this context can affect their effectiveness. The ultimate objective is to facilitate the creation of student-driven startups. These startups are intricately woven into their respective entrepreneurial ecosystems, relying heavily on the resources provided by these ecosystems. The importance of the geographical location, or territory, in influencing the competitiveness of entrepreneurial firms has long been recognized [5,6]. Entrepreneurial ecosystems represent these territories, encompassing institutions that promote the emergence and support of new businesses, unite individuals with innovative capabilities, and stimulate entrepreneurship [7–11], as described in figure 1 [12].

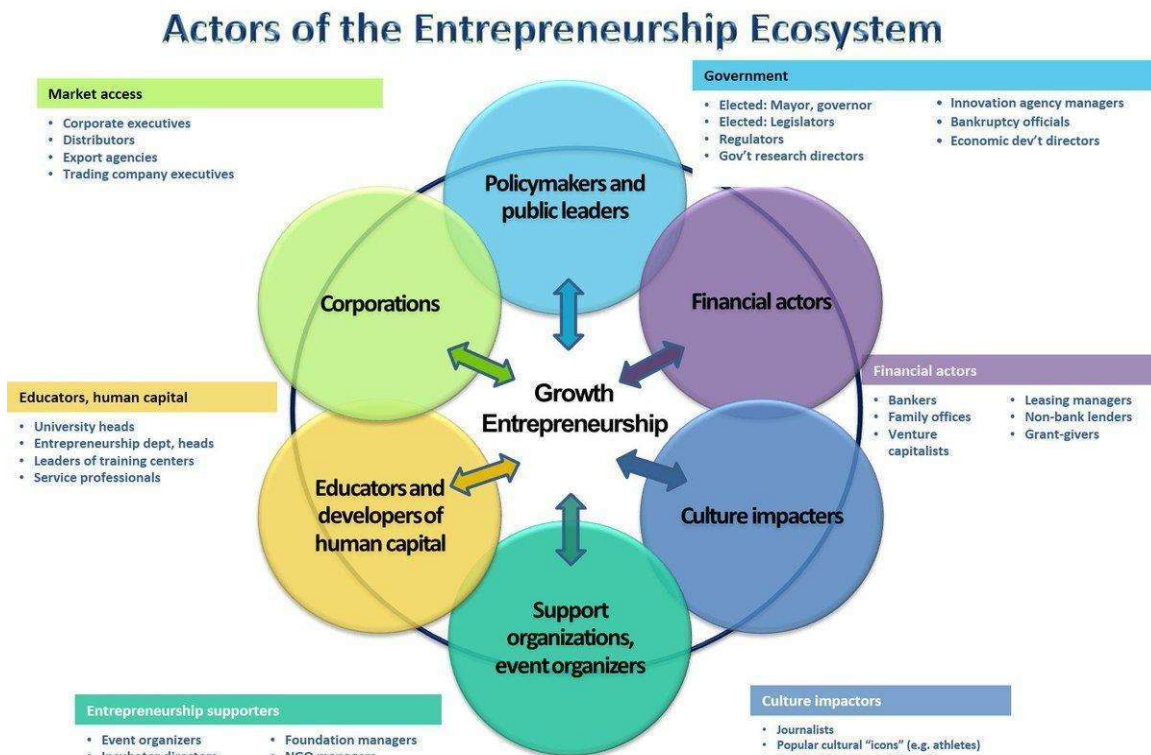


FIGURE 1 DOMAINS OF THE ENTREPRENEURSHIP ECOSYSTEM. SOURCE: ISENBERG, 2016

While this concept has proven its relevance in the study of startups, it's essential to recognize that there are notable differences between various entrepreneurial ecosystems [13]. The concept of an entrepreneurial ecosystem encompasses a network of interconnected entrepreneurial actors, including companies, business angels, and universities, as well as entrepreneurial processes such as creation rates and entrepreneurial spirit, all of which contribute to the performance within a local entrepreneurial environment [8,9,11,14,15]. This ecosystem perspective underscores the central role played by entrepreneurs and can be seen as an extension of concepts like industrial districts, clusters, and learning regions [16,17]. However, the primary goal of an entrepreneurial ecosystem is more specific: it is to nurture embryonic firms and promote entrepreneurship [7,13,18].

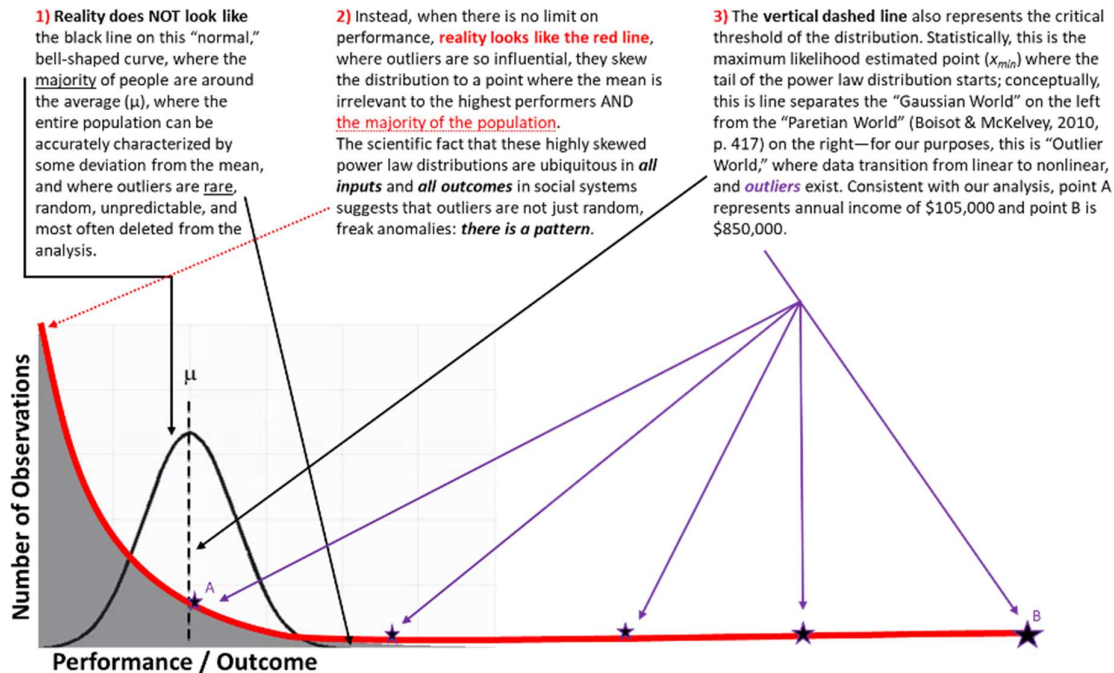
Entrepreneurship fundamentally operates as a collective phenomenon that links entrepreneurs to local resources. The local dimension plays a pivotal role in the development of the entrepreneurial ecosystem [19,20]. An entrepreneurial ecosystem presents an opportunity for startups, serving as a reservoir from which various actors can draw the resources they need [13,19]. Consequently, entrepreneurial ecosystems should aim to assist fledgling and less robust players in becoming more competitive within their respective markets of reference [21].

1.2 POWER-LAW DISTRIBUTION (PLD) IN ENTREPRENEURSHIP

Creating startups is entrepreneurship. The world of entrepreneurship is best expressed by a power-law distribution (PLD); while this might sound like a statistical pleasantry, it has relevant theoretical and practical implications. Figure 2 [22] gives an illustration of PLD vs Normal Distribution. The most influential elements in a PLD are outliers.

Outliers are defined as:

- 1) Something that is situated from or classed differently from a main or related body
 - 2) A Statistical observation that is markedly different in value from the others in the sample
- [23]



Source of underlying figure: Crawford, Aguinis, Lichtenstein, Davidsson, & McKelvey (2015) Power Law Distributions in Entrepreneurship: Implications for Theory and Research. *Journal of Business Venturing* 30(5) pg. 697.
This article also provides information about the statistical technique for calculating the distribution's critical threshold.

FIGURE 2: POWER LAW DISTRIBUTIONS IN ENTREPRENEURSHIP.
SOURCE: CRAWFORD ET AL. 2015

Outliers can take the form of individuals, companies, institutions, or events that deviate significantly from the norm, wielding an outsized influence and often standing as exceptions to the general rule. These outliers exhibit inputs and outcomes that diverge notably from the broader population, whether in quantitative or qualitative terms. For example, figures like Bill Gates with his \$65 billion net worth, Apple's staggering ~\$2.5 trillion market capitalization, Steve Jobs' "reality distortion field," or Elon Musk's Space X all serve as examples of outliers. These outliers are wellsprings of high creativity, altering our expectations of what's achievable by uniquely creating and uncovering innovative approaches to common challenges, whether in the form of new knowledge, processes, technology, or companies. In the field of entrepreneurship, comprehending the

mechanisms governing the emergence of outliers and their subsequent nonlinear impact on the broader environment is of paramount importance. Nevertheless, existing theories seldom acknowledge the existence of outliers, and these theories have been tested using methods built on assumptions that appear untenable in our globally interconnected and interdependent world, such as the assumption of normally-distributed inputs and outcomes, linear relationships among variables, and the exclusion of outliers to diminish their significance.

Research has demonstrated that most socially constructed phenomena in entrepreneurship and the broader field of management follow a power-law distribution. In the past, discussions of non-normality in the natural sciences and mathematics often centered around the power-law distribution [24]. This concept was later embraced by the social sciences [25,26], subsequently influencing management research [27,28] and eventually permeating the field of entrepreneurship [22]. This phenomenon extends from the individual level to the organizational level. Individual performance typically follows a non-normal distribution with a heavy right tail in various professions, industries, and types of individual output measures [27,28]. These studies have consistently shown the non-normality of individual output distributions in a wide range of fields, including academic disciplines, the entertainment industry, literature, music, politics, sports, and various other occupations. Outliers, whether they are the result of a power-law distribution or act as drivers of it, exert a disproportionately substantial impact on creativity, innovation, and entrepreneurship.

What mechanism underlies the emergence of power-law distributions and, by extension, outliers in entrepreneurship? Power-law distributions arise from a fundamental and underlying pattern of emergence, punctuated by critical points [29]. In these distributions, the data exhibit a pronounced skew to the right. Figure 3 [26] illustrates a typical power-law distribution when data are plotted on conventional scales. Here, the majority of observations cluster at the lowest values on the X-axis, with very few observations extending to the far end of the X-axis. This distribution resembles a child's slide on a

playground. The same data are presented in Figure 3b, but when plotted on logarithmic scales, it reveals a noteworthy feature: the negative slope of the power-law tail on the right side of the horizontal dotted line, which, in empirical data, consistently appears as a straight line. Although the power-law distribution's distinctive tail is so prevalent in social systems that it has been dubbed "spooky" [30], and been discovered a little more than a decade ago [22,31–36].

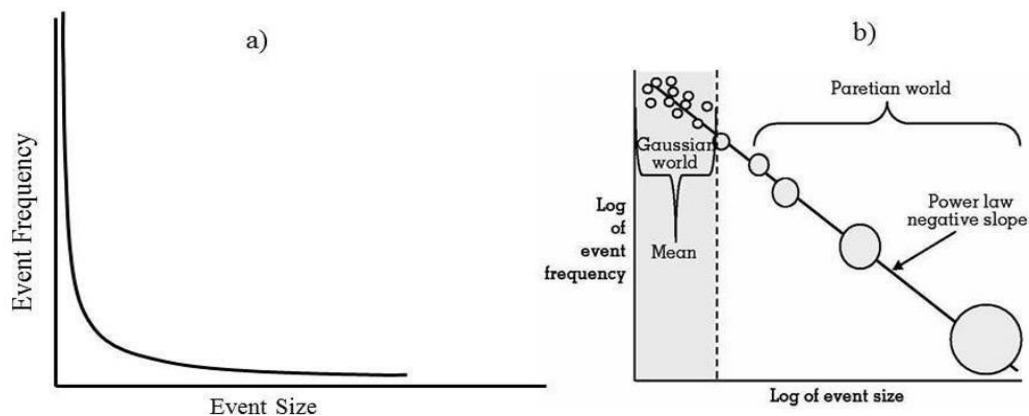


FIGURE 3 POWER LAW DISTRIBUTION ON LINEAR SCALES; B) POWER LAW DISTRIBUTION PLOTTED ON LOG-LOG SCALES. SOURCE: BOISOT AND MCKELVEY, 2010

1.2.1 PLD AND THE RELEVANCE FOR ENTREPRENEDEDU

Why does PLD matter for entrepreneurship, the setup of entrepreneurship programs, Acceleration Programs or New Venture Building Programs?

First, the objective of entrepreneurship policy should be the generation of outliers. Four of the five most valuable companies in the world (Alphabet, Amazon, Apple, Microsoft) have been startups not more than 40 years ago. The interest of European policy in entrepreneurship was driven by its job creating potential and input for growth. This concept is not new, as it is widely recognized that startups are critical to advanced economies and that Venture Capital (VC) is the key tool to support them. This belief is supported by studies going back as far as the 1980s with Birch's research [37] in the United

States and at least three decades of data from the Global Entrepreneurship Monitor and other more recent studies (see [38] for a systematic literature review).

STARTUP CREATION, GDP AND EMPLOYMENT

It is undeniable that startup creation contributes to GDP growth and employment growth. In the U.S., any decline in startup creation raises policy concerns. However, it should be noted that most startups and young companies fail to thrive and create jobs sustainably. Only a small percentage of these firms grow rapidly and are a significant contributor to job growth: they are called “gazelles” [38]. Birch's research from 1981 underscores the remarkable job-creating capacity of smaller firms. He notes that between 1969 and 1976, approximately two-thirds of all new jobs were generated by businesses with 20 or fewer employees. Furthermore, between 1976 and 1982, firms boasting fewer than 100 employees were responsible for a staggering 82 percent of job creation. Additionally, a distinguishing trait of these job creators is their youth, with around 80 percent of these new jobs originating from establishments aged four years or younger. This dynamic shift reveals that large corporations are no longer the primary engines for job creation in the United States [37].

Moreover, Birch and Medoff [39] highlight the distinct nature of these job-creating entities, referred to as "gazelles," which often transition rapidly between small and large scales. Categorizing them solely by size overlooks their unique attributes, characterized by significant innovation and rapid job growth. Another significant finding, highlighted by the Birch and Medoff study, is that a small fraction (just 4 percent) of ongoing firms contributes to a disproportionately large share of new job creation in the United States (70 percent). These gazelle companies, celebrated for their dynamic nature, play a pivotal role in job generation and enhancing competitiveness [40]. Lee [41] also emphasizes their significance in driving economic growth. However, a study by Bos and Stam [42] presents a contrasting view, suggesting that the entry of gazelle companies fuels industry growth but doesn't necessarily reciprocally boost the growth of these very firms, challenging the notion that industry growth directly spurs the growth of gazelles.

SCALE-UPS

In a related and more recent development, the concept of scale-ups has gained prominence. "Scaling" is the process through which firms achieve exponential growth by expanding, replicating, and synchronizing resources and practices over time [43]. To delve deeper into the entrepreneurial landscape, it's crucial to recognize that a significant portion of startups don't make it past the initial five years, with most failing to create jobs. Only a small fraction receives venture capital (VC) funding, and an even smaller fraction achieves the status of "scale-ups." An even minute fraction makes an exit, either through mergers and acquisitions (M&A) or initial public offerings (IPOs), while just a handful achieve "unicorn" status. Gazelles, notable for their role as significant job creators, stand out by generating a substantial share of new net jobs. These companies are typically characterized by their youth and relatively smaller size compared to other firms, with their youthful vigor being the primary driver of their rapid growth [44]. As revealed by the European Scaleup Monitor in 2023, consistent scale-ups constitute a minority. Starting from the OECD's 2021 framework, which initially defined "Scalers" as companies achieving an average annualized growth of over 10% per annum over three years, this group comprises roughly 12% of European companies. Raising the growth threshold to 20% annualized growth over three years, in line with the widely accepted definition of High-Growth Firms (HGFs), reduces the pool of growing European companies to 4%. Significant change occurs when the sample is further refined to identify companies consistently achieving 20% or greater growth for at least two out of three years, leading to the formation of "Consistent HGFs," representing only 1% of European companies. In this realm of Consistent HGFs, there is a slight predominance of Mature HGFs, which are older than 10 years, over their younger Gazelle counterparts. Delving even deeper, companies experiencing 40% growth or more for at least two out of three years, known as "Consistent Hypergrowers," make up a mere 0.29% of European firms. Within this final category of Hypergrowers, Scaleups (companies younger than 10 years) and their older counterparts, referred to as Superstars, are distributed relatively evenly [45].

POWER-LAW DISTRIBUTION EVIDENCES

In summary, high-impact firms, which are of particular interest in entrepreneurship policy, exhibit a power-law distribution [46]. This trend is mirrored at the individual level, where inputs are also power-law distributed. An individual's, a team's, or a venture's initial endowments, including human capital, social capital, intellectual capital, and financial capital, all follow power-law distributions [22]. Furthermore, individual expectations for growth, as a proxy for human experience (i.e., human capital), tend to exhibit power-law characteristics, as demonstrated in the study by Crawford et al. [22]. Additionally, human action, encompassing the number of activities undertaken and the time invested by entrepreneurs in the pursuit of creating a new venture, follows a power-law distribution, reflecting the recursive pattern of interaction and engagement [47]. Finally, organizational environments are also depicted as power-law distributed in more than 200 empirical studies, encompassing various aspects such as corporate growth rates, industry market capitalization, and the size of corporate supply chains [22,25]. Another noteworthy observation is the power-law distribution of venture capital investment in startups, covering VC investment, fund returns, and VC returns [48]. Economic activity tends to concentrate in clusters [49], further emphasizing the prevalence of power-law distributions in the entrepreneurial landscape.

In any case, support programs cannot decouple the existence of outliers for the development of the programs as those actors are the driving force of the economy while aiming at low numbers of startups might lead only to a series of underperforming firms.

1.3 THE MEANING OF PLD FOR ENTREPRENEURIAL ECOSYSTEMS IN LOW TO MODERATELY INNOVATIVE REGIONS

As a first conclusion, the creation of outliers is a big number game and requires the creation of many startups. We need more entrepreneurship. One of the main implications of PLD is that increasing the probability for outliers matters, and that the mean is meaningless. It appears evident that at least a part of innovative firms are spin-off from universities or startups using transferred university technology; in this sense, technology

revenues of universities or research institutes are an indicator how well those institutions are performing. With the objective of understanding the relevant scenario for ENTREPRENEDU, we start by looking at Italy and Europe, where we get a similar picture if we look at the differences of the means. See Tables 1 and 2.

Table 1 [50] gives the numbers for all Italian universities and research institutions and compares it with the top five institutions. The main difference for Italy is in the number of contracts by the institutions while the average revenue per license does not appear to be so relevant.

	Average Italy	Top 5 - Italy
Average number of technology transfer contracts per year per institution in 2020	1,7	14,0
Average of active licenses in portfolio in 2020 per institution	18,5	154,2
Average of total revenues from technology transfer per institution	46,600 €	546,500 €
Average revenue per technology license	3,400 €	3,661 €

TABLE 1 : DATA COMPILED FROM RAPPORTO NETVAL, 2021

However, if we compare these figures with some global top performers in Table 2 [51] , we get a different picture.

	Fraunhofer (Germany)	Imperial College (UK)	Stanford U (USA)
Number of patents per year	631	152	550
Average revenue per technology license	260,000 €	740,000 €	690,000 €

TABLE 2: DATA FROM CDP REPORT 2023 - FOCUS IMPATTO

The Global top performers are doing far better than the Italian. However, how can we explain this difference? The main difference is not that on average any innovation of the top performers are doing much better than the average group but that those top performers have at least one blockbuster. While visiting and interviewing three of the top performing institutions (Weizmann Institute, Israel; Technology Transfer Office at Columbia University, New York, USA; Max Plank Innovation, Germany), all interviewees confirmed that any institutions with license income of more than € 100 million per year depended on one to a maximum a handful of outliers that generated almost entirely their revenues while most of the IP of those institutions was basically making no impact at all.

Moreover, the reputation of these institutions that generate blockbusters attracts investors. So if we consider the ratio of university spin-offs, we find that 86% of the spin-offs of Stanford University and 73 % of Imperial College are financed by VC compared to only 15% of the Top 5 - Italian institutions (CDP, 2023). The combination of having created an outlier with following attractiveness for investors further increases the probability of creating additional outliers.

All else being equal, the likelihood that extremely successful startups are created is related to few more engaged and endowed individuals, financed by a small number of investors and started in a small number of places. However, the vast majority of startups are insignificant.

Here is some illustrative evidence:

Tödtling showed already in the 1990's that biotech clusters in the USA emerged around the top universities (even as shown below the fate of their TTO depends on continuously producing a few outliers). Firms (Figure 4 [52]) are located especially around the top universities in the Boston area, in California and Texas while some activity in Georgia in agro-biotech can be traced back to the University of Georgia, in Utah to the University of Utah and so forth [52–54].

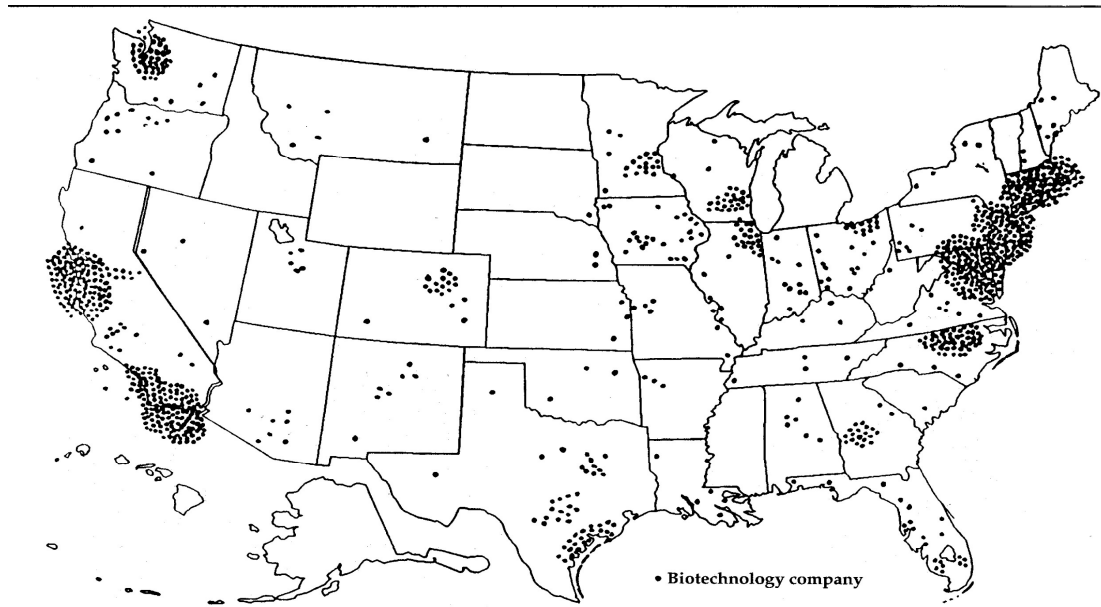


FIGURE 4 BIOTECH CLUSTERS IN THE USA. SOURCE: PREVEZER 1998.

If we take the rates of innovative startups in Italy in 2021 (Figure 5), the highest number of startups was founded in Milan, then in Rome (representing one half of Milan) and then Naples (representing half of Rome) showing a relatively clear PLD. They are funded by a limited number of VC's.

Number of startups in Italy 2021, by province

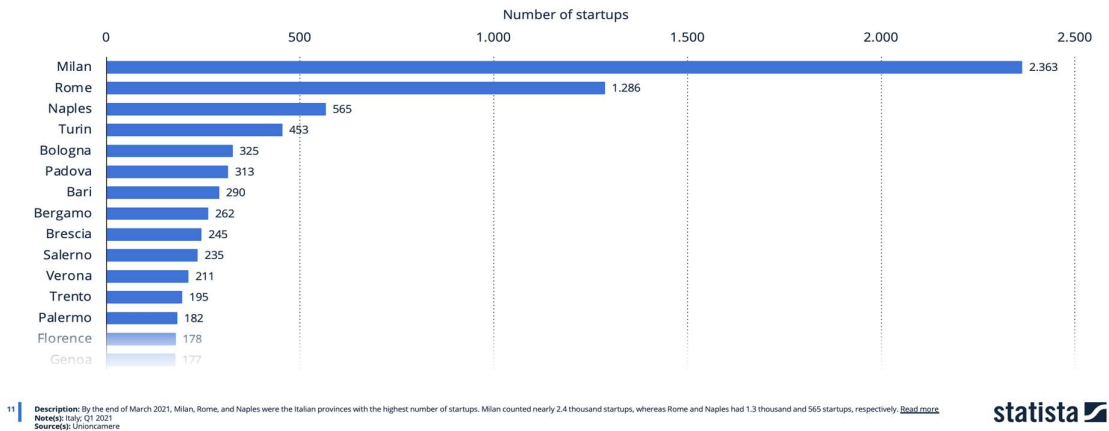


FIGURE 5: NUMBER OF STARTUPS IN ITALY. SOURCE: STATISTA, 2021

Startup Blink, an organization ranking entrepreneurial ecosystems that take into account multiple criteria (quantity score, quality score,...), has developed a Global Startup Ecosystem Index Score ranking cities and countries. The quantity score goes beyond just counting startups; it encompasses the presence of supporting organizations that offer resources, networking opportunities, and access to capital. This score rates the ecosystem's activity by considering factors such as the quantity of startups, investors, coworking spaces, accelerators, and startup-related Meetups, with data sourced from both Global Data Partners and the data featured on the StartupBlink Global Map. The quality score is determined by various factors, including total private sector startup investment, the number of startup employees, the presence and scale of unicorns and exits above \$1 billion, startup traction metrics, the presence of international tech corporations' strategic branches and R&D centers, exit valuations under \$1 billion, the number and size of global startup events, startups accepted by leading global accelerators, and market capitalization of listed tech companies. Finally, the Startup Business Environment score primarily evaluates country-level parameters as national infrastructure, policies, and regulations that affect all cities in a nation. Elements considered encompass the diversity index,

internet speed and cost, internet freedom, R&D investment, availability of technological services, English proficiency, passport strength, startup or nomad visa availability, corporate tax rates, labor laws favoring startups, corruption perception index, and the presence of top universities in each location. Figure 6 shows the scores of the top 15 cities in the world [55].

Rank	City	Country	Rank Change (from 2022)	Total Score
1	<u>San Francisco</u>	United States	—	546.427
2	<u>New York</u>	United States	—	223.407
3	<u>London</u>	United Kingdom	—	127.426
4	<u>Los Angeles</u>	United States	—	116.943
5	<u>Boston</u>	United States	—	103.337
6	<u>Beijing</u>	China	—	99.019
7	<u>Shanghai</u>	China	—	67.567
8	<u>Bangalore</u>	India	—	64.232
9	<u>Paris</u>	France	+1	57.477
10	<u>Tel Aviv-Yafo</u>	Israel	-1	56.774
11	<u>Berlin</u>	Germany	+1	48.356
12	<u>Seattle</u>	United States	-1	48.190
13	<u>New Delhi</u>	India	—	44.560
14	<u>Tokyo-Yokohama Area</u>	Japan	+1	44.067
15	<u>Chicago</u>	United States	-1	38.352

FIGURE 6: TOP 15 CITIES, GLOBAL STARTUP ECOSYSTEM INDEX SCORE. SOURCE: STARTUP BLINK, 2023

Milan is ranked No. 66 with a score of about 9800 points, Rome is not in the top 100. Again, even the score follows a PLD.

To illustrate further the difference, the startups in the city of Tel Aviv alone collected in 2021 \$ 20 billion about 10 times more than the VC investment in all Italy in 2021:

Value of capital raised by Tel Aviv companies in Israel 2017-2021

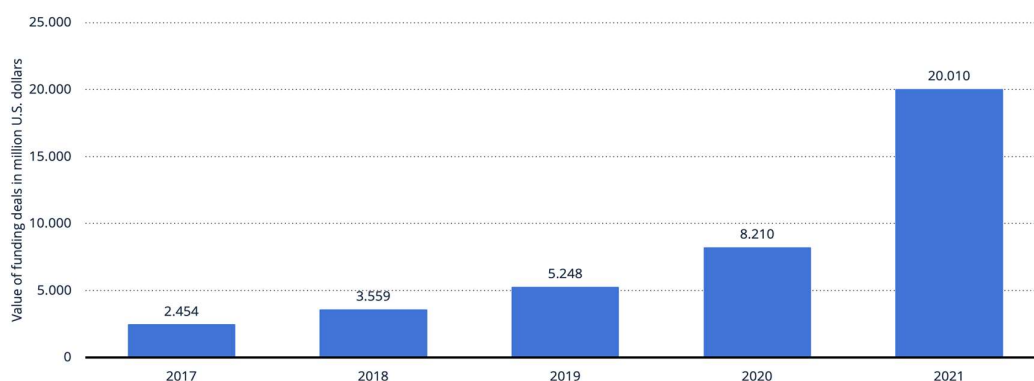


FIGURE 7: VALUE OF CAPITAL RAISED BY TEL AVIV COMPANIES IN ISRAEL, 2017-2020. SOURCE: STATISTA, 2022

1.4 IMPLICATIONS OF PLD FOR ENTREPRENEURIAL ECOSYSTEMS

In conclusion, a substantial portion of variables within the realm of entrepreneurship follows a power law distribution (PLD). This includes factors like VC (venture capital) investment, the outcomes of VC investments, and the strengths of entrepreneurial regions, all of which exhibit PLD characteristics.

These evidences have a pivotal importance for ENTREPRENEDU, whose aim is to enhance entrepreneurial ecosystems. One crucial assumption underpinning entrepreneurial policy is the endeavor to balance entrepreneurial activities between highly innovative regions and less innovative ones by reinforcing research and development (R&D) initiatives and fostering the growth of deep-tech startups. However, this approach runs counter to the pervasive nature of PLD in entrepreneurship. In specific ecosystems, often referred to as "hubs," startups benefit from more abundant resources, encompassing human capital, social networks, and financial support, as well as tailored entrepreneurship programs, among other advantages.

While it remains vital to foster entrepreneurship through dedicated programs, it becomes increasingly evident that there exists a compelling need for the development of new hubs. So, in general terms, the level of entrepreneurship needs to be raised in low- to mid-innovative regions in Europe. More importantly, it is imperative to tap into the potential of talent residing in the peripheries of entrepreneurial ecosystems or in peripheral entrepreneurial ecosystems and make them participate and give them access to resources available in more advanced ecosystems. This can be through the offering of dedicated entrepreneurship programs where they are lacking. Furthermore, robust connections need to be established between these peripheries, or "spokes," and the existing hubs. Connecting highly innovative regions with less innovative regions is one way to do so. On a broader European scale, it may be necessary to facilitate the transition of mid-innovative regions towards high-innovative status, but the primary focus should be on bridging the gap between low-innovative regions and their high-innovative counterparts by connecting them. This interconnected approach holds the potential to not only stimulate entrepreneurial growth but also promote a more balanced and collaborative entrepreneurial landscape.

As we have seen, the world of entrepreneurship and venture capital investments are characterized by an economic phenomenon known as the power law distribution. In simple terms, this means that few startups receive a disproportionately large amount of funding, creating only a few exceptionally successful investments. In essence, this means that, excluding the most successful cases, the majority of startups face significant challenges in securing investors and large stakes of funding.

While established entrepreneurial ecosystems, such as Silicon Valley in the United States, have long been centers of innovation and investment, there is a growing realization of the need for more diverse and regionally distributed hubs, and developing these regions in Europe. These areas often possess abundant human capital, valuable local resources, and unique market opportunities. By fostering new entrepreneurial hubs in these regions,

Europe can encourage economic growth, and empower the next generation of student entrepreneurs.

Creating new entrepreneurial hubs in developing regions involves several crucial elements:

- a) Educational Infrastructure: Establishing strong ties between educational institutions and the entrepreneurial ecosystem is vital. Universities and colleges can play a pivotal role in nurturing student entrepreneurship by offering courses, mentorship programs, and access to research facilities.
- b) Access to Capital: Facilitating access to early-stage funding is essential for budding student entrepreneurs. Governments and private investors can support these initiatives by providing seed capital, grants, and funding opportunities tailored to the needs of student startups.
- c) Networking and Collaboration: Building a network of like-minded individuals, mentors, and industry experts is essential for students to gain insights, refine their ideas, and access potential customers or partners. Collaborative spaces, incubators, and accelerators can serve as catalysts for such connections.
- d) Supportive Policies: Government policies that encourage entrepreneurship, such as tax incentives, simplified regulations, and intellectual property protection, are crucial for attracting investment and fostering innovation in developing regions.

The following work will focus on the role of incubators, accelerators, and new venture building programs in different countries in Europe, investigating the possibility of developing new entrepreneurial hubs, particularly in developing regions of Europe, improving students' entrepreneurship through entrepreneurial education programs. The analysis will explore venture building programs best practices worldwide and propose a framework with principal elements of an effective VBP. While research on acceleration programs has produced a solid body of knowledge [56], the evidence on venture building

programs as the more recent phenomenon is still scarce. Therefore, studying the evidence of accelerations programs and analogical reasoning for venture building programs appears to be an appropriate approach.

2. THE ROLE OF INCUBATION, ACCELERATION, VENTURE BUILDING PROGRAMS IN DIFFERENT GEOGRAPHICAL AREAS WITH A FOCUS ON FINANCING STARTUPS

2.1 OVERVIEW OF STARTUP FINANCING

The financing of startups is a crucial aspect to promote the development and growth of new innovative enterprises, and stands at the basis of success of programs to enhance entrepreneurial ecosystems, as in ENTREPRENEDU's aim. Increase in venture capital allocation to a region increases its economic growth and innovation [57]. One of the most critical aspects of a startup's success is initial and ongoing funding, as significant investment may be required to develop the product, launch operations, and accelerate growth. As we know, startups can access a variety of funding sources, each with specific advantages and requirements. Below is a brief recap of the main funding options available to startups [58]:

- **Internal Funding:** Some startups begin with internal funding, that is, with personal resources from the founders or family and friends. This type of funding can be useful in the early stages but may not be sufficient to support significant growth.
- **Business Angels Financing:** Business angels are high net worth individual investors who invest money in startups in exchange for equity or equity stakes. These investors can also provide valuable experience, expertise, and mentorship.
- **Funding through Crowdfunding or Crowdinvesting:** These online platforms allow a large number of people to invest relatively small amounts of money in the startup, usually in exchange for a product, service or small equity stake. This form of funding can help build a base of supporters and customers early on.
- **Venture Funding (Venture Capital):** Startups that have a promising business model and high growth potential can attract investment from venture capitalists. These investors provide capital in exchange for an ownership stake in the startup and seek a high return when the company succeeds. Venture financing is often one of

the most significant sources for startups, as it can provide substantial funds to expand the business.

There are many other ways to obtain funding, among them are Incubation, Acceleration Programs and Venture Building Programs [4]. These programs offer support, mentorship, and resources to help startups develop and grow faster, preparing them for access to further funding. Funding through incubation and acceleration programs is one of the funding options available to startups, especially during the early stages of their development. These programs offer more than just financial support and can play a crucial role in contributing to the success of startups. Moreover, those programs make startups VC-investment ready and can provide access to follow-up investments.

Focusing on funding, the influence of incubation and acceleration programs can vary according to different geographic areas and the level of innovation present in each region. The effectiveness of such programs may depend on a few factors, including the economic and cultural environment of the regions in which the startups operate [59].

Highly innovative regions: In areas with a highly innovative and entrepreneurial developed environment, startups may benefit from incubation and acceleration programs, but they may also have access to alternative sources of funding, such as private investors, venture capital, and investment funds. In these regions, the presence of support programs can provide an added advantage to startups, but it is not the only determining factor in obtaining funding.

Medium-innovative regions: In these areas, incubation and acceleration programs may play a more fundamental role as traditional sources of funding may be less available or accessible. Such programs can bridge the gap by providing a platform to connect startups with investors and resources, thereby increasing their chances of obtaining funding.

Low-innovative regions: In areas with a less developed entrepreneurial ecosystem and few available funding sources, incubation and acceleration programs can be critical. Their

presence can help break down barriers to entrepreneurship by providing financial and non-financial support to emerging startups.

It is important to note that the presence of incubation and acceleration programs in some geographic areas may not have any significant influence on startup funding. The importance of incubation and acceleration programs for accessing funds can vary from one country to another due to a combination of economic, cultural, and structural factors. Indeed, little is known about the effectiveness of these support structures [4]. Below we will delve into a few countries.

2.2 COUNTRY EXPLORATION AND THE ROLE OF SUPPORT PROGRAMS FOR FINANCING

In order to better understand the scenario and reflect on success cases, we selected Belgium as a small, top performing country in the European Innovation ScoreBoard 2023 [60], Germany and France as strong innovators, and Italy and Spain as moderate innovators.

2.2.1 BELGIUM

Belgium, being a small country with a small internal market, has a strong export orientation, a successful track record of attracting foreign investment and policies dedicated to innovation. In this economic and cultural context, incubation and acceleration programs play an important role in the startup ecosystem for several reasons:

a. Economic Environment:

- **Diverse Economy:** Belgium has a diversified economy with strong sectors such as technology, healthcare, and logistics. However, startups often require early-stage funding to grow, and incubation and acceleration programs can provide the necessary support in securing these initial funds and making startups export ready.

b. Investor Landscape:

- **Investor Diversity:** Belgium has a mix of traditional investors, such as banks and venture capital firms, as well as an increasing number of angel investors and corporate venture capital. While there is investor diversity, startups often need guidance and networking opportunities to connect with the right investors. Incubation and acceleration programs offer these connections [61].

c. **Cultural Factors:**

- **Networking and Collaboration:** Belgian culture values networking and collaboration. Incubation and acceleration programs provide a structured environment for startups to build these connections, which can be vital for attracting funding and partnerships.

d. **Bureaucracy and Red Tape:**

- **Regulatory Environment:** Belgium, like many European countries, has a regulatory environment that can be challenging for startups to navigate, especially in sectors like healthcare and fintech. Incubation and acceleration programs often offer legal and regulatory guidance, making it easier for startups to meet compliance requirements [62].

e. **Access to Resources:**

- **Shared Resources:** Startups in Belgium, particularly in cities like Brussels and Antwerp, benefit from shared workspaces, incubation facilities, and access to research institutions. These resources can significantly reduce costs for startups, making them more appealing to investors. Belgium also clustered R&D in a reduced number of strategic research centers aiming at world class.

f. **Validation and Credibility:**

- **Startup Validation:** Investors in Belgium, as in other countries, look for startups with a strong value proposition and a validated business model. Being part of a

reputable incubation or acceleration program can provide this validation and increase the confidence of investors.

g. International Connectivity:

- European Location: Belgium's central location in Europe makes it an attractive place for startups looking to expand internationally. Incubation and acceleration programs often have connections to European markets, which can help startups access a broader pool of investors.

h. Skill Development:

- Entrepreneurial Education: Belgian universities and institutions offer entrepreneurship programs, but incubation and acceleration programs provide hands-on experience and mentorship. These programs help founders develop the skills needed to succeed in the startup world.

With the specific factors and challenges in Belgium's startup ecosystem differ from those in Italy, incubation and acceleration programs continue to be vital for accessing funds. They provide startups with valuable resources, networking opportunities, regulatory guidance, and skill development, all of which are crucial for attracting investors and achieving growth in the Belgian market and beyond [63].

2.2.2 GERMANY

Germany is an example of a country where the presence of such programs may not be the main determinant of startups' access to funding (Report from the Federal Environment Agency - Umweltbundesamt). Among the reasons we can include:

- Developed Economic Ecosystem: Germany is a major European economy with a mature and developed business environment with a large internal market. This means that German startups can have a wide range of funding sources available in addition to incubation and acceleration programs. Indeed, the majority of venture capital investments

are centered around Germany, France, Benelux, and the Nordic region, primarily directed towards their capital cities. This geographical focus, especially in later-stage deals, leads to a significantly imbalanced distribution of unicorns, both nationally and regionally. A few key hubs, including Paris, Berlin, Stockholm, and Amsterdam, experience a high concentration of these successful startups [64].

Strong investor presence: Germany is a major venture investment (venture capital) hub in Europe. There are numerous venture capital investors active in the country, ready to back startups with high growth potential. This rich presence of private investors offers startups solid alternatives for funding [65].

Access to European Financial Markets: Germany's central location in Europe facilitates access to European financial markets. German startups can attract investment from across Europe, as well as from domestic investors. As an evidence of this, some of the recent years have been characterized by a relevant increase in the influx of foreign capital into German startups. 2019, for instance, reported an influx rise of 48% , mainly guided by the mega rounds of GetYourGuide, N26, Auto1Group, Frontier Car Group, Omio, wefox, infarm and Raisin [66].

Entrepreneurial Culture and Innovation: Germany has a well-developed entrepreneurial culture and innovation environment. This entrepreneurial culture fosters access to resources and opportunities for startups, as well as encouraging the creation of new companies [67]. Nonetheless, the vast majority of impactful entrepreneurship is concentrated in Berlin and Munich.

Government Support: While incubation and acceleration programs may be available in Germany, there is also strong government support for startups. Government authorities can offer grants, tax breaks and other incentives to encourage the development of new businesses. An example of such an open approach is the German Research Allowance Act (*Forschungszulagengesetz*), introducing a federal R&D subsidy, was passed in 2019.

According to this Act, a tax-free subsidy of 25% of salaries and wages for certain R&D purposes shall be guaranteed up to a limit of EUR 500,000 *per annum* [68].

Germany is a country with a developed entrepreneurial environment, a strong venture investment ecosystem and an innovative culture (Publications from the German Venture Capital Association - Bundesverband Deutscher Kapitalbeteiligungsgesellschaften - BVK). As Germany has been one of the first countries in continental Europe with dedicated entrepreneurship policies and as the development of support structures began later, entrepreneurial activities and the emergence of venture capital in Germany has developed in absence of these support structures. Although incubation and acceleration programs may be present and offer added value to startups, emerging German companies also have many other funding opportunities available to them. As a result, the presence of such programs may not be the key element that significantly influences startup funding in Germany.

2.2.3. FRANCE

The French entrepreneurial ecosystem has developed later than the German but with an accelerated pace, reaching similar levels of VC investment.

- **Talent Pool:** France is known for its strong educational system and a well-educated workforce. It has a large pool of skilled engineers, scientists, and professionals, making it easier for startups to find and attract top talent, whom accelerators and VCs can onboard in their programmes.
- **Innovation Ecosystem:** France has a thriving innovation ecosystem with numerous research institutions, universities, and technology hubs. Cities like Paris, Lyon, and Toulouse are known for their vibrant startup scenes and collaborative environments.
- **Government Support:** The French government has implemented various initiatives and policies to support startups. This includes tax incentives, grants, and funding programs to encourage innovation and entrepreneurship. Government initiatives

like Bourse French Tech have helped take away a bit of the burden by covering up to 70% of eligible company expenses for entrepreneurs. Since Bourse French Tech first launched, over 3,000 startups have enjoyed the benefits of this government grant [7].

- **Access to European Market:** France's strategic location in Europe provides startups with easy access to a large and diverse market of over 500 million consumers within the European Union. This can be a significant advantage for startups looking to scale their businesses.
- **Further Investment Opportunities:** France has a growing venture capital ecosystem, and investors are increasingly interested in backing innovative startups. Additionally, there are numerous angel investors and corporate venture capital firms looking to invest in promising ventures.
- **Incubators and Accelerators:** France boasts a wide range of startup incubators and accelerators across various industries. These programs provide startups with mentorship, resources, and access to funding opportunities [69].
- **Global Tech Companies:** Several global tech giants have a significant presence in France, including Google, Amazon, Facebook, and Microsoft. This presence can create partnership opportunities and attract tech talent to the region.
- **Supportive Infrastructure:** France has a well-developed infrastructure, including transportation networks, business-friendly regulations, and access to co-working spaces and innovation hubs.
- **Quality of Life:** France offers an excellent quality of life, making it an attractive destination for both local and international entrepreneurs. This includes a strong healthcare system, cultural amenities, and a high standard of living.

Diversity and Inclusivity: France is making efforts to promote diversity and inclusivity in the startup ecosystem, creating opportunities for underrepresented entrepreneurs and fostering a more inclusive environment. From a temporal perspective, the French entrepreneurial ecosystem has developed alongside the support structures. The first support structures, regional tech incubators, had actually been set up by the State in a

top-down approach even if they were subsequently subject to various, local transformations [70]. Therefore, support structures had been an integral part of the French entrepreneurial ecosystem.

2.2.4 SPAIN

The Spanish entrepreneurial ecosystem is relatively young but emerging. The very first incubator, in Spain, Fivelab, was created in 2007 (Velasco, 2017). According to the Social Impact Monitor, in 2019, there were more than two hundred incubators, mainly in the regions of Madrid, Andalucía, Cataluña, and País Vasco [71] More than half of the incubators have been established since 2012 with a peak in 2014 and 2015.

Incubators and accelerators are pivotal to startup financing in Spain and their success is due to several factors:

a. Entrepreneurial environment:

The incubation phenomenon in Spain is growing and it is recent. The same trend is happening with entrepreneurship in Spain. Almost 99% of the total number of enterprises are small and microenterprises that constitute an essential aspect in terms of jobs, with around 70% of the total employability. Since 2014 the number of new enterprises also started to grow, a phenomenon that is highly related to the increase in the number of incubators that started in 2012 [72].

b. Unfavorable macroeconomic conditions which made entrepreneurship both a necessity and an opportunity:

Ironically, long-term high unemployment rates in Spain have had positive effects on the Spanish startup ecosystem, as the difficulty in finding high quality corporate jobs pushes more people toward entrepreneurship. As the government foresaw the macroeconomic opportunity behind the rising startup scene, relevant incentives have been made to increase the mobility of talents towards Spain. Foreign

entrepreneurs can use an entrepreneur visa or Start Up visa to establish a company in Spain. To tackle the regulatory reform challenge, the Spanish government has introduced the Spain Entrepreneurial Nation Strategy, a decade-long initiative aimed at positioning Spain as a hub for innovation and entrepreneurship. This strategy incorporates the implementation of a New Startup Law, approved by the legislature in November 2022. In addition to tax cuts and incentives, the law introduces a new Digital Nomad Visa, allowing foreigners to reside and work in Spain for a duration of up to 12 months [55].

c. The dawn of some significant exit and unicorns in Spain:

A solid cohort of scaleups is growing locally and globally, with household name unicorns such as TravelPerk, Glovo, and Cabify. These success stories have been a magnet for more and more applications for Spanish accelerators with a relevant intake of foreign startups.

d. The quality of life nearby the innovation hubs:

The Spanish startup ecosystem is younger than other European countries and offers entrepreneurs a more affordable cost of living, in addition to an abundance of sunny weather which is great for attracting talent (ProWorkSpaces Association).

e. The presence of top-tier accelerators which ensures the quality:

Wayra (with offices in London, New York and Mexico), Plug&Play (50+ locations around the globe), SeedRocket and other players

f. their social contribution to job creation

As evidence of the effectiveness of these incentive packages provided by the Spanish government, Spain had in 2022 with 3,430,663 active companies, almost

70,000 more than in 2019. Moreover, there has been job creation, especially in sectors linked to technology, information and high value-added services.

2.2.5 ITALY

In the case of Italy, several factors make incubation and acceleration programs vital for startups and entrepreneurs to access funds:

a. Economic Environment:

Economic Stability: Italy has struggled with economic stability in recent years. Slow economic growth and high levels of public debt have created an environment where investors may be more risk-averse. In such an economic climate, startups may find it challenging to secure funding without the credibility and support provided by incubation and acceleration programs.

b. Investor Landscape:

Risk Aversion: Traditional Italian investors, such as banks and family offices, tend to be risk-averse. They often prefer to invest in established companies with a proven track record. This risk aversion can make it difficult for early-stage startups to attract funding from these sources, making incubation and acceleration programs crucial for bridging the gap [73].

c. Cultural Factors:

Trust and Networks: Italy's business culture places a significant emphasis on personal relationships and trust. Incubation and acceleration programs often provide startups with access to networks of experienced mentors, advisors, and investors. These connections can help startups gain the trust and credibility necessary to secure funding.

d. Bureaucracy and Red Tape:

Complex Regulations: Italy is known for its complex bureaucracy and regulatory environment. Startups must navigate various legal requirements, which can be daunting and time-consuming. Incubation and acceleration programs offer guidance on regulatory compliance, helping startups meet these requirements and making them more attractive to investors [74].

e. Access to Resources:

Infrastructure and Resources: Many startups struggle with high overhead costs, including office space and equipment. Incubation and acceleration programs often provide shared office spaces, access to necessary equipment, and other resources. This support reduces costs and demonstrates efficient use of capital to potential investors.

f. Validation and Credibility:

Investor Confidence: Startups that are part of reputable incubation and acceleration programs are seen as more credible by investors. These programs often involve rigorous vetting processes, mentorship, and validation. This credibility can attract investors who are more likely to fund ventures that have undergone such scrutiny.

g. International Connectivity:

Global Exposure: Many incubation and acceleration programs have international connections and partnerships. For Italian startups, this global exposure can be invaluable. It opens up opportunities to access global markets and international investors, expanding their funding options beyond the local ecosystem.

h. Skill Development:

Entrepreneurial Skills: Entrepreneurial skills may not be as deeply ingrained in Italy's education system compared to some other countries. Incubation and

acceleration programs offer training, mentorship, and skill development opportunities that are essential for startup founders. These programs help founders hone their business acumen, making them more attractive to investors [75].

Italy's economic challenges, risk-averse investors, cultural emphasis on trust, complex regulations, limited access to resources, and the need for credibility and skill development all contribute to the importance of incubation and acceleration programs. Moreover, the lack of consistent, long-term innovation and entrepreneurship policies means that support structures partially need to substitute policy initiatives existing in other countries. These programs serve as a critical bridge for startups in Italy, helping them overcome these hurdles and gain access to the funding necessary for growth and success.

2.3 THE IMPACT OF INCUBATORS, ACCELERATORS AND VENTURE BUILDING PROGRAMS FOR STARTUP FINANCING IN EUROPE AND THE RISK OF A 'STARTUP FLIGHT'

From this qualitative exploration some potential indications emerge for the role of support structures. First, strong entrepreneurial ecosystems as well as recently merging ones in Europe are heavily influenced by a consistent, dedicated, long-term strategic entrepreneurship policy. Second, the role of support structures might depend on the time when structured entrepreneurship activities started and whether they were an integral part of policy interventions. It had been suggested that effective support structures would reduce the flow of entrepreneurs from less developed ecosystems to more developed ones within the US (Hallen et al. 2020). Moreover, it could be shown for the US that the setup of support structures leads to more investment, the emergence of local investors and that this phenomenon does not only benefit the beneficiaries of the support structures but that it spills over to other innovative firms in this region [57]. Indeed, the role of incubators, accelerators and venture building programs in nurturing startups is undisputed but how important they are for different countries is not so clear [4]. In entrepreneurial ecosystems, those support structures play an important role as well as investors that bring the

necessary financial capital for the growth of entrepreneurial firms. Exploring the interactions between these support structures and other entrepreneurial ecosystem stakeholders is thus crucial for understanding the effectiveness for entrepreneurship [76]. In this regard, a question arises: *what is the role of support programs in attracting finance?*

In an ongoing research project [77], Groh maps the involvement of those support structures in securing financing. Figure 8 [77] illustrates the preliminary results.

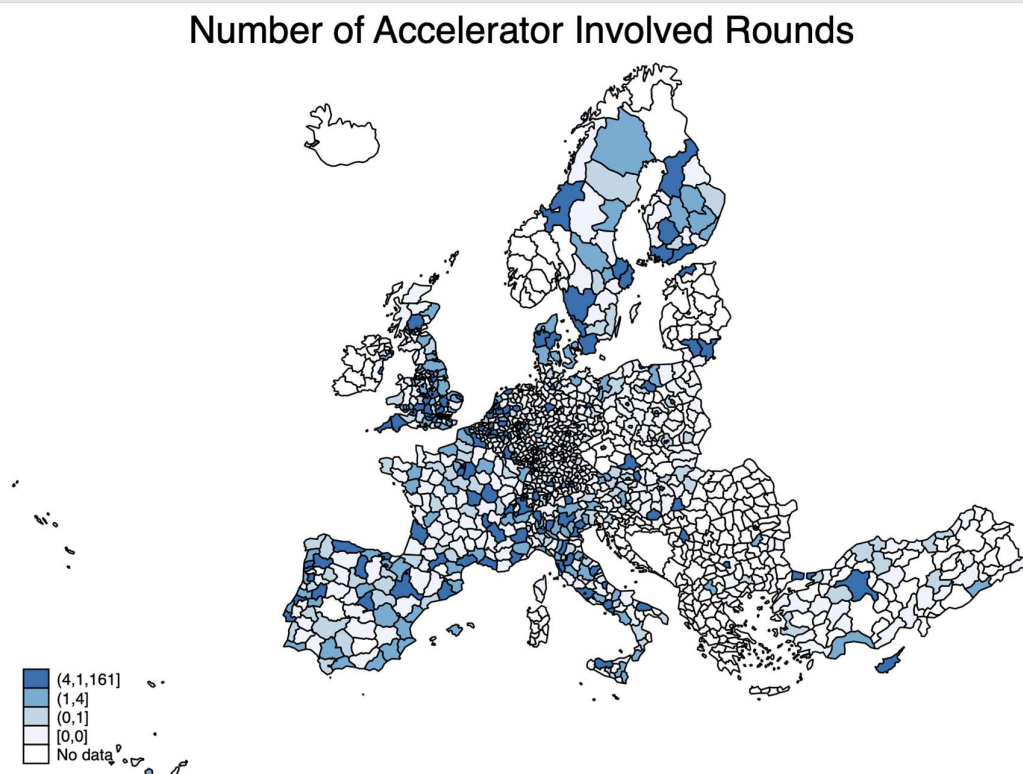


FIGURE 8: NUMBER OF ACCELERATOR INVOLVED ROUNDS. SOURCE: GROH, 2023

What this chart shows is that in strong entrepreneurial ecosystems in Portugal, France, Spain and Italy, accelerators, incubators and venture building programs play an important role for the financing rounds of startups given their involvement. However, in Germany and

Ireland, they play almost no role in securing financing. This means in some mature VC markets with abundant financing the role of support structures are less important. However, we also see that in Bulgaria and Greece, accelerators are not yet strongly involved in securing financing. In these countries, support structures help to nurture startups, but the lack of sufficient VC means that most likely startups need to look elsewhere for securing financing. In mid-innovative regions where there is also some track record in startup financing (Spain, Portugal, Italy), support structures are crucial for attracting financing. An interesting case is France, where VC investment developed later as in Germany alongside the development of support structures. France could serve thus as an exemplary case of how support structures and investments synergistically co-develop. Therefore, an important role in low- to mid-innovative regions is that support programs effectively facilitate the access to investors and in the case of lack of local investors connect to outside investors. These results somewhat confirm our intuition of the previous qualitative exploration of some countries.

Other research evidence strengthens our arguments. In general terms acceleration programs reduce the uncertainty about the quality of startups [78] but they also influence the amount of funds raised compared to non-participants [59]. Moreover, top accelerators attract high profile venture capitalists who provide startups with significantly higher amounts of funding compared to participants in other accelerators [79]. Thus, the effectiveness of acceleration programs also follows a PLD. However, there might also be a negative effect in the most advanced ecosystems. In line with our reasoning that in less advanced entrepreneurial ecosystems acceleration programs are a necessity to get funding in more advanced ecosystems they are one option. US data suggests that accelerated startups raise less capital and fail faster suggesting that in those highly developed ecosystems lower quality startups seek support structures while other startups do not seek them for securing financing [78]. Germany might be a similar case. At the same time, acceleration programs are effective for getting an investment; indeed, accelerated startups tend to receive less funding but they get the funding faster [80]. However, this pattern does not apply to the top accelerators confirming a PLD. We can also interpret this finding in the sense that lesser quality startups use accelerators as an intermediary step

for subsequent more important funding (with all the consequence of dilution, etc.) in more advanced ecosystems. On the contrary, support structures are a necessity in less developed ecosystems.

Support structures as acceleration programs or venture building programs are essential for fostering entrepreneurship and regional development [59]. European evidence suggests that in mid-innovative regions, they already play an important role for startup financing but might not yet be sufficient to enable access to financing in low-innovative regions. On a regional policy level, this might pose a problem as attempts to foster entrepreneurship in those regions -given an overall PLD - might not necessarily have an impact as startups might be forced to go where the money is. Even if in mid-innovative regions where those support structures already play a relevant role for enabling startup financing, it might not be sufficient to ensure the needed volume of investment for innovative startups. This could lead eventually to a startup flight to more prosperous regions as evidence shows for the US [4]. While there is only anecdotal evidence in Europe about a potential startup flight, preliminary research for Italy gives some insight.

We conducted several interviews with seven startups between April and September 2023, leading to seven Italian cases. Specifically, we have one case with a startup that at the time of the interview had been founded only 6 months earlier. This fresh startup allowed us to explore the perception of the startup ecosystem and thus rather soft facts and how founders imagined differences between Italy and other countries. It gives a perception of reality. There are four cases of startups in their early stage of development, hosted in different support structures in Italy. They are already living in the local ecosystem, their interviews represent hard facts. Finally, we have two Italian scale-ups, one that has been started in Italy and went abroad and one that has remained in Italy. These two cases, enable us to explore real behavior but also the founders' reflections on the reality of the startup ecosystem. Therefore, the case selection was driven by the following consideration: a) perception of the reality; b) behavioral intention based on living the reality; c) behavior and reflection on the reality. While an in-depth analysis of the cases would go beyond the scope of this work package, we would highlight just the key points emerging.

First, startup ecosystems are in competition and startups consider consciously whether to stay in the local ecosystem or move elsewhere. The potential of a startup flight is this real and these findings might represent a novel insight as entrepreneurship had been considered as a regional phenomenon with the assumption that firms would stay where they created the firms and that they would create the firm where they had lived, worked or studied [81]. Indeed, the scale-up that had remained in Italy mentioned the local advantages in terms of access to skills and an established network of relationships despite the overall complex context.

Second, the perception of the most recent startup is confirmed by the views of early stage startups and their behavioral intent. All four cases confirm that they are considering going abroad given the complexity of the local startup ecosystem. The main factors that drive the behavioral intent to go abroad are the following. While Italy is perceived as an appropriate place to set up a startup, it is not perceived as an appropriate context for realizing growth. One, the legislative framework is perceived as complex and bureaucratic. Moreover, recent legal changes unfavorable for startups are considered as a general indication of a less startup friendly culture. Two, there is a general view that access to financing in terms of speed, conditions, volume and choice is better in more developed entrepreneurial ecosystems abroad. Three, the lack of structured mentoring programs is highlighted by the startups and the access to those programs abroad is considered important for the future development of the startups. In the same sense, there is the perception that while the ecosystem is growing that not all support structures are effective and that there is a need for more structured support programs.

Moreover, a survey administered to startups hosted in four prominent support structures in Italy (Startup Geeks, Dock3, I3P, Luiss EnLabs), to which 48 startup founders responded, confirmed the case study results. Most importantly, two third of all respondents consider moving abroad. More than two third feel that they are not sufficiently supported by public administration. One third believes support structures are effective while for one third they are considered as ineffective. The reasons cited for considering going abroad are bureaucracy, lack of investors, lack of entrepreneurship preparation and support.

The results of the preliminary research about the potential startup flight from Italy, evidence not only how important support structures such as incubators, accelerators and venture building programs are for startups to get access to financing but also that the perceived lack of those support structures, the perceived lack of educational programs and deficiencies in the local entrepreneurial ecosystems might drive entrepreneurs to more munificent ecosystems.

Therefore, there is an interest to develop more effective support structures for entrepreneurs in low- to moderately innovative regions to foster local entrepreneurship; even if a potential startup flight cannot be completely avoided, those support programs increase the chances of success for those startups when they decide to go abroad.

3. STRENGTHENING ENTREPRENEURIAL EDUCATION FOR STUDENTS: STUDENT ENTREPRENEURSHIP IN EUROPE

Understanding how to strengthen entrepreneurial education for students, particularly in the European scenario, is a pivotal element for the development of the ENTREPRENEDU project and to better understand how to foster entrepreneurial ecosystems and equipping students with the necessary skills, knowledge, and mindset to become successful entrepreneurs.

Strengthening entrepreneurial education not only equips students but also cultivates an ecosystem that fosters innovation, job creation, economic growth, and societal development. In the following paragraphs, we provide a description of the current European Scenario.

3.1 STUDENT ENTREPRENEURSHIP IN EUROPE

Student entrepreneurs have a strong potential as drivers of entrepreneurship in Europe. While the magnitude of new ventures created by students or recent graduates is much higher than for professors and researchers, their performances are comparable (Astebro et al. 2012). Therefore, student entrepreneurship emerges as a significant driver for economies, as underlined by recent studies that underscore the fact that, globally, nearly 18% of students aim to become entrepreneurs immediately after completing their studies [82]¹.

The European startup ecosystem is increasingly dominated by a cohort of young individuals who are introducing digital-first strategies in various sectors, showing in their business project not only technological skills but also a strong focus on making a positive impact within society, prioritizing purpose and passion in their endeavors. These include

¹ The GUESSS report originates from the Global University Entrepreneurial Spirit Students' Survey, which was launched in 2003 at the Swiss Institute of Small Business and Entrepreneurship. GUESSS stands as a significant global entrepreneurship research initiative, and uses extensive online surveys facilitated by country delegates and university collaborators. The 2021 report, based on a sample of about 267,000 students spanning various education levels (Bachelor, Master, MBA, and PhD), encompasses data from 58 countries.

student entrepreneurs, who are a distinctive group with a unique approach to acquiring and using resources compared to entrepreneurs who start businesses outside the university context [83]. These student entrepreneurs may be active entrepreneurs (already own and run their own business) or nascent entrepreneurs, at the initial stages of establishing their own business. Nascent student entrepreneurs may also have previously initiated other businesses (therefore being serial or portfolio entrepreneurs) and according to the GUESSS report (2021), nearly one-third of these nascent entrepreneurs reported that their projects originated from the university environment.

During their studies, student entrepreneurs may have a chance to develop an entrepreneurial mindset through entrepreneurship education, and to acquire greater flexibility in choosing their career path [84].

European Universities can be a leading force for entrepreneurship. According to study conducted by the financial data platform “Pitchbook” in 2023², about Europe's top schools ranked by startup founders, the majority of European graduate student founders come from universities located in the UK, with 3,957 companies founded by UK university graduates. The University of Cambridge, University of Oxford, and Imperial College London are leading the rank (Figure 9), evidencing also a power-law distribution for student entrepreneurship. This achievement can be attributed to the thriving entrepreneurial ecosystem in the UK and the proactive approach of its universities that have been at the forefront of encouraging and mentoring students in their entrepreneurial pursuits. Sweden, too, has made a significant mark in this arena, with 962 startups founded by graduate students from ranked Universities that were financed by venture capitals (VC), from January 2013 to September 2023. France, Germany and the Netherlands are also closely following this trend. Top Universities in other European countries are making remarkable progress in nurturing student entrepreneurship. As an example, Politecnico di Milano in Italy, University College Dublin and Universitat Politècnica de Catalunya in Spain, are demonstrating tangible commitments to student startups.

² The 2023 PitchBook University ranking is based on the total number of founders whose companies received a first round of venture funding between Jan. 1, 2013, and Sept. 1, 2023. The analysis is based on PitchBook data for global VC investment as well as the educational information of more than 150,000 founders.

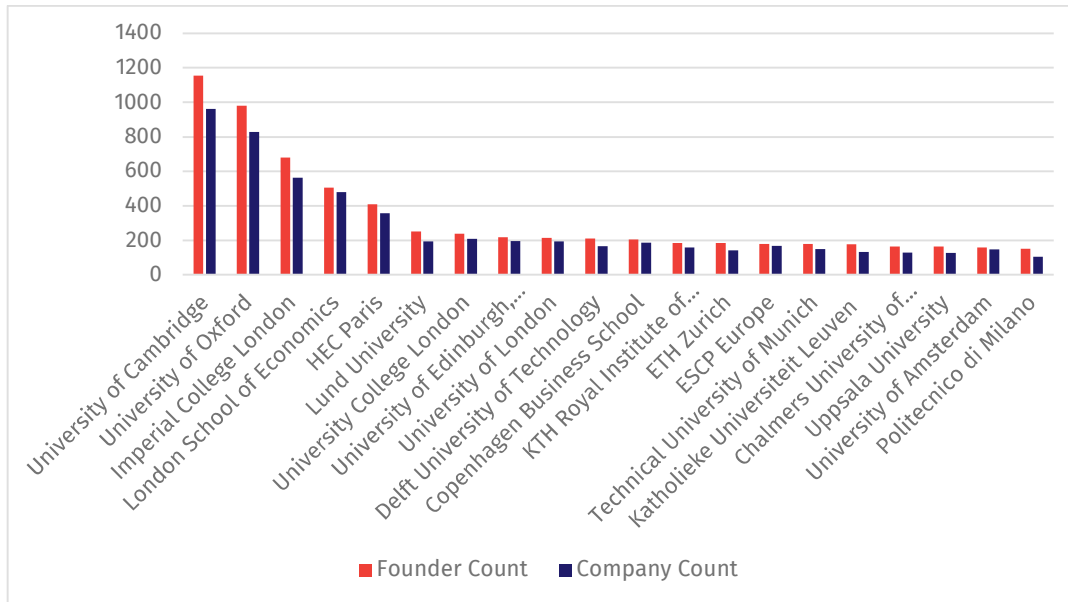


FIGURE 9: FIRST 20 UNIVERSITIES FOR NUMBER OF STARTUPS FOUNDED BY GRADUATE STUDENTS 2022
SOURCE: PITCHBOOK UNIVERSITY RANKING.

3.2 INFLUENCING FACTORS IN STUDENT ENTREPRENEURSHIP

The process of initiating a new business is the result of a highly individual and personal decision, influenced by an individual's attitudes and attributes such as knowledge, experience, values and motivation, as well as the availability of resources [85]. This decision is made within a context of social values that may encourage or hinder entrepreneurship, and within an entrepreneurial ecosystem that may support or limit access to resources [86].

Entrepreneurial motivation is the driving force that prompts an individual to translate the intention to start a business venture into concrete actions. Le and Tran [87] categorize motivation into two main types: extrinsic motivation and intrinsic motivation. Extrinsic motivation is fueled by external factors, such as family, friends, and important individuals who offer support. While these external elements can influence the decision to embark on an entrepreneurial journey, they are often linked to tangible rewards or societal pressures. Intrinsic motivation stems from deep internal drive. It is fueled by passion, personal

challenge, and individual fulfillment. Students exhibit strong intrinsic motivation when they intend to start a business, demonstrating a profound interest, excitement, and determination in pursuing their entrepreneurial goals. Youthful entrepreneurial motivation also stems from the need to realize their dreams, make a difference, and create something significant [87].

In this light, entrepreneurship education can have a positive impact on students' intrinsic motivation, encouraging them to turn their entrepreneurial intentions into concrete actions (Figure 10 [82]). While the potential for reverse causality cannot be ruled out, given that entrepreneurial students may choose to enroll in entrepreneurship education, research shows that entrepreneurship education does, indeed, have the intended impact. The GUESSS report [82] demonstrates that the percentages of nascent and intentional entrepreneurs are consistently higher among those who have undergone entrepreneurship education.

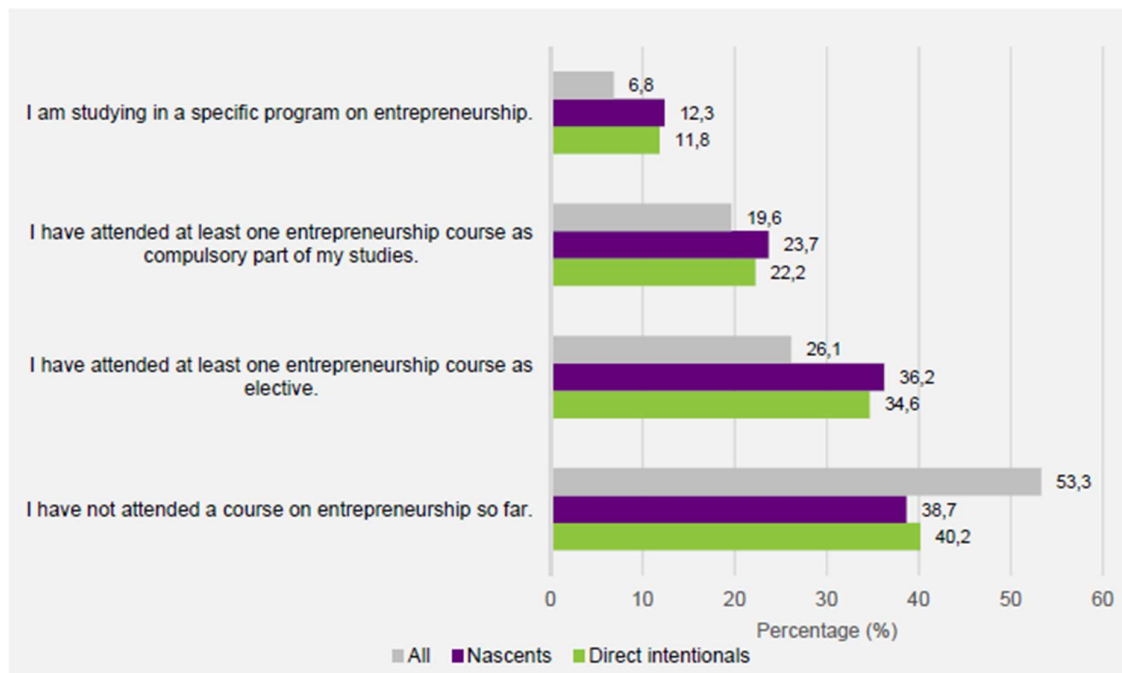


FIGURE 10: ATTENDANCE OF ENTREPRENEURSHIP OFFERINGS AMONG DIFFERENT STUDENT GROUPS. SOURCE: GUESSS REPORT 2021

Additionally, a meta-study shows that entrepreneurial education increases entrepreneurial intent (Figure 11 [86]): this effect is significant and applies also to students that have not shown prior interest in entrepreneurship [88]. Consequently, motivated and well-prepared students who have undergone entrepreneurship training programs are more likely to initiate new ventures [89–92]. Additionally, the key to entrepreneurial success lies not only in the idea itself but also in the passion, determination, and competence to implement entrepreneurial projects.

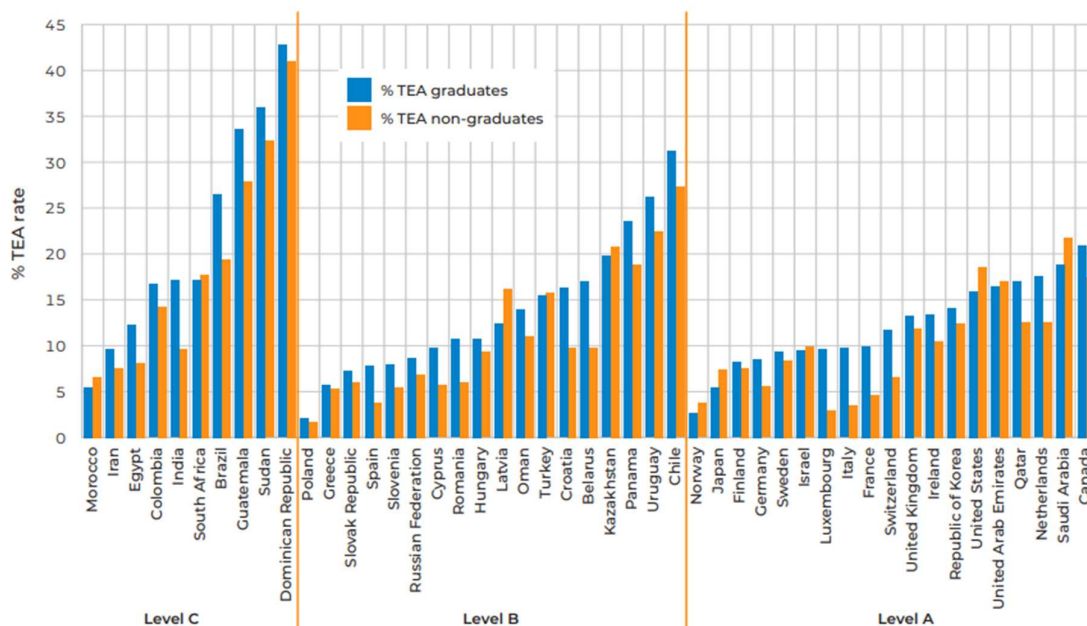


FIGURE 11: LEVELS OF TOTAL EARLY-STAGE ENTREPRENEURIAL ACTIVITY (TEA) FOR GRADUATES AND NON-GRADUATES (% TEA GRADUATES AND % TEA NON-GRADUATES); SOURCE: GEM ADULT POPULATION SURVEY 2021

Regarding the factors affecting student intentions to become entrepreneurs, the academic literature agrees on the existence of a multiplicity of determinants that must be taken into account when a student's willingness to become an entrepreneur is analyzed and that go beyond motivations. According to a recent literature review carried out by [93], six

factors should be taken into consideration within the evaluation of University students' willingness to become entrepreneurs.

These are:

- 1) Cognitive factors that are related to attitude toward entrepreneurship, social norms, and perceived behavioral control;
- 2) Personality factors: individuals with a higher risk propensity felt more capable and confident in their entrepreneurial endeavors, positively impacting their intentions to engage in entrepreneurship;
- 3) Environmental factors. Regional context, formal and informal country-level structures, entrepreneurial purpose, and capital availability, all can function as a bridge between personal characteristics and entrepreneurial aspirations. In particular, access to funding is crucial for initiating new businesses. However, equally significant are factors like foresight regarding future business sectors and the strength of one's social networks. Also, family support and exposure to entrepreneurial role models, were identified as crucial determinants of students' intention to become entrepreneur;
- 4) Educational factors, especially entrepreneurship education;
- 5) Situational factors, such as external circumstances and environmental aspects;
- 6) Demographic factors, such as gender differences and nationality differences [93].

In short, student entrepreneurs are affected similarly to the overall population of entrepreneurs by the effectiveness of their entrepreneurial ecosystems with a more pronounced need for entrepreneurship education.

3.3 THE RELEVANCE OF ENTREPRENEURSHIP EDUCATION IN EUROPE

Entrepreneurship education is defined as the process of equipping individuals with the concepts, skills, and abilities necessary for entrepreneurship to recognize opportunities that others have overlooked and to have the self-confidence to act where others have hesitated [94].

In Europe, entrepreneurship education is seen as a key factor for lifelong learning [95] and to counteract youth unemployment³. Challenges such as global crises, wars and the COVID-19 pandemic created an incredibly challenging business environment for new entrepreneurs. To address graduate unemployment, there has been a global trend towards promoting entrepreneurship education to equip graduates with the skills and mindset needed to start their own businesses. This shift towards entrepreneurship education has been more pronounced in Western countries but has also gained traction in less developed educational systems [96].

Entrepreneurship education allows not only students to start their own business, but more importantly it trains their entrepreneurial mindset [97] and increases their flexibility in their career choice [84]. Hence, by means of entrepreneurship education students are equipped with the skills needed to face the job market through a flexible approach, that help them identify opportunities and take risks, work in teams and be better equipped to solve problems⁴. The educational context can significantly contribute to the development of essential knowledge and skills that young entrepreneurs need to succeed in their business ventures. Universities, in particular, offer a valuable opportunity to acquire specific knowledge that is crucial for entrepreneurial success [98].

The GUESSS report 2021 has investigated the role of the university environment on entrepreneurial motivation by testing the students' perception of the entrepreneurial climate. Based on Franke and Lüthje's [99] methodology, the GUESSS report tested the response to three statements: "*the university atmosphere motivates me to generate ideas for new businesses*," "*there is a supportive environment for entrepreneurship at my university*," and "*students at my university are actively encouraged to participate in entrepreneurial activities*." Participants were required to express their agreement with these statements on a scale ranging from 1 (not at all) to 7 (very much). Globally, the

³ European Commission (2013). Reigniting the entrepreneurial spirit in Europe. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52012DC0795>

⁴ European Commission. (2014). Thematic Working Group on Entrepreneurship Education. Available at: https://ec.europa.eu/assets/eac/education/experts-groups/2011-2013/key/entrepreneurship-report-2014_en.pdf

average value of responses was at 4.4. At the European level, the average was 4.2 and the results per country are summarized in the figure 12 [82].

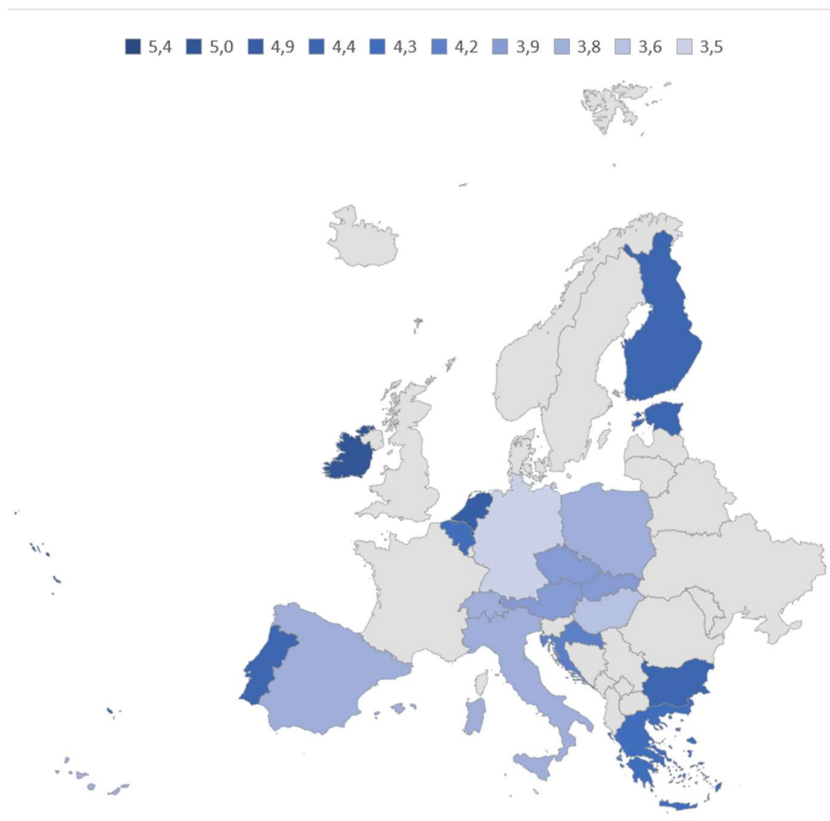


FIGURE 12: AVERAGE UNIVERSITY ENTREPRENEURIAL CLIMATE ACROSS COUNTRIES. SOURCE: GUESSS REPORT 2021.

In fact, they provide an environment apt to transfer to individuals with specific, valuable knowledge that can leverage entrepreneurship projects and can positively influence the project and ideas of students involved in nascent entrepreneurship in Europe [98]. Moreover, co-curricular events can provide a platform for young entrepreneurs to build relationships with successful entrepreneurs, investors, mentors, and other key players in the entrepreneurial ecosystem, thereby facilitating the development of valuable social capital [100]. Hence, through entrepreneurship education, European Universities can contribute to accelerating the transfer of research and development (R&D) knowledge and

innovation to the broader business community, thereby stimulating economic growth [101].

3.4 SKILLS TO BE TAUGHT IN ENTREPRENEURSHIP PROGRAMS

The effectiveness of Entrepreneurial Education (EE) is the object of a global debate, covering the multitude of factors that have to be taken into consideration for the entrepreneurship programs to be effective, but also about what activities should be included in programs and what are the most efficient teaching models. Hence, the Academia is witnessing a paradigm shift in entrepreneurship education, from theoretical learning “about” to experiential learning (learning “for”), where the “learning for” is intended to be the acquisition of knowledge that can be used in different contexts and that structure a precise entrepreneurial mindset, including the development of creativity, critical and analytical thinking [102]. It is also argued that teaching models are not suitable for every context and they should be adapted to the specific cultural context where entrepreneurship education occurs [103].

Regarding the skills to be taught, the literature emphasizes that entrepreneurship education is going towards developing enterprising mindsets and reflexive action skills, rather than solely focusing on business building competencies. This stresses the central role of experiential knowledge within the entrepreneurial learning process, that necessarily has to be completed with traditional Industry-specific knowledge, such as knowledge of technologies, processes or product, management knowledge (business organization, either in administration or management) in order to allow students to acquire specific skills to conduct projects or to establish ventures [104].

It is important that universities adopt a distributed approach to the foundation of knowledge and skills needed in entrepreneurship in order to make courses available to all students apart from the academic major [105]. The entrepreneurial approach [106] means also developing social and networking competences and the management of teams, together with cognitive skills which relate to the ability to solve complex problems, along with critical thinking, creativity and idea generation [98]. Table 5 shows the set of

competences that are recalled in literature, and that were categorized following the McKinsey's model of foundational skills for citizens (2023)⁵.

Skills	Category
Ability to generate innovation Problem solving Analytical and critical thinking Business acumen Creativity and idea generation Curiosity Ethical and sustainable thinking Judgment Situation modeling	Cognitive
Communication Skills Networking Team work	Interpersonal
Self-confidence and self-reflection coping with uncertainty Entrepreneurial mindset Independence Motivation Resilience Self-regulation Taking initiative Valuing ideas ambiguity and risk Decision making	Self -Leadership
Financial and economic literacy ICT Skills Intellectual property law Managerial skills Project management Industry specific knowledge Research and inquiry skills.	Technical

TABLE 4: SKILLS TO BE THOUGHT IN ACADEMIC LITERATURE

⁵ McKinsey (2022) "Defining the skills citizens will need in the future world of work". Disponibile al link: <https://www.mckinsey.com/industries/public-sector/our-insights/defining-the-skills-citizens-will-need-in-the-future-world-of-work>

3.5 FACILITATORS AFFECTING THE PROGRAM PERFORMANCE

Literature on student entrepreneurship dwells on the factors that are identified as facilitators of nascent entrepreneurship from student education. These cover multiple areas, which are “business community interaction”, “experiential learning”, “incentives”, “tangible and intangible infrastructure”, “mobility”, “peer to peer interaction”, “self-reflection, and “support and motivation”.

What emerges is that Universities are called upon to project entrepreneurship education through activities that are aimed at creating communities of practices and fostering greater student contact with the business world [107]. This involves contamination between business and academia, by enhancing active involvement of students in business projects to create an effective entrepreneurial learning experience for the participants [108]. In addition, studies stress the relevance of entrepreneurial mentoring [109] together with role models that are key to enhancing the motivation of students. In particular, mentoring appears to be critical for student entrepreneurs [110].

Another key area concerns the structure of the courses, which should promote experiential learning, through multiple activities such as roleplaying, business simulations [95,111] and other extracurricular activities [112]. Student mobility is also key to developing an entrepreneurial mindset, this can be encouraged by means of foreign trips, international traineeship and exchange with partner Universities. Studies also stress the relevance of providing students with incentives by means of awards and hackathons that drive the development of ideas and startup projects [113]. Studies also recall additional aspects that concern University infrastructures, which include the availability of spaces and systems that allow for the full implementation of experiential learning modes, such as digital systems for e-learning, product modeling tools, and laboratories, along with professional development mechanisms for instructors [95]. Table 5 shows the systematization of the main facilitators of student entrepreneurship at the European level that have been categorized into eight key areas.

Facilitator	Area
Networking events Communities of practice Cooperation with the business sector Workshops Networking events Involvement of Universities in business communities	Business community Interaction
Extracurricular activities Community work Simulations Guest lectures Project Learning by doing	Experiential learning
Work with rewards Role model lectures Awards and hackatons	Incentives
Entrepreneurial structures in Universities Introduce entrepreneurship education at early stage Education of teacher Continuing education Education of instructors E-learning platforms Integrating digital tools	Tangible and intangible Infrastructures
Student Mobility	Mobility
Interactive group work Exchange knowledge Networking events peer-to-peer learning and feedback	Peer to peer Interaction
Individual assignment Role playing More inquiry-oriented approaches	Self -reflection
Business mentorship Role models Giving feedback Practice	Support & Motivation

TABLE 5: FACILITATORS OF ENTREPRENEURSHIP EDUCATION IN ACADEMIC LITERATURE

3.6 MAIN CHALLENGES FOR STUDENT ENTREPRENEURSHIP

The effective management of student entrepreneurship in Europe carries out multiple challenges. Studies point out that in order to create a conducive environment for entrepreneurship education in Europe, priority should be given to closing the gap between industry and academia in order to create a better collaboration between the two worlds [114].

The need to strengthen entrepreneurial skills and to create an entrepreneurial mindset among students raises the challenge of continuous training of educators, through a constant update of their skills [115]. Another major challenge covers entrepreneurial culture. There is a need to foster acceptance of the concept of entrepreneurship at the societal level, and to overcome a perceived lack of added value of entrepreneurship in some cultural contexts [116]. This means overcoming the barriers of negative attitudes toward becoming entrepreneur [117] through ad hoc and international policies to introduce entrepreneurship education into the national curricula at all levels of education, to promote the use of programs based on "learning by doing" [108], and to cultivate an entrepreneurial mindset among young Europeans [118].

3.7 UNIVERSITY PROGRAMS IN EUROPE: AN OVERVIEW

Coherently with the growing demand of entrepreneurial education in Universities from the European startup ecosystem⁶, an in-depth analysis of the entrepreneurship courses offered in Europe was carried out in order to understand programs' characteristics and their geographical articulation. Benchmark analysis was also carried out, to systematize the salient structural elements for a entrepreneurship program to be successful.

3.7.1 METHODOLOGY

In order to present an overview of the salient features of the educational offerings of European universities about entrepreneurship, and to identify and analyze benchmark

⁶ Eu-Startups (2022). European Startup Monitor. Retrieved from: <https://www.europeanstartupmonitor2021.eu/>

courses, an initial exploratory mapping of university-level entrepreneurship programs in Europe was conducted. Programs were identified by resorting to databases and sites of university-level courses (EU startups, Education.com; topo Universities.com; academic Courses.com). In addition, all universities in the Financial Times' European Ranking of Business Schools were analyzed. To further extend the search, an additional online keyword search in incognito [119] was conducted covering the following set of keywords "entrepreneurship course " OR "entrepreneurship Program" AND "EU Country". Universities and business schools were included in the selection, while primary and vocational colleges were excluded. To have a broader set of cases, Great Britain and Switzerland were also included in the data collection.

3.7.2 FINDINGS

GEOGRAPHICAL ANALYSIS

Data search led to the identification of 170 entrepreneurship programs at University level. These are run by 136 European Universities and Business Schools located in 21 countries, with an average of $n = 1.25$ courses per University (Median=1), and an average of 4.8 courses per Country (Median= 4 / SD=12,5).

1/3 of the Programs is run by a University located in a European Capital. The remainders are geographically dispersed, and predominantly located in cities showing a high presence of ventures and startups (e.g. Milan or Barcelona). Not surprisingly, there is a strong link between student entrepreneurship and the entrepreneurial ecosystem even if the differences between regions appears to be less pronounced than for promising startups in general.

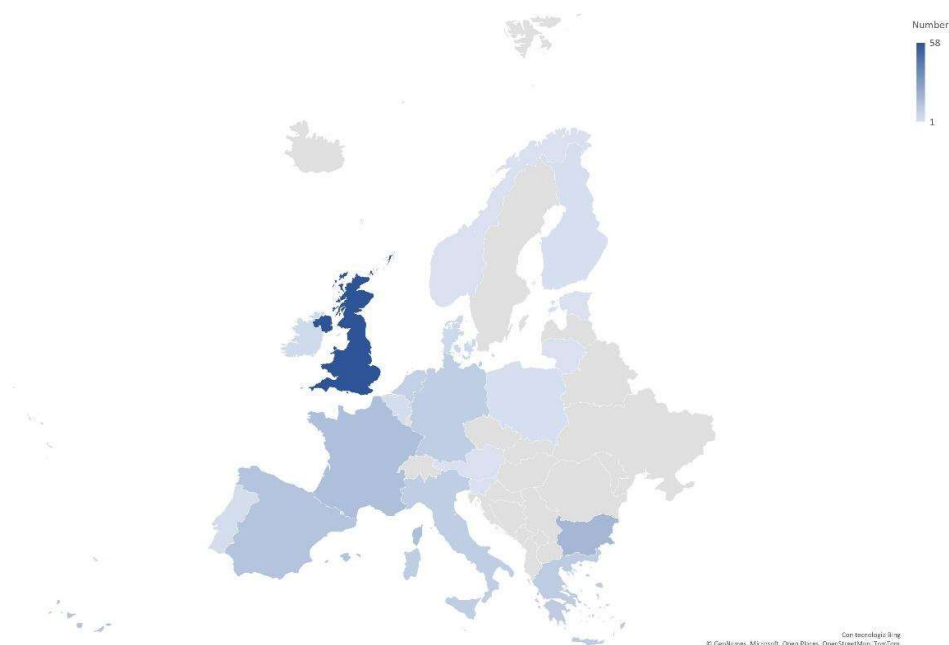


FIGURE 13: NUMBER OF PROGRAMS. SOURCE: ELABORATION BASED ON DATABASES SUCH AS EUSTARTUPS, EDUCATION.COM; TOPUNIVERSITIES.COM; ACADEMIC COURSES.COM

PROGRAMS' TYPOLOGY AND FORMAT

Regarding the programs' duration and typology, nearly half of them adopt a 24-months formula (2 academic years) and is a Master of Science (MSc) degree (47,6%), nearly 20% is a Bachelor Degree (BA o BSc) of a duration ranging from 36 to 48 months, while approximately 10% of the courses is provided on an executive or continuous education formula (from 4 days to 24 months).

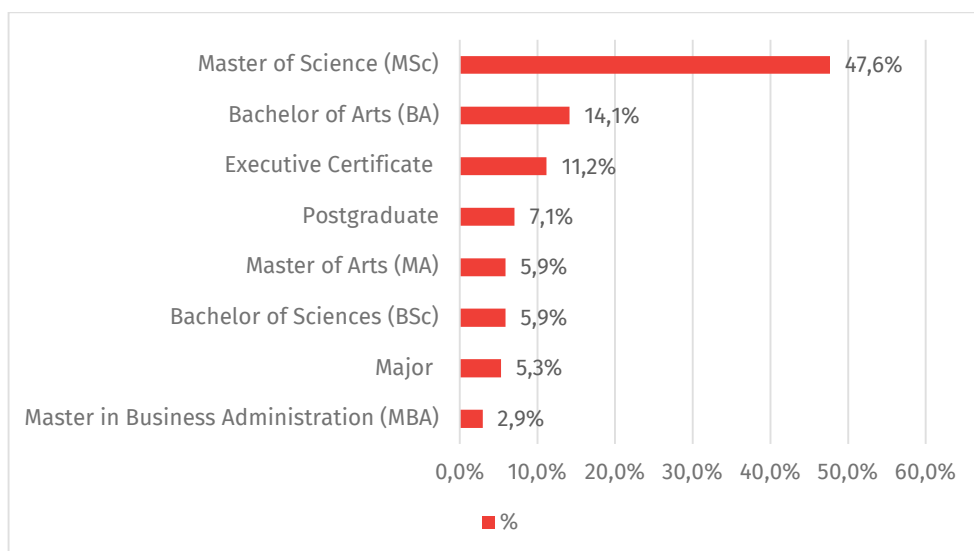


FIGURE 14: PROGRAM TYPOLOGY. SOURCE: ELABORATION BASED ON DATABASES SUCH AS EUSTARTUPS, EDUCATION.COM; TOPUNIVERSITIES.COM; ACADEMIC COURSES.COM

A limited number of the courses in Entrepreneurship (8.2%) is also provided as Major of University Programs in General Management or Business Administration (MBA)

The majority of programs (84,1%) is full time and only 7,1% is part-time, while 8,8% provide participants with both options. Moreover, over 97% of the programs are provided through the “in -presence” formula while only 3% is either blended (online and in presence) or entirely provided online, by means of Coursera and Get Smarter digital platforms or through University owned digital platforms.

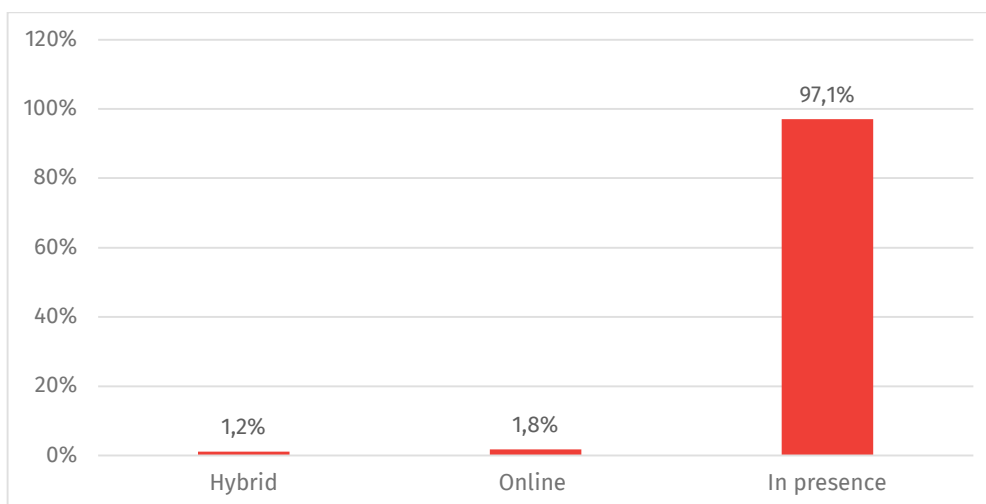


FIGURE 15: DELIVERY OF ENTREPRENEURIAL EDUCATION. SOURCE: ELABORATION BASED ON DATABASES SUCH AS EUSTARTUPS, EDUCATION.COM; TOPUNIVERSITIES.COM; ACADEMIC COURSES.COM

Almost two thirds of the courses (68,2%) are specifically focused on a particular area of expertise, while only one third (31,8%) is generic (Entrepreneurship). Fourteen areas of specialization have been identified, covering specific areas of expertise or sectors. These are: Bio & Pharma, Development Education, Energy, Finance, Manufacturing, Internationalization, Leadership, Management, Marketing, Strategy, Sustainability, and Technology and Tourism. Table shows the list of categories and areas of specialization. Predominant are programs in the “Strategy & Innovation” area which accounts for 43% of the specialized programs in Entrepreneurship.

Category	Specialization	N.
Bio & Pharma	Bio Entrepreneurship	1
	Biomedical Engineering	1
	Biotech	1
	Medtech Innovation	1
Development	Global Development	1
Education	Teaching	2
Energy	Renewable Energy	1
Finance	Finance	1
	Fintech	1
	Venture capital and private equity	1
	Venture building	4
Industry	Manufacturing	2
	Creative and Cultural Industries	2
Internationalization	Innovation & internationalization	1
	International Business	3
Leadership	Leadership	1
Management	Small business	2
	management	4
	Management	8
Marketing	Marketing	1
	Marketing, Engineering and Innovation	1
Strategy & Innovation	Business Strategy	1
	Management & Innovation	2
	Innovation & Strategy	1
	Business Model Innovation	2
	Strategy and Innovation	2
	Strategic Management	4
	Innovation	50
Sustainability	Environment	1
	Sustainability and Innovation	1
	Social Entrepreneurship	3
Technology	Deep Tech	1
	Technology	1
	Digital	2
	Data science	3
Tourism	Tourism	2

TABLE 6: SPECIALIZING COURSES: CATEGORIES AND AREAS OF SPECIALIZATION

CONNECTION WITH CORPORATES AND VENTURES

74% of the Programs have a connection with corporates, and provide attendants with the opportunity to spend a traineeship period (from 3 to 6 months) within partner companies. Partnership with corporates also take the form of seminars and practical activities throughout the programs (e.g. consultancy programs). Only 44% of the Programs involve an entity devoted to venture building and acceleration programs. Such entities are mostly owned by the university or the business school themselves and they are mainly incubators, while only a few are Accelerators (e.g. king's20 Accelerator).

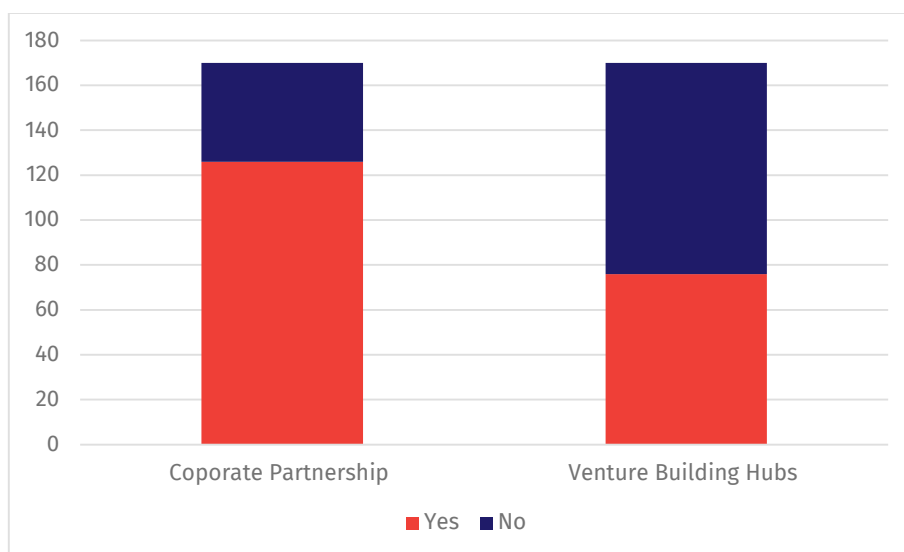


FIGURE 16: VENTURE BUILDING HUBS AND CORPORATE PARTNERSHIPS

Moreover, 2/3 of the programs hold a network which has different characteristics, depending on the course under consideration. The networks include business angels communities, conferences with business leaders, Research Centers at University, local or national level (e.g. CERN), Consultancies, Corporate network, Entrepreneurship labs, local business community, Network alumni, Partner International Universities, Startup Associations or University Services for startups. Finally, more than half of the programs provide mentoring services for students.

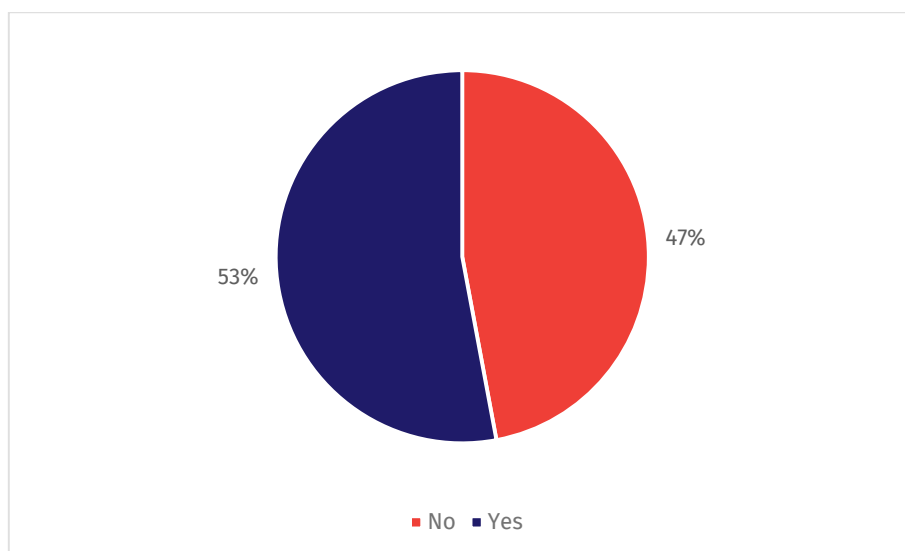


FIGURE 17: PRESENCE OF MENTORING SERVICE IN PROGRAMS

3.7.3. BENCHMARK ANALYSIS

In order to delve deeper into the characteristics related to the structure and content of the Programs, and to build a framework to guide the articulation of student entrepreneurial initiatives at university level, 4 different programs were in-depth analyzed. These are: 1) The MSc Innovation, Strategy and Entrepreneurship of Grenoble Ecole de Management; 2) The Master in Innovation and Entrepreneurship of the ESMT Berlin; 3) The Strategic Entrepreneurship & Innovation of King's College London; 4) The MSc in Innovation and Entrepreneurship of ESADE Business School.

The programs were chosen among those included with the mapping of European programs, and belong to different geographical areas. They were selected for their high connections to Corporate and Ventures. Moreover, all of them are offered by universities that hold incubators and report a high number of student startups created. The table shows the programs considered and their salient features

Course	University	Core Courses	Specializing Courses	Field Practice	On the job activities	Student Mobility
MSc Innovation, Strategy and Entrepreneurship	Grenoble Ecole de Management	Strategic Management; Project Management Accounting, Managing Global Teams, Languages, International Negotiations Responsible Leadership; Languages; The Legal Environment of International Business Entrepreneurship & Business Opportunities; New Venture Business Planning & Finance; Small & Family Businesses; Corporate Entrepreneurship.	Managerial Economics; Introduction to Innovation Creativity & Innovation; Innovation & Design Thinking; Research Methods; Strategic Innovation Management; Digital Transformation in Business; Opportunities & Risks of the Digital Economy; Strategic Marketing; Digital Strategy & Analytics; Non Organic growth strategies (Alliances/M&As).	Four to six months internship or full-time employment anywhere in the world	Business Cases; Working as a consultant Field Project.	mandatory 4-month exchange program abroad
Master in Innovation and Entrepreneurship	ESMT Berlin	Business Economics; Competitive Strategy Financial Accounting; Judgment and Decision-making; Economics of Innovation & New Technology; Foundations of Entrepreneurship Skills seminar: Entrepreneurship Finance & Fin Tech, Managing Organizations in a Global Context; Marketing Management; Design Thinking; Innovation Policy & Regulation; Organizing for Innovation; Key Writing Skills. Business Presentation; Time Management Public Speaking; Conflict in Teams; Cross Cultural Management; Building Professional Networks.	Corporate Innovation; Negotiation Practice experience : Data Science for Analytics; Social Entrepreneurship; Non Profit Management; Organization and Scaling New Ventures; Research methods; Foreign language classes	Creative Destruction Lab (CDL) or NEXT program to accelerate start-up or corporate innovation project.	Summer Entrepreneurship Program with Vail Berlin. And Vail Sustainable Ideation Bootcamp: Corporate Innovation Project	Students can do their Internship in an enterprise abroad
Strategic Entrepreneurship & Innovation	King's College London	Business Strategy for Entrepreneurs; International Competitiveness, Business Strategy and Innovation Research Methods; Venture Financing; Venture Growth.	Business Model Innovation and Intellectual Property; Digital Marketing; Entrepreneurship in the Social and Sustainable Enterprise; High-tech Entrepreneurship and Commercialization; Entrepreneurship in Family Business; European Business & Corporate Studies	Group projects	Seminars, and student-led group discussions	Students can do their Internship in an enterprise abroad
MSc in Innovation and Entrepreneurship	Esade	Understanding the context ; Understanding the business strategy. Decision making: Innovation and business transformation;	Internship or Corporate project	Internship and I2P projects in partnership with Companies.	Seminars, and student-led group discussions	Global Study Tours

TABLE 7: LIST OF SALIENT FEATURES OF THE COURSES

All courses analyzed are characterized by a balance between theory and practice and show a “learning by doing” approach to entrepreneurship. From a theoretical point of view, all the programs analyzed envisage lectures on core topics, covering specific managerial areas, such as strategic management, project management, finance, leadership, team management, venture building and legal issues (with a focus on intellectual property rights). In addition, the courses integrate compulsory activities aimed at enhancing research skills (research methods) and soft skills, with a strong focus on negotiation and writing skills.

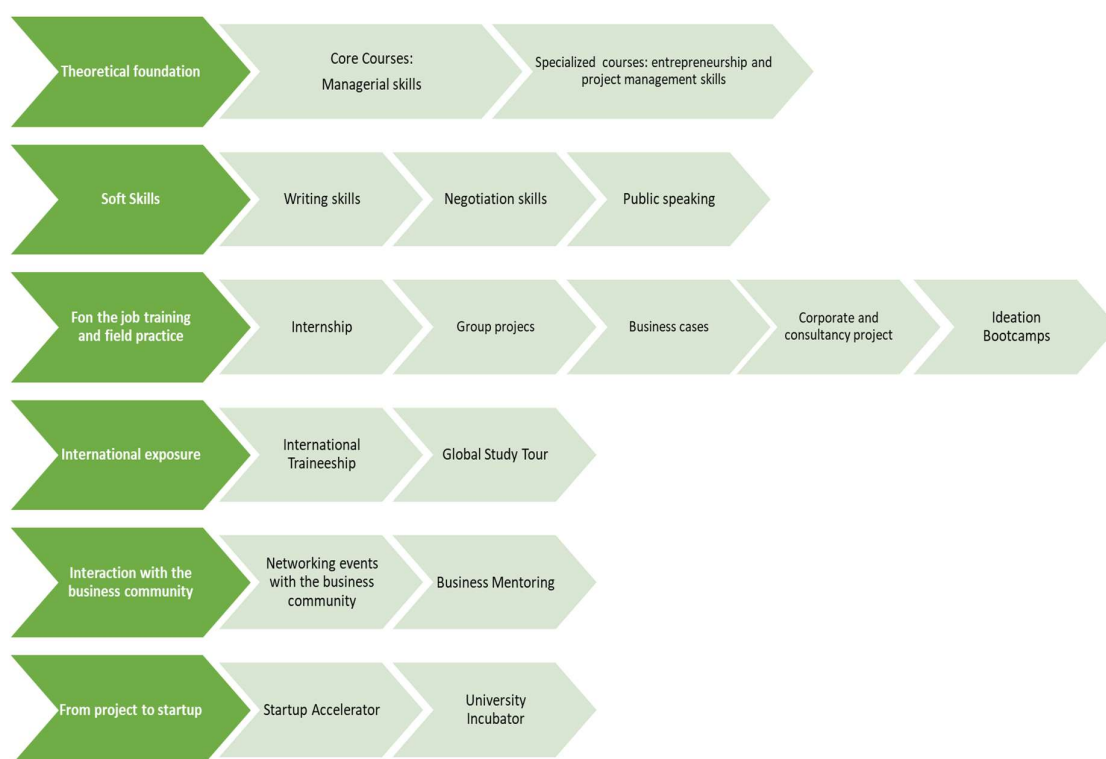


FIGURE 18: FRAMEWORK OF ENTREPRENEURSHIP COURSE STRUCTURE

The courses have a strong practical component, resting on an established local business network that fosters innovation and the sharing of ideas and experiences among students by means of cross-fertilization between academia and business. In fact, the practice

dimension consists not only of group works and project design, but also on individual project activities carried out in partnership with companies and startups. The courses show a strong international exposure and promote student mobility by giving participants the opportunity to spend a period abroad at a partner company to develop entrepreneurial projects or to deal with a consultancy project. Students can also participate in study trips to a foreign partner university. All the programs provide their own facilities for the incubation or acceleration of business ideas.

In conclusion, student entrepreneurship also follows a PLD. That means, on one hand, that student entrepreneurship is highly concentrated in advanced entrepreneurial ecosystems where students tend to develop their ventures in integrated support structures within their academic institutions. On the other hand, it also means that students in less developed entrepreneurial ecosystems lack such a structure. There is evidence that entrepreneurship programs for students are effective if they can offer strong mentorship and venture building programs. One could argue that entrepreneurship programs for students should be offered by the academic institutions. However, research shows that entrepreneurship education programs have generalized effects [88] and entrepreneurial extra-curricular activities have a positive effect on entrepreneurship [120]. Who offers entrepreneurship education (as long as quality of education is ensured) is less important. Thus, the implication for low to moderately innovative regions is that the educational offer for entrepreneurship needs to be integrated in academic institutions, complemented externally if confronted with barriers of implementation and accompanied by the development of external support structures that are potentially accessible to all students.

4. ACCELERATION AND VENTURE BUILDING PROGRAMS

The previous sections have highlighted that low to moderately innovative regions tend to show less advanced entrepreneurial ecosystems. Given that entrepreneurship phenomena are PLD, this means that these regions have not fully developed their entrepreneurial ecosystems. On the level of student entrepreneurship this translates in fewer academic institutions with integrated entrepreneurship programs and support structures. However, support structures such as incubators, accelerators and venture building programs are especially important in those regions to raise the preparedness of entrepreneurs and to facilitate startup financing. Therefore, we turn in the following to those support structures in order to derive implications for the potential setup for new venture building programs for low to moderately innovative regions. As already mentioned, research on acceleration programs has produced a solid body of knowledge [56], the evidence on venture building programs as the more recent phenomenon is still scarce. Therefore, studying the evidence of accelerations programs and analogical reasoning for venture building programs appears to be an appropriate approach. The objective of this section is to give an overview of the essential elements and their effectiveness for developing a potential concept of a venture building program in the frame of the ENTREPRENEDU project. While there is a general positive impact of support structures on startups [4], other research shows negative effects [78]. Therefore, the effective design of those programs is crucial given the variance in outcomes [121]. The effective development of a scalable ENTREPRENEDU venture building for low to moderately innovative regions and its implementation and refinement are the main subjects of WP 4, 5 & 6.

4.1 ACCELERATION STUDIOS VS VENTURE BUILDERS

Acceleration studios are a relatively recent phenomenon. The first acceleration program, Y-combinator, was only started in 2004. The term "acceleration" is conceptually clear, denoting the speed of movement in both startup emergence [122] and general contexts [123] (Hutter, Gfrerer, & Lindner, 2021). It entails compressing years of learning and

experience to fast-track startups' entry into the market, aligning with sponsoring firm-specific goals and outcomes [124–126]. Acceleration Studios focus on providing acceleration and consulting services to startups that want to scale their business. Accelerators are distinct organizations with unique characteristics, determined by the services they offer to startup users [127]. Accelerators can be defined as learning-oriented, fixed-length programs that provide cohorts of ventures with mentoring and education [4]. Unlike incubators, accelerators have much shorter support programs [128]. They usually do not provide long-term physical resources or office space for startups, and concentrate on promoting business development through intensive, time-limited support [129]. Even if the first venture building studio, idealab, was founded in 1996, it can be considered as the more recent phenomenon compared to acceleration studios, as the next wave of venture building studios started in 2007 and half of the actual existing venture building studios was founded after 2013 [130].

Venture Builders are companies that build new startups from scratch. Venture Builders, also known as company builders, startup studios, or startup factories, are organizations that employ their in-house resources and ideas to systematically generate companies; by blending the innovation skills of entrepreneurial founders with strong financial backing, they operate in a factory-like fashion [131]. These internal teams focus on generating ideas, developing products, acquiring customers, and creating a solid foundation for a new company. Typically, Venture Builders work with a wide range of industries and can create several startups in different sectors. The Acceleration Studio focuses on existing startups that want to accelerate their growth and achieve success, while Venture Builders are designed to create new startups from the beginning. Both offer support to startups at different stages of development, but with different goals. However, while acceleration programs focus on growth after an initial traction (first customers), venture building programs start from the very beginning, i.e. the idea and move through all the phases of the startup process. The relationship with founders is thus more long-term oriented than accelerations programs [132].

4.2 ACCELERATION STUDIOS

Acceleration Studios are organizations that provide acceleration and advisory services to startups wishing to grow rapidly and achieve success. These studios provide a wide range of services to support startups at every stage of development, from the early stages of product creation to distribution, marketing, and management. Usually, acceleration and consulting services are encapsulated in a pathway that is called the "Acceleration Program", generally based on the lean startup approach. At its core, the lean startup approach places a heavy emphasis on the systematic testing of hypotheses to drive decision-making. This iterative process allows entrepreneurs to validate or invalidate their assumptions quickly. By continuously testing hypotheses, entrepreneurs gain crucial insights into customer behavior, market demand, and product-market fit (Hallen et al., 2019). This approach enables rapid adaptation and learning, reduces the cost of failure and increases the probability of success in a context of uncertainty [85]. An accelerator typically offers startups a structured, time-limited program that operates in cohorts. This program often includes educational elements like mentorship, with participation concluding at a graduation event [79]. General features are:

- Acceleration programs have an open application call for startups with a relatively acceptance rate (between 10 to 15%) and a strong focus on learning.
- Acceleration Programs usually have a length of 4-6 months and are based on the typical methodologies of the Lean Startup approach that takes place in 10 iterative 2-week cycles called Sprints. Each Sprint consists of: Planning, Execution, Checkpoint.
- Planning: The startup defines the goals of the sprint and plans the activities to be carried out to achieve them. It communicates and receives approval of the work plan from the Acceleration team.
- Execution: The team must complete the sprint goals. Each goal must be SMART (Specific, Measurable, Achievable, Relevant, Time-based).
- Checkpoint: Internal meeting with the accelerator program team on the work done in the previous days and discussion on planning the next sprint. During the

checkpoints, Project Partners will be involved to provide expertise and professionalism specific to the startups' businesses and technologies.

The goal of the Program will be to help startups rapidly develop and validate their solutions and technologies in the marketplace to achieve the traction needed to generate investor interest, establish themselves in the marketplace, and scale up [56].

During the Acceleration program, Acceleration studios may offer several services [56,133];

- **Mentorship:** mentorship is one of the core services offered by Acceleration Studios. Mentors can offer a wide range of experience and expertise to help founders and startup teams overcome challenges and take advantage of opportunities as their businesses grow. They can help startups establish a network of contacts that can be used to access funding, new customers, or other business partners. Usually, mentorship is dedicated in the different areas crucial to project development, such as:
- **Project management:** Startups adopt the Scrum project management framework and plan their activities biweekly using the processes and technology tools provided by the Accelerator.
- **Growth Strategy:** Startups are supported in finding their go-to-market strategy, best acquisition channels, and product market fit.
- **Product Quality Assurance:** Each product release is carefully analyzed to ensure high quality standards.
- **KPI & Goals:** Startups are supported in defining key indicators to track, both from a business and product perspective, to be able to structure a data-driven decision strategy. The process supports startups in setting achievable, challenging, and measurable goals every two weeks.
- **Financial Planning:** Startups are supported in cash flow management and in establishing a financial plan that can enable them to do post-program fundraising.
- **Network Access:** Acceleration Studios often have a large network of investors, venture capital funds, business angels, corporations, and other business partners. These connections can be used by startups to access funding, develop

partnerships, acquire new customers, and more. In addition, these networks can help startups stay up to date on the latest trends and opportunities in their industry.

- **Funding:** Acceleration Studios can help startups obtain funding and investment from outside investors, such as venture capital funds, business angels, and other post-program investors. This can include preparation of pitch decks, support in negotiating deal terms, and access to networking events where investors can be met. In addition, Acceleration Studios can help startups figure out what type of funding is best suited for their needs [134].
- **Operational support:** Acceleration Studios can offer startups operational support to help them overcome the day-to-day challenges of running a growing business. This can include managing finances, managing staff, planning marketing and sales strategies, and more.
- **Training and skills development:** Acceleration Studios offer training and skills development programs for startup teams to help them develop the skills needed to manage a growing company. This can include training through seminars and workshops on marketing strategies, finance, personnel management and more. In addition, training programs can help startup teams develop their network of contacts and meet other founders who can provide additional advice and support
- **Workspace:** Some Acceleration Studios also offer workspace for startups. This may include shared offices, coworking space, or private offices. This workspace can offer founders and startup teams a stimulating environment where they can work side by side with other founders and receive operational support, mentoring, and other services.

Overall, acceleration programs can be a crucial interface between startups and the entrepreneurial ecosystems by connecting the startup with the relevant actors. This intermediary role makes them effective for entrepreneurs such as students that lack access and connections to stakeholders and their resources even if participants of those programs - at least in the US - tend to come from more elite universities [76]. However, research in Chile could show that for student entrepreneurs the access to educational

entrepreneurship programs combined with acceptance in acceleration programs increases the likelihood of startup creation, funding and success [135]. Acceleration programs appear, overall, to be effective because of intensive and paced consultation and learning even if there are some effects related to sorting (choosing more promising startups) and signaling (based on the quality of the support structure). In addition, especially for young founders such as student entrepreneurs, the much higher interaction with other stakeholders of the ecosystem and the real world the stronger impact on the outcome of the startup.

4.2.1 ACCELERATION PROGRAM PHASES

The phases in an Acceleration Program usually are:

- **Selection:** The first phase of an Acceleration Studio is the selection of the startups that will participate in the program. This phase involves a very rigorous selection process, in which startups must present their idea usually through a presentation accompanied by a pitch deck. In most cases, the selection phase begins with a dedicated call with a focus on the indicated topics and a scouting activity of the most interesting realities in the relevant sector. Startups are evaluated based on their business idea, team, execution capacity and growth potential, market, timing, and other factors.
- **Acceleration:** The acceleration phase is where participating startups receive operational support, mentoring, access to investor networks and funding, training and skills development programs, workspace, and other services. This helps startups develop faster and overcome the challenges they encounter during their growth path.
- **Demo Day:** Demo Day is a final event where participating startups present their product or service to an audience of investors, business angels, venture capital funds, and other interested parties. This event provides an opportunity for startups to showcase their business ideas and post-acceleration work and to meet potential investors and business partners. Typically, the format involves the startup

presenting its business idea while also expressing the economic demand for funding needed for growth over the next total number of months.

- **Post-acceleration:** The post-acceleration phase is where startups continue to receive support and mentoring, but less intensively than in the acceleration phase. In this phase, startups must be able to demonstrate that they have a solid business vision and are able to run their business independently.
- **Scaling:** The final stage is scaling, in which startups focus on growing their business. At this stage, startups should have access to new funding, business partnerships, and growth opportunities. Acceleration Studios can provide ongoing support at this stage, helping startups overcome growth challenges and take advantage of opportunities as they arise.

The Acceleration Studio program has several phases that aim to help startups develop quickly and sustainably by providing them with operational support, mentoring, access to funding, training and skills development programs, and other services [56].

4.2.2 MAP OF ACCELERATION STUDIOS

Europe is home to a vibrant startup ecosystem, and there are many accelerators that play a crucial role in nurturing and supporting startups. The accelerator landscape in Europe is diverse, with programs tailored to different stages of the startup lifecycle, as well as different sectors and industries. We selected UK and Germany as advanced and older entrepreneurial ecosystems, France as an advanced, but compared to UK and Germany, younger entrepreneurial ecosystems and Spain and Italy for moderately innovative regions with some important presence of acceleration studios.

To provide an overview and rank the most active ecosystems, we consider the following indicators as the most impactful:

- Number of accelerators
- Funding amount
- Success stories (exits, IPOs)
- Global reach

The most active countries:

UNITED KINGDOM

The UK has a thriving startup ecosystem, with a large number of accelerators focused on various sectors, from fintech to healthtech. London, in particular, is home to many of the UK's top accelerators. Some of the most well-known accelerators in the UK include Techstars London, Seedcamp, and Entrepreneur First.

- **Number of Accelerators:** Over 200 accelerator programs in the UK, with a significant concentration in London.
- **Funding Amount:** According to Tech Nation, UK startups raised over £12.3 billion in venture capital funding in 2020, with a significant portion going to early-stage companies.
- **Success Stories:** Notable UK-based startups that have gone through accelerator programs include TransferWise (now Wise), Monzo, Revolut, and Deliveroo.
- **Global Reach:** Many UK-based accelerator programs have a global reach, with startups from around the world participating in programs like Techstars London, Seedcamp, and Entrepreneur First.

GERMANY

Germany has a strong economy and a well-established startup ecosystem, with a focus on technology and innovation. Berlin, in particular, is a hub for startups and accelerators. Some of the most well-known accelerators in Germany include Axel Springer Plug and Play, Berlin Startup Academy, and Techstars Berlin.

- **Number of Accelerators:** Over 150 accelerator programs in Germany, with a significant concentration in Berlin.
- **Funding Amount:** According to the German Startups Association, German startups raised over €6.2 billion in venture capital funding in 2020.

- **Success Stories:** Notable German-based startups that have gone through accelerator programs include Flixbus, SoundCloud, Wefox, and Zalando.
- **Global Reach:** Many German-based accelerator programs have a global reach, with startups from around the world participating in programs like Axel Springer Plug and Play, Berlin Startup Academy, and Techstars Berlin.

FRANCE

France has a well-established startup ecosystem, with a focus on fintech, healthtech, and e-commerce. Paris, in particular, is home to many of the country's top accelerators. Some of the most well-known accelerators in France include The Family, 50 Partners, and NUMA.

- **Number of Accelerators:** Over 50 accelerator programs in France, with a significant concentration in Paris.
- **Funding Amount:** According to La French Tech, French startups raised over €5.4 billion in venture capital funding in 2020.
- **Success Stories:** Notable French-based startups that have gone through accelerator programs include BlaBlaCar, Criteo, Doctolib, and Voodoo.
- **Global Reach:** Many French-based accelerator programs have a global reach, with startups from around the world participating in programs like The Family, 50 Partners, and NUMA.

SPAIN

Spain has emerged as a hub for startups in recent years, with a growing number of accelerators and venture capital firms. Barcelona, in particular, has become a hotspot for tech startups. Some of the most well-known accelerators in Spain include Seedrocket, Conector Startup Accelerator, and Lanzadera.

- **Number of Accelerators:** Over 70 accelerator programs in Spain, with a significant concentration in Barcelona.

- Funding Amount: According to El Referente, Spanish startups raised over €2.7 billion in venture capital funding in 2020.
- Success Stories: Notable Spanish-based startups that have gone through accelerator programs include Wallapop, Glovo, Cabify, and Typeform.
- Global Reach: Many Spanish-based accelerator programs have a global reach, with startups from around the world participating in programs like Seedrocket, Conector Startup Accelerator, and Lanzadera.

ITALY

Italy has a growing startup ecosystem, with a focus on fashion, foodtech, and fintech. Milan, in particular, has emerged as a hub for startups. Some of the most well-known accelerators in Italy include LUISS ENLABS, Nana Bianca, H-FARM. Italy has over 30 accelerator programs, predominantly concentrated in Milan. In 2020, Italian startups raised €2 billion in venture capital funding, as reported by Startup Italia. Among the notable success stories emerging from Italian accelerators are companies like: Musixmatch, Supermercato24, and Moneyfarm.

Following a list of the most active accelerators for each of the countries analyzed:

COUNTRY	
GERMANY	<p>HIGH-TECH GRÜNDERFONDS: HTTPS://HIGH-TECH-GRUENDERFONDS.DE/</p> <p>NEXT MEDIA ACCELERATOR: HTTPS://NMA.VC/</p> <p>INNOGY INNOVATION HUB: HTTPS://INNOVATIONHUB.INNOGY.COM/</p> <p>APX: HTTPS://APX.AC/</p> <p>COMMERZBANK INNOVATION LAB: HTTPS://WWW.COMMERZBANK.DE/DE/HAUPTNAGIGATION/PRESSE/PRESSEMITTEILUNGEN/ARCHIV1/2019/QUARTAL_19_01/PRESSE_ARCHIV_DETAIL_19_01_80240.HTML</p> <p>SPINLAB – THE HHL ACCELERATOR: HTTPS://SPINLAB.CO/</p> <p>HASSO PLATTNER INSTITUTE ACCELERATOR: HTTPS://HPI.DE/EN/HPI-ACCELERATOR.HTML</p> <p>ACCELERATOR FRANKFURT: HTTPS://ACCELERATORFRANKFURT.COM/</p> <p>MEDIA LIFT: HTTPS://MEDIALIFT.DE/</p> <p>W1 FORWARD INSURTECH ACCELERATOR: HTTPS://WWW.W1FORWARD.COM/</p> <p>IMPACT HUB BERLIN: HTTPS://BERLIN.IMPACTHUB.NET/</p>

	<p>SOCIAL IMPACT LAB BERLIN: HTTPS://WWW.SOCIALIMPACTLAB.EU/</p> <p>TECHQUARTIER: HTTPS://TECHQUARTIER.COM/</p> <p>STARTUP CREASPHERE: HTTPS://WWW.STARTUPCREASPHERE.COM/</p> <p>EIT DIGITAL ACCELERATOR: HTTPS://WWW.EITDIGITAL.EU/STARTUPS/SUPPORT-FROM-THE-EIT-DIGITAL-ACCELERATOR/</p> <p>BERLIN INNOVATION AGENCY: HTTPS://WWW.BERLIN-INNOVATION-AGENCY.COM/</p> <p>WESTTECH VENTURES: HTTPS://WESTTECHVENTURES.COM/</p> <p>GTEC BERLIN: HTTPS://GTEC.CENTER/</p> <p>GERMAN ACCELERATOR: HTTPS://WWW.GERMANACCELERATOR.COM/</p> <p>FOUNDERS FOUNDATION: HTTPS://FOUNDERSFOUNDATION.DE/</p> <p>INNOENERGY HIGHWAY: HTTPS://HIGHWAY.INNOENERGY.COM/</p>
FRANCE	<p>LE VILLAGE BY CA: HTTPS://WWW.LEVILLAGEBYCA.COM/</p> <p>AGORANOV: HTTPS://WWW.AGORANOV.COM/</p> <p>WILCO: HTTPS://WILCO-STARTUP.COM/</p> <p>STARTWAY: HTTPS://STARTWAY.IO/</p> <p>WILCO ACCÉLÉRATEUR: HTTPS://WWW.WILCO-STARTUP.COM/ACCELERATEUR/</p> <p>CLEANTECH OPEN FRANCE: HTTPS://WWW.CLEANTECHOPEN.ORG/FRANCE</p> <p>LA PISCINE: HTTPS://WWW.LAPISCINE.VC/</p> <p>STARBURST ACCELERATOR: HTTPS://STARBURST.AERO/</p> <p>IMPULSE PARTNERS: HTTPS://WWW.IMPULSE-PARTNERS.COM/</p> <p>ALVEN: HTTPS://WWW.ALVEN.CO/</p> <p>AXELEO: HTTPS://WWW.AXELEO.COM/</p> <p>BEELYS: HTTPS://WWW.BEELYS.ORG/</p> <p>BIZLAB: HTTPS://WWW.AIRBUS-BIZLAB.COM/</p> <p>BLUE FACTORY: HTTPS://WWW.BLUEFACTORY.CH/</p> <p>BOND'INNOV: HTTPS://WWW.BONDINNOV.COM/</p> <p>CEEI PROVENCE: HTTPS://WWW.CEEI-PROVENCE.COM/</p> <p>CITÉ DE L'OBJET CONNECTÉ: HTTPS://CITEDELOBJETCONNECTE.COM/</p> <p>CREATIVE VALLEY: HTTPS://CREATIVE-VALLEY.FR/</p> <p>EURATECHNOLOGIES: HTTPS://WWW.EURATECHNOLOGIES.COM/</p> <p>H7: HTTPS://WWW.H7.SPACE/</p> <p>IONIS 361: HTTPS://WWW.IONIS361.COM/</p> <p>KIC INNOENERGY: HTTPS://WWW.KIC-INNOENERGY.COM/</p> <p>L'ATELIER BNP PARIBAS: HTTPS://WWW.ATELIER.NET/</p> <p>LA RUCHE: HTTPS://LA-RUCHE.NET/</p> <p>LE VILLAGE BY CA AQUITAINE: HTTPS://AQUITAINE.LEVILLAGEBYCA.COM/</p>
UNITED KINGDOM	<p>TECHSTARS LONDON: HTTPS://WWW.TECHSTARS.COM/PROGRAMS/LONDON-PROGRAM/</p> <p>SEEDCAMP: HTTPS://SEEDCAMP.COM/</p> <p>ENTREPRENEUR FIRST: HTTPS://WWW.JOINEF.COM/</p> <p>IGNITE ACCELERATOR: HTTPS://IGNITE.IO/</p> <p>WAYRA UK: HTTPS://WWW.WAYRA.CO.UK/</p>

	<p>STARTUPBOOTCAMP: HTTPS://WWW.STARTUPBOOTCAMP.ORG/</p> <p>FOUNDERS FACTORY: HTTPS://FOUNDERSFACTORY.COM/</p> <p>COLLIDER: HTTPS://COLLIDER.IO/</p> <p>BETHNAL GREEN VENTURES: HTTPS://BETHNALGREENVENTURES.COM/</p> <p>OXYGEN ACCELERATOR: HTTPS://WWW.OXYGENACCELERATOR.COM/</p>
SPAIN	<p>SEEDROCKET: HTTPS://WWW.SEEDROCKET.COM/</p> <p>CONECTOR STARTUP ACCELERATOR: HTTPS://WWW.CONECTOR.COM/</p> <p>LANZADERA: HTTPS://LANZADERA.ES/</p> <p>TETUAN VALLEY: HTTPS://WWW.TETUANVALLEY.COM/</p> <p>DEMIUM: HTTPS://DEMIUMSTARTUPS.COM/</p> <p>WAYRA SPAIN: HTTPS://WWW.WAYRA.ES/</p> <p>PLUG AND PLAY SPAIN: HTTPS://WWW.PLUGANDPLAYTECHCENTER.COM/SPAIN/</p> <p>INNSOMNIA: HTTPS://WWW.INNSOMNIA.ES/</p> <p>CONECTOR GALICIA: HTTPS://WWW.CONECTOR.COM/ACCELERADORA-STARTUPS-GALICIA/</p> <p>IMPACT ACCELERATOR: HTTPS://WWW.IMPACT-ACCELERATOR.COM/</p> <p>ORIZONT: HTTPS://ORIZONT.ES/</p> <p>BRIDGE FOR BILLIONS: HTTPS://WWW.BRIDGEFORBILLIONS.ORG/</p> <p>SHIP2B: HTTPS://WWW.SHIP2B.ORG/</p>
ITALY	<p>LUISS ENLABS: HTTPS://LUISSENLABS.COM/</p> <p>NANA BIANCA: HTTPS://WWW.NANABIANCA.IT/</p> <p>H-FARM: HTTPS://WWW.H-FARM.COM/EN/</p> <p>TECHPEAKS: HTTPS://WWW.TECHPEAKS.EU/</p> <p>STARTUP INITIATIVE BY INTESA SAN PAOLO: HTTPS://WWW.STARTUPINITIATIVE.COM/</p> <p>TIM #WCAP ACCELERATOR: HTTPS://WWW.WCAP.TIM.IT/EN/</p> <p>THE NET VALUE: HTTPS://WWW.THENETVALUE.COM/</p>

TABLE 8: LIST OF THE MOST ACTIVE ACCELERATORS FOR EACH COUNTRY

CROSS-COUNTRY SUMMARY

The qualitative analysis of acceleration programs across various countries aligns with findings from research conducted in the United States.

Firstly, it underscores the pivotal role of educational initiatives, which emerge as foundational components within the most impactful programs. Consequently, the integration of educational programs with acceleration initiatives is recognized as a promising strategy, as outlined by Cohen et al. (2019). This dual approach, involving both

educational enrichment and acceleration, is increasingly acknowledged as instrumental in fostering entrepreneurial success.

Secondly, the sustained viability of support structures for entrepreneurs over the long term remains a complex challenge. At present, the evidence suggests that venture capital (VC)-sponsored structures exhibit a preference over those sponsored by governmental policies [121]. This observation underscores the importance of private-sector involvement and investment in entrepreneurial ecosystems, highlighting the potential advantages and sustainability associated with support structures backed by venture capital. As the entrepreneurial landscape continues to evolve globally, these insights contribute to shaping effective and enduring frameworks for nurturing innovation and business development. First, educational programs are fundamental and offered by the most effective programs. Thus, the education of students in combination with an acceleration program is considered as promising [121]. Second, the viability in the long-term of support structures is not obvious and - at the moment - VC sponsored structures appear preferable to policy sponsored ones [121].

4.3 VENTURE BUILDING

Venture Building is a relatively recent phenomenon. It has evolved to help entrepreneurs overcome the difficulty of starting a business from scratch and to help investors increase the proportion of investments in successful startups. The Venture Building approach focuses on developing the most promising projects by both producing new ideas and screening the market for existing opportunities. Certain aspects remain unanswered, such as how successful this model is in comparison to more typical accelerator and incubator models, and under which conditions is this model applicable. In a scenario where roughly 90% of startups fail, trying to identify the correct framework to de-risk entrepreneurship is Venture Builders' goal.

4.3.1 VENTURE BUILDER DEFINITION

Venture Builders are companies that repeatedly build and finance startups from zero to exit in exchange for large stakes of equity. They represent the latest generation of incubation models whose aim is to mitigate investment risk by following a rigorous building approach and operating under close long-term supervision [127,132,136]. Within the literature, Venture Builders are referred to by a variety of terms such as Startup Studio, Startup Factory, Company Builder, Venture Studio, Startup Foundry, and Startup Nursery. The use of multiple terms referring to this new incubation model indicates a lack of consistent language and research in literature [137].

Venture Builders bring together promising business ideas with talented founders and provide teams with adequate resources. As for a manufacturing company, the building process of startups is organized as if in an assembly line, manufacturing and matching each component, to increase the projects' success rate. In contrast to Startup Accelerators, Venture Builders do not operate programs with cohorts of founders who have previously developed an idea. Most importantly, while accelerators select and accompany startups to turn them into scale-ups, venture builders *create* startups from scratch until they become independent companies. They provide more resources (human, social and financial capital) to startups and basically assemble startups and their teams [132].

Venture Builders internally develop business ideas to execute them with a full-time team of Entrepreneurs in Residence (EIR). This does not exclude that Venture Builders do not consider outside ideas; rather they quickly incorporate a concept into their sphere of influence and work on it with their internal team of experts to rapidly gather all the data to approve or kill the project [138]. One of the interesting aspects of VB is - while acceleration programs attract VC financing - that the emergence of VBP has largely followed the opposite road: many VBP has been created by VCs in order increase the likelihood of success of their finances startups by predefining ideas, working on the team and venture execution [139].

4.3.2 THE RISE OF STARTUP STUDIOS

Idea Lab was the first Venture Builder to rise in the United States in 1996, followed a couple of years later, by another Venture Builder, Blenheim Chalcot, which bloomed in London in 1998. After the birth of the first Venture Studio, it took 11 years for new Venture Builders to emerge consistently. The growth of companies replicating this model took place in three different waves: the first wave saw the birth of both the famous Betaworks and Rocket Internet (2007). Betaworks represented a hybrid as an early Venture Builder. The company provided both services in the form of a Venture Builder and as an Accelerator by providing entrepreneurs with an alternative; bringing their idea to the Venture Builder and working with their internal team in exchange for a major equity stake or bringing their idea to Betaworks as part of the accelerator program, receiving significantly less assistance in exchange for a smaller equity stake. The growth of Venture Builders brought companies to differentiate their business model in terms of the degree of assistance, equity request, and sector. As an example of an innovative business model within Venture Builders, we count the Rocket Internet case.

Rocket Internet was launched in 2007 alongside Betaworks, with a clear mission “Rocket Internet incubates and invests in internet and technology companies globally. We provide deep operational support to entrepreneurs and help them build market-leading companies” (Rocket Internet, 2022). Rocket Internet introduced a twist to the classic approach: not only did they develop businesses from zero to exit, investing in extremely early-stage enterprises, but also were the first to start replicating successful businesses systematically, understanding how investing in market-tested business models could reduce investment risk. The second and third waves took place respectively in 2011 and 2013. The growth of Startup Studios continued, reaching the number of 560 active startup studios globally in 2021. Moreover, the number of startup studios is expected to double further by 2023.

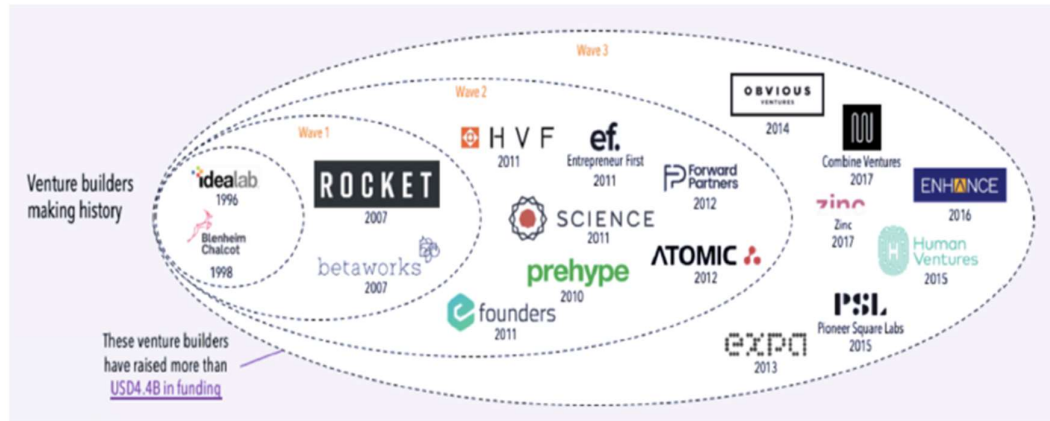


FIGURE 19 ENHANCE'S WHITE PAPER (ALHOKAIL, CELEN, AND TILANI, 2019)

4.4 THE STARTUP STUDIO MODEL

Startup Studios have emerged along six dimensions, which combinations and degrees have defined the emergence of different Studio types. These six dimensions are identified by: The Guild, The Control, The Idea, The Funding, The Volume, and The Focus [140].

The Guild: The Guild is the infrastructure that startups may take advantage of, including team members, technology resources, finance, knowledge, and space. The Guild may be deployed horizontally throughout the startup portfolio to increase cost-effectiveness and generate synergies, or it can be distributed vertically for each business [130,138]

As an example, certain types of venture builders can adopt a focused capital allocation strategy, by providing a dedicated team for each startup, or conversely a diversified strategy by allocating team members across multiple startups. The first solution provides a higher effectiveness in terms of competences and business fit, while the second one a higher effectiveness of knowledge and experience sharing across the venture builder startups portfolio. Ideally, since the aim of a VB is to optimize resources to mitigate the business risk, which results in applying tested frameworks to multiple business scenarios, structured VB should ideally point to apply the second one.

The Control: Startup Studios chose to adjust the amount of equity they hold in startups, according to their coaching times and degree of control. Venture Builders with significant control over their startups own significant amounts of equity, which enables them to drive decisions and coach the startup for longer periods. Conversely, those that leave larger stakes to the founders exercise less control over decisions and coach ventures for a shorter period. According to ENHANCE Ventures' studio, founders' equity stakes range from 1% to 90%, depending on the startup studio's control degree. As an example of Studios exerting significant influence over their firms, Rocket Internet is one of those Venture Builders whose strategy consists in owning great stakes of equity, resulting in influencing key choices and driving startups to the exit.

The Focus: Startup Studios can choose to operate horizontally across different sectors or conversely operate vertically in a specific sector. The first approach is called the “Generalist” while the second is called “Specialist” [140]. These two Focus Strategies have different purposes, the Generalist focus can benefit from a wider range of investments and a differentiated risk, while the Specialist focus can benefit from synergies created by common knowledge and resources shared among startups operating in the same sector.

The Idea: Idea generation is a critical component of the Business Model of Startup Studios. Sourcing might be done externally or internally. External sourcing may take two forms: fostering external early-stage firms or scanning the market for the best venture to produce a Copycat. Internal idea sourcing, on the other hand, is a procedure that involves the commitment of Startup Studio specialized employees to generate new ideas.

The Volume: Startup studios can develop a few or many businesses concurrently. This is likely the most challenging choice to make when designing a studio's Business Model. On the one hand, undertaking a small number of ventures, lessens the benefits and the synergies of the studio model, while on the other hand, overseeing too many initiatives concurrently degrades both the quality and amount of human resources available to the guild for individual ventures. As a result, being able to balance resources and the number of ventures is a Key Success Factor for startup studios.

The Funding: Startup studios can choose to finance their portfolio with their own resources or can choose a hybrid solution. Normally, the choice falls between the latter option and the greatest amount of equity possible within their ventures.

Thus, the configuration of NVB studios depends on the central resources provided, the primary source of funding (internal vs. external) that will influence the number of projects hosted and the level of control independent of a narrow or wide scope of the program.

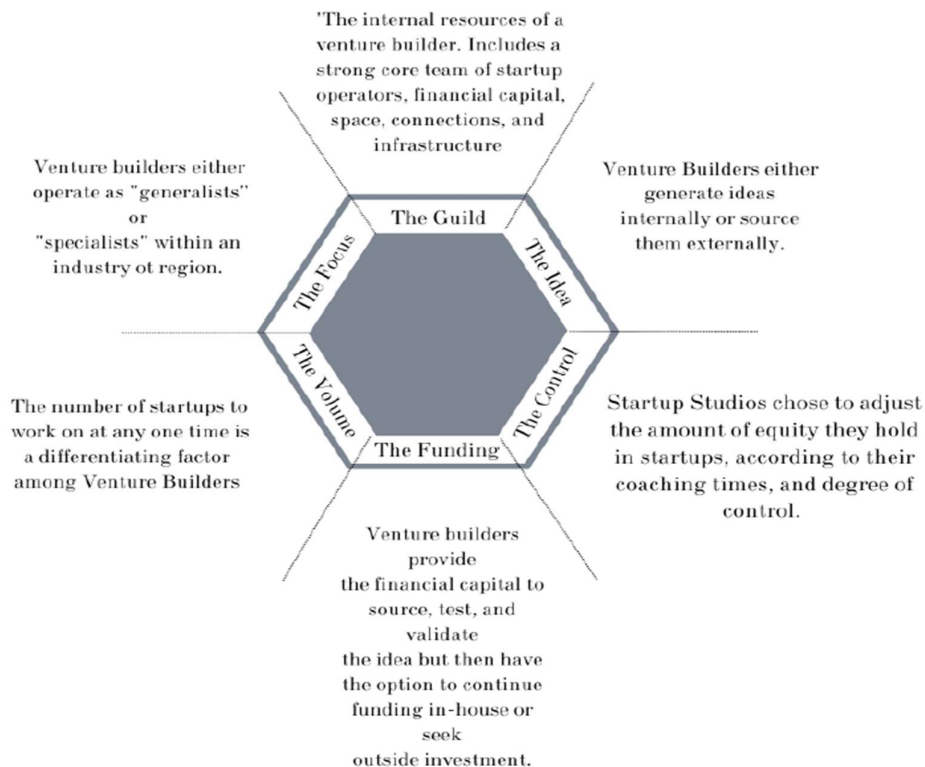


FIGURE 209: THE DRIVERS OF THE STARTUP STUDIO MODEL (ALHOKAIL ET AL., 2019)

In the following, we will illustrate the VB studios that are most advanced in Europe and those of an upcoming, moderately innovative region (Spain).

This comparative exploration of Venture Builders across Germany, UK, the Netherlands, and Spain have been chosen as they provide a comprehensive view of the diverse strategies and innovations shaping the European entrepreneurial landscape. By recognizing the strengths and challenges of each region, we can anticipate a future where collaborative ventures contribute to the continued growth and evolution of the European startup ecosystem.

Venture Builders Germany 15	Top 3 VB	Venture Builders Netherlands 5	Top 3 VB
	Rocket Internet		Peakfijn
	FinLeap		The Main Ingredient
	Next Big Thing		Builders
Venture Builders UK 7	Top 3 VB	Venture Builders Spain 5	Top 3 VB
	Entrepreneur First		Antai
	RainMaking		Mutter Ventures
	Founder's Factory		Byld

TABLE 9: AN OVERVIEW OF ACTIVE VB STUDIOS IN SELECTED EUROPEAN COUNTRIES

TOP VENTURE BUILDERS IN GERMANY

1. Rocket Internet: Without a doubt, the most well-known venture builder in Europe is Rocket Internet. They own more than 200 investments and fund entrepreneurs with tested business ideas. Their current businesses include Payflow (payroll on demand), Bluenest (a real estate agency), and Global Savings Group (a commerce content platform), and they employ 42,000 people.

Founders: Marc, Oliver, and Alexander Samwer

Location: Berlin (Germany)

2. FinLeap: FinLeap is a premier corporate venture builder with a financial focus. They started 18 businesses. They helped co-found several companies, including Connect (open banking), Element (insurtech), and Solaris Banks (a digital banking platform).

Founders: IONIQ Group-owned Ramin Niroumand

Location: San Francisco, USA and Berlin, Germany

3. Next Big Thing: IoT and blockchain are the main areas of business development for Next Big Thing AG. They also function as a venture capital firm, incubator, and accelerator. NBT offers financial assistance and mentoring. Startups include Weeve (blockchain technology), METR (proptech), and Assistr (healthcare).

Founders: Michael Bommer, Maik Kabisch, and Harald Zapp

Location: Germany's Berlin

4. Team Europe: Team Europe's primary objective has been the creation and management of numerous E-commerce enterprises. Spreadshirt (customized T-shirts) and Brands4Friends (women's apparel) are a couple of its ventures.

Lukasz Gadowski, founder

Location: Berlin (Germany)

5. Eventure: etventure creates digital divisions for corporations (Klöckner & Co SE, SMS group) and startups (POSpulse, mobilejob). Their areas of competence include life sciences, health and chemicals, automobiles, transportation and industrial products, consumer goods, retail and TMT, financial services organizations, real estate, and construction and energy.

Dr. Christian Lüdtke, Philipp Depiereux, and Philipp Herrmann founded the company, which EY has owned since 2017.

Location: Berlin, Germany

6. FoundersLane: A corporate venture builder with a focus on health and the environment is called FoundersLane. Since its establishment in 2016, FoundersLane has attracted more than 100 founders, experts, and businesspeople with extensive knowledge in the domains of medicine, health, the environment, and disruptive technologies like IoT connection, artificial intelligence, and machine learning. Corporations and 30 Forbes-listed businesses including Trumpf, Vattenfall, Henkel, and Baloise are among the clients.

Founders: Michael Stephanblome, Andreas von Oettingen, and Felix Staeritz

Location: Berlin, Germany. Active in Europe, MENA and Asia.

7. Finparx: A corporate venture builder with a focus on health and the environment is called FoundersLane. Since its establishment in 2016, FoundersLane has attracted more than 100 founders, experts, and businesspeople with extensive knowledge in the domains of medicine, health, the environment, and disruptive technologies like IoT connection, artificial intelligence, and machine learning. Corporations and 30 Forbes-listed businesses including Trumpf, Vattenfall, Henkel, and Baloise are among the clients.

Founders: Michael Stephanblome, Andreas von Oettingen, and Felix Staeritz

Location: Munich, Germany

8. Heartbeat labs: Heartbeat Labs co-founds digital health businesses with patient care improvement user-centric solutions. They offer all-around assistance in the following areas: technology, products, medical expertise, regulatory counsel, business intelligence, marketing, finances, communications, and recruiting. They have a VC branch as well. They created businesses like Sinbionik (biotech) and FernArtz (telemedicine).

Stephanie Kaiser and the IONIQ group are the founders.

Location: Berlin, Germany

9. Lemonblood: Lemonblood creates startups using various startup models across all sectors. They provide companies with a wide range of services, including strategy, marketing, and product development, as well as assistance and investment.

Antonio A. Gatti Balsarri is the founder.

Location: Berlin, Germany

10. Wattx: WATTx develops deep technology businesses and products with a user-centric focus on solving industrial problems. They have Statice (a tool for data anonymization), Hasty (a cutting-edge tool for picture annotation), and deevio (which uses machine learning to automate visual inspection in factories).

Martin Mittermeier, Julius Patzelt, and Marius Pfuhl are the managing directors.

Location: Berlin, Germany

11. Bridgemaker: Bridgemaker creates and implements B2B tech concepts. For Berliner Volksbank, they created VAI (a service for digital on-demand purchase financing), and for Workspex, they created Goodnity (a data-driven HR solution).

Founder: Henrike Luszick

Location: Berlin, Germany

12. Innovation Punks: The 2013-founded Innovation Punks company creates digital businesses and offers other digitalization services. Riddle (a tool for content development and business intelligence), HAMSTERD (help with car leasing), and VIBE (a mobile social network) were all founded by the business.

Founder: Marco Höglinger

Location: Munich, Germany

13. Found Fair: German company builder Foundfair works in the fields of Fintech, Mobility, Marketplaces, Adtech, and Medtech.

Founders: Burckhardt Bonello

Location: Berlin, Germany

14. Venture Stars: A company builder for online startups is called Venture Stars. Miflora (flower delivery), Vaola (sports marketplace), and Justbool (last-minute premium hotel booking) are a few of their exits.

Founder: Stefan Pfannmoeller

Location: Munich, Germany

15. Pacemakers: Pacemakers leads more than 80 distinct projects through the conception to growth stages using a holistic approach to business formation. Some of their partners include Coca-Cola and Henkel.

Founders: Peter Henssen, Robin Rohrmann, Julius Hansen

Location: Berlin, Germany

Germany features a diverse array of venture builders, each with distinct niches and strengths. From the established Rocket Internet, with an extensive portfolio of investments (more than 200), to specialized firms like Heartbeat Labs in digital health, these organizations shape the startup scene. Some work independently in setting up startups, others run their programs in close relationships with corporations, while others also act as VCs. They have a relevant impact, both domestically and globally, extending their reach across various sectors, such as fintech and biotech. Collectively, they have launched numerous startups.

TOP VENTURE BUILDERS IN THE NETHERLANDS

1. Peakfijn: Peakfijn creates and manufactures digital goods. They rule the phases of design, construction (web and mobile), and maintenance (interaction, UX/UI, and visual). Their investments include Split-A-Gift (charity fundraising), Sprynter (shipping from your

front door), Shleep (sleeping coach), and Yeller (taxi sharing), as well as Oaky (a hyper-personalized upsell engine for hotels that raised a \$10 million Series A in 2020).

Founders: Wouter Wisselink, Willem Guensberg

Location: Amsterdam, Netherlands.

2. **The Main Ingredient:** This startup firm, which is based in Amsterdam, cofounds businesses from the ground up and validates concepts in 12 weeks while offering business development, seasoned teams, useable products, and a smooth workflow. Their experience in design, development, strategy, and investing have helped them construct successful businesses including Returnista, which helps e-commerce enterprises maximize returns, Ligo, which offers company registration and legal services, and Tikkie, which allows for bill splitting.

Founders: Paul Reijnierse

Location: Amsterdam, Netherlands.

3. **Builders:** Builders is a startup studio situated in Rotterdam that aims to create and expand digital firms from the ground up by bringing together innovative concepts, outstanding co-founders, operational assistance, and financial backing. Influentials (software for influencer marketing), IPS (managed cloud platform), and Obeyo (living-as-a-service) are some of their businesses.

Founders: Michael van Lier

Location: Rotterdam, Netherlands

4. **Nescio:** Nescio is an Amsterdam-based startup studio. Their startups include Journa (journalist portfolios), Smart.pr (PR software), and Nouncy (social media marketing).

Location: Amsterdam, Netherlands

5. **Holland Startup:** The team at Holland Startup has more than 50 years of experience creating businesses from scratch. On day one, they give you funding and walk you through

the procedure. They now have 10 Entrepreneurs in Residence, along with 8 portfolio firms (Bittiq, Neurolytics, TheDiscov, ChainSlayer, NearOnes, Bynd.ai, Viqal, and Wellabee).

Founders: Robbert Jan Hanse

Location: Utrecht, Netherlands.

The Netherlands hosts a variety of venture builders, each with its unique focus and capabilities. From Peakfijn, which specializes in digital design, construction, and maintenance, to The Main Ingredient, a startup firm with expertise in rapid concept validation and development, these entities contribute to the entrepreneurial landscape. Builders in Rotterdam and Nescio in Amsterdam focus on creating and growing digital businesses, while Holland Startup in Utrecht offers funding and guidance to emerging entrepreneurs. Collectively, they demonstrate the Netherlands' commitment to supporting startups and facilitating their growth, contributing to the country's dynamic business environment. The example of the Netherlands shows that wide variety of configurations of NVB studios with those focusing on team building, others on central services and setting up business from scratch and others again, mainly providing (financial) resources.

TOP VENTURE BUILDERS IN SPAIN

1. Antai: Antai produces startups and assists them with business planning, market research, financial management, legal advice, and hiring. More than 300 people work for them, and they are experts in e-commerce, on-demand apps, digital native businesses, vertical brands, marketplaces, and SaaS. Among other things, they co-built the second-hand marketplace Wallapop and the urban delivery service Glovo.

Founders: Gerard Olivé, Miguel Vicente

Location: Barcelona, Spain

2. Mutter Ventures: Mutter Ventures finds cutting-edge prospects and turns them into market-dominating companies. They specialize in FinTech, software & IOT, and the consumer sector and carry out this work using only their own ideas & resources.

Companies including Advancing, Groenlandia Tech, Cobramus, Fiara, Menai, and Byepack are among those under their portfolio.

Founder: Christian Rodríguez, Alfonso Le Monnier and Carlos Galí among others.

Locations: Barcelona and Madrid, Spain

3. Byld: Byld was the first Spanish corporate venture builder. They are an evolution from Sonar Ventures, the first Spanish venture builder. They built projects with Vodafone and Carrefour among others.

Founders: Adrián Heredia

Location: Madrid, Spain

4. Sonar Ventures: The first firm builder in Spain was Sonar Ventures. Lyra (online marketing), Foodinthebox (cooking recipe marketplace), Wish (travel with local suggestions), Yump (health and wellbeing), and The Element (employment offers) are some of their ventures.

Founders: Alvaro Cuesta, Lucas Cervera

Location: Madrid, Spain

5. Nuclio: A venture builder called Nuclio develops enterprises with commercially successful business ideas. Two times a year, they host "Nuclio Weekends" that draw in talent. In addition to others, they have co-founded Housfy (a real estate marketplace), Typs (on-demand payroll), Eelp! (property management), and Verone (luxury jewelry on subscription).

Founders: Carlos Blanco, Alex Díaz, María Hidalgo, Marc Torres.

Location: Barcelona, Spain

Spain is home to a diverse array of venture builders, each contributing to the entrepreneurial landscape in their unique way. From Antai, which specializes in e-

commerce and on-demand apps, to Mutter Ventures focusing on FinTech, software & IOT, and the consumer sector, these entities play a crucial role in innovation. Byld, Sonar Ventures, and Nuclio are among the pioneers in the Spanish venture builder scene, co-creating startups in various domains, such as online marketing, real estate, and luxury jewelry. A particularity of Spain is indeed a more nuanced, co-creation approach.

Cross-country summary

Across the three countries, venture builders play a vital role in nurturing startups and fostering innovation. In Germany, VB studios benefit from a large internal market, but they are also strongly embedded in the international context. The Netherlands exhibit in line with the context of a small country a more varied program structure dedicated to specialized niches, while Spain exhibits rather a co-creation approach. Some venture builders act also as VC. This is in line with the idea that they provide directly more financial backing than accelerators. Moreover, some of the venture builders evolved out of VC companies that thought that offering additional services to portfolio companies would increase their success probability [139].

Overall, especially for a dominantly student population requiring more structure and direct access to resources, an adapted venture building model might be effective. Again, we see that there is a need to develop - out of the possible VBP configurations - a context specific program that takes into account the local entrepreneurial eco-systems, the possible need for connections with more advanced contexts, and a thematic choice in line with development expectations. For student entrepreneurs, VBP offer a series of benefits compared to acceleration programs. First, they canalize ideas by setting at least the direction. This is especially important for tech startups coming from the university that lack market knowledge [141]. Second, they fill competence gaps by training entrepreneurs and by adding experienced human resources on a temporary or permanent basis to the venture [142]. Third, they guide the entrepreneurs through the whole process and generally secure financing [4]. Fourth, training student entrepreneurs with lean startup methods is

beneficial [143]. Indeed, linking student entrepreneurs to support structures has been shown to be effective [144].

EXAMPLES OF PROGRAMS

The Venture Building concept is a collaborative and team based approach with the goal to expand the business by utilizing varied skills and knowledge. VB studios also invest capital and take the lead, providing shared services and putting in place a methodology and business framework. After the initial building phase, they may finally bring in new talent. So, Venture Building is a method of developing a business idea. A Venture Builder can develop a company idea externally, internally, or both, and can grow a business idea into a product, into a real one. A Venture Builder is designed to assist entrepreneurs in dealing with the uncertainty that comes with starting a business. Furthermore, the purpose is to build on achievements rather than concepts. We have identified three main methods for running VB programs.

Internal Sourcing: A venture team formed by the Venture Builder creates the core idea and their vision entirely on their own, with no outside assistance. Once the founders have demonstrated product-market fit, they can look to expand the team, including any other co-founders, in order to accelerate growth through their — now yet validated — business model.

External Sourcing: The Venture Builder will enlist the assistance of an industry expert or consultant to assist them in making sound business decisions. They can also locate new entrepreneurs with whom to build partnerships in order to turn a concept into a business.

Hybrid Sourcing: The Venture Builder may use a combination of internal and external sourcing depending on the type of investment. While more difficult, it may be speedier in terms of locating the necessary resources.

One of the most critical parts of a successful firm is a functional, well-knit workforce. A Venture Builder will invest in a promising team from their own HR, from outside sources,

or from both. The Venture Builder knows how to handle various facets of the business for them till they have access to their own resources. These services are made available through the use of shared resources. That is, resources that all portfolio firms may, to some extent, share. However, the personnel are competent and experienced enough to assist in getting the venture to the tipping point before scaling up. Following that, each team should be able to hire their own experts.

What makes this Venture Building model unique?

Venture Builders build businesses in partnership with many teams to decrease risk and save time and money [145]. This gives them the opportunity to learn more about what works and what doesn't in the startup sector, as well as how to provide the right kind of services to those teams.

To get an even better understanding of VBP in the target countries, we conducted interviews with four VBP in Italy.

Some interviews with VB studios have been conducted to better understand the Italian ecosystem.

Dock3 The Startup Lab

The venture-building program issues an annual call for applications, inviting students, graduates, and researchers from any EU university with business ideas or an interest in entrepreneurship. Selection is based on criteria such as experience, motivation, and early application, resulting in 100 participants forming interdisciplinary teams. Over a month, these teams undergo lean startup training, leading to a Demo Day where the top 10-15 teams present their ideas to a jury of investors. The winning teams, typically receiving cash prizes from venture capitalists or external partners, must establish their companies to redeem the prize money. The program fosters a community of around 50 new participants and winners each year. There are no restrictions on the sector or type of startup idea proposed for the program. Various program components, including team-building and pitch trials, are held in person, while the remainder is conducted remotely. The program

was established to provide a pathway for students interested in entrepreneurship. Funding for the venture-building program is sourced entirely from European Projects funding. Private investors contribute directly to startups or provide in-kind support, and the university itself does not contribute funds. Originally set up as an NGO from 2005 to 2015, the program sees at least one startup annually receiving seed funding. The cumulative capitalization of startups created through the program since 2005 is approximately 50 million euros.

In essence, the program is focused on the pre-venture stage. It has an open, external call for idea sourcing, provides opportunities for team building and attracts investment by hosting a high number of projects.

Fool Farm

FoolFarm caters to the deeptech sector, offering programs for professionals and students with innovative master theses. The venture-building program is strictly in-person, with physical spaces in Milan and Lecce, and pop-up instances in peripheral cities with a surplus of ambitious students. The program not only supports startups but also builds ecosystems in these locations, leveraging sponsors, investor networks, and funds, including the development of a 50M€ investment vehicle called ATLAS SGR. FoolFarm operates as a startup factory, aiming to launch new companies every three months. The program begins with a technology or idea, often sourced from a university or internal R&D, and recruits a CEO/project manager. Through a SCRUM-based three-month cycle, the team builds the company, pitches to investors, and only those raising at least 150k proceed to a 12-month cycle. The model is closely controlled, resembling the Italian "bottega dell'arte," where experienced entrepreneurs mentor batches of 4-5 companies every three months. FoolVillage extends this model to universities, focusing on promising master theses in deeptech.

The venture-building program addresses a need in Italy, where the knowledge and ecosystem for complex startups were lacking. With a focus on bridging the gap between university research and existing acceleration programs, FoolFarm aims to transform the

Italian entrepreneurial landscape, particularly in peripheral and southern regions. Funding for the program comes from private investors, including KPMG, CRIF, Banca IBL, family offices, Salini, and others. The program, structured as a private for-profit company, plans to go public in 2027, offering financial gains to its investors. The founders envision extending their model globally to areas lacking entrepreneurial competences and are actively seeking international partners for collaboration. An emphasis is placed on building entire ecosystems in decentralized locations, recognizing the importance of more than just startup development. There is a current shortage of trained professionals for venture-building programs, highlighting a need for business schools to address this gap.

Overall, this program adopts open call for external idea sourcing and works with corporate sponsors. It offers direct funding to the accepted startups and completes the team by providing an experienced CEO.

WDA

WDA operates with the goal of creating digital companies for various markets on behalf of different "Originators" - Professionals, SMEs, and Corporates. It is run by former serial entrepreneurs with exit experience. The Venture Builder (VB) Program builds digital companies around ideas for Professionals and SMEs, while for Corporates, it facilitates intrapreneurship programs, transforming internal ideas into successful spin-offs. Originators, senior industry experts with in-depth knowledge (average age 45), provide technical expertise, while the VB Program validates ideas and augments teams with managerial competences. The venture-building process follows a three-phase stage-gate model: Benchmark, Designing and validating the MVP, and Execution, spanning 18-24 months. The startups generated by WDA are digital companies without a specific focus on an industrial sector. The venture-building program is offered in blended mode, either online or in-person, in Rome. The need for the venture-building program arose to provide venture-building as a service, aiming for profitability for the co-founders. In Italy, there is a cultural gap regarding venture-building, presenting an intriguing challenge with substantial untapped potential. Funding for the program comes from the Originators, who pay a one-time fee and relinquish a 15% ownership stake in the company to WDA.

Corporates also pay a separate fee for the creation and management of the venture-building program. WDA, unable to secure investor fund funding, allows startups to pursue funding independently, providing access to its network. Credibility is emphasized as a crucial factor in running a venture-building program that attracts investors. Deep sector knowledge and entrepreneurial experience are deemed essential. Difficulty in securing funding outside large cities is highlighted, posing challenges for founders from smaller centers. Additionally, universities are recognized as having untapped potential for venture-building programs, contingent on securing funding, as external venture capitalists may be hesitant to invest in university-based teams.

Essentially, it is based on open, external idea sourcing in a specific, predefined niche. Contrary to FoolFarm it does - generally - not provide the CEO, but provides the missing team members to the CEO of the startup as well as other temporary competencies. It counts on the quality of the managing team for attracting financing. Being a people intensive program, it is small and hosts only a very small number of selected startups.

CTE Casa delle Tecnologie Emergenti of Rome

The CTE operates a venture-building program, serving as a public institution focused on innovation and technology transfer. The program involves university partners, technical partners, and corporate partners, collaborating to address challenges faced by the city. Originally structured in three phases, changes in city hall administration altered the program, leading to a federation of services between X-Labs and Dock3. For startups, the program seeks complementary skills from different partner universities, with an agnostic focus on challenges related to mobility, energy, telcos, infrastructure, industry, and wellbeing. The program is primarily physical, located at Stazione Tiburtina, offering an innovation space for participants accepted into the program. The venture-building program addresses the absence of an innovation function in Roma Capitale's organizational chart and the lack of a formal tool for matchmaking SME solutions to the city's challenges. Funding, totaling approximately €6 million until 2024, comes from sources including MISE, Roma Capitale, and corporate investments from TIM, Acea, and Wind. The funds cover education and training costs, infrastructure investment, and

personnel expenses. The program aims to stimulate innovation, facilitate technology transfer, and address city challenges, benefitting both startups and the public administration.

Overall, the VB program in collaboration with a local university is created and sustained by a public sponsor and as such it provides a platform for building teams (but does not provide human resources for completing the teams) and it does not provide funding.

In conclusion, compared to foreign, full-blown VB programs, the interviewed structures focused on a subset of VB program elements. Common to all is an open idea sourcing with more or less focus on application areas. Only two programs offer team completion in the form of internal human resources that are provided to the startup while to others round team building or matching events to combine different external team members to a team. VC sponsorships lead to direct funding while track record of the structure's managers or a large portfolio of startups increase the funding probabilities. The entrepreneurial expertise of the VBP means that it does not offer direct funding but might attract funding with a high likelihood. The difficulty of policy sponsored structures is the provision of both complementary human capital and financial capital.

A common and distinguishing factor for venture builders is the contribution to the entrepreneurial team. Services offered range from providing a platform for finding team members to providing the CEO to the team or providing the team to the founding CEO, to developing the startup project, based on internally or externally sourced ideas. The venture building strategy is specific to the context and the focus of the program defines thus the appropriate methodology. Some venture builders prefer to test and fail and/or scale as quickly as possible, while others choose to develop slowly or to copy business models proven elsewhere. Figure 19 shows common and differential features with different types of support structures.

4.5 A ROADMAP FOR ENTREPRENEDU

Based on the analysis of different programs, we developed elements for a potential roadmap based in three phases. The ideation phase could be offered through external sourcing thus increasing the numbers of potential projects, stimulating creativity while setting a vertical focus. In the next phases, problems and solutions should be validated before a MVP could be developed. These phases are strongly rooted in a lean startup approach. This qualitative process will then move to a more quantitative approach when developing the business model and planning and therefore integrating issues of market development. The traction phases consist in concrete actions to attract first customers to build a track record, to use this traction and prepare financial planning and make the startup investment-ready. Therefore, the concluding phases consist in fundraising activities that allow for subsequent scaling.

In more detail, following the envisioned Hackathon phase, we have meticulously crafted a program roadmap that could unfold as a natural progression. Leveraging insights gleaned from our study of Venture Building Programs and Acceleration Studios, we have created the basis to design a comprehensive ENTREPRENEDU Venture Building program, delineating specific weeks, phases, tasks, objectives, and content to be showcased at each juncture. This structured approach aims to seamlessly guide participants through a well-defined journey, integrating valuable lessons from both the Hackathon and broader entrepreneurial frameworks:

Weeks 0-2: Phase - Idea/Problem Fit

In this initial phase, our focus is on discovering the right idea/problem fit. Through qualitative interviews with various customer segments, we aim to gain valuable insights into their needs, pain points, and constraints. The goal is to identify the most suitable combinations of customer/problem/constraint segments. This phase utilizes tools such as the Problem Validation Board and incorporates elements of validation and design thinking.

Weeks 4-6: Phase - Problem/Solution Fit

Building on the insights from the first phase, Weeks 4-6 are dedicated to exploring potential solutions. We conduct qualitative interviews to delve into the most promising solutions and perform a comprehensive market analysis. The objective is to deepen our understanding of customers' pain points, gains, and jobs to be done. This phase involves utilizing carefully crafted questions and best practice tools designed to extract valuable information.

Weeks 6-8: Phase - MVP Building

With a clear understanding of the identified problem and potential solutions, Weeks 6-8 focus on the development and analysis of a Minimum Viable Product (MVP). The primary goal is to launch the MVP to test the market's willingness to pay and measure customer conversion. This phase provides guidance on how to build an effective MVP, emphasizing the importance of real-world testing to validate assumptions and gather actionable feedback.

These 8 weeks are designed to progress systematically from problem identification to solution validation, ultimately leading to the development and testing of a tangible MVP. Each phase is strategically crafted to ensure a comprehensive understanding of the market, customer needs, and the viability of proposed solutions. External content will be crucial in explaining the processes and tools used during each phase.

Weeks 8-10: Phase - Business Modeling & Planning

During Weeks 8-10, the focus shifts to business modeling and planning. You'll be involved in designing 2/3 alternative business model canvases to become familiar with business modeling. The goal is to explore various business model possibilities. This phase includes utilizing the Business Model Canvas by Osterwalder & Pigneur as a key tool.

Weeks 10-14: Phase - Customer Acquisition & Business Metrics

In the subsequent phase, the emphasis is on customer acquisition and business metrics. Activities involve listing inbound and outbound customer acquisition channels, along with Key Performance Indicators (KPIs). The primary goal is to test the first acquisition channel. This phase incorporates the use of a Metrics Dashboard, the "North Star," and the ICE Framework to guide decision-making.

Weeks 14-18: Phase - Financial Planning

Moving forward to Weeks 14-18, the focus shifts to financial planning. Your tasks will include working on the first Profit and Loss (P&L) draft to highlight the cash needs for further expansion. This phase utilizes a financial planning template to structure and project financial considerations.

Moving Forward:

Phase - Fundraising

Subsequently, the focus turns to fundraising. Activities involve pitching to investors with the goal of raising the required capital. Content includes understanding investors, how to pitch effectively, strategies for raising funds, and preparation for Demo Day.

Phase - Scaling

Finally, attention is directed towards scaling the venture. This involves defining the team structure, implementing sales strategies, refining the product, and seeking to reach the scale set in alignment with the financial plan's goals. Content includes mentoring sessions with scale-up CEOs and advisors to provide valuable insights and guidance.

Figure 19 depicts the different phases of the program, providing details on the activities, goals, and content for each stage and week:

Program roadmap



Program roadmap

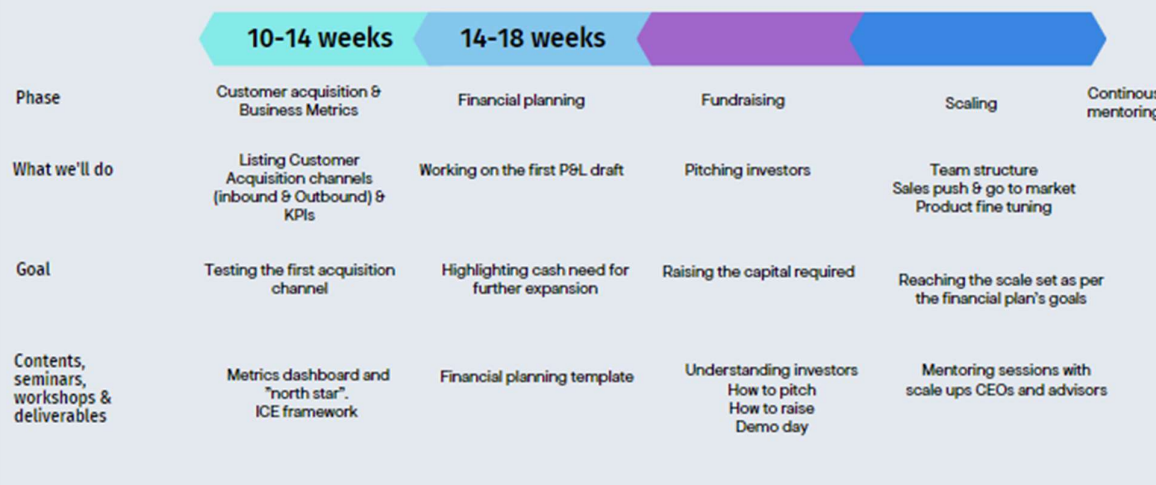


FIGURE 21 A&B: A & B: DEVELOPMENT OF A POTENTIAL ROAD MAP

This roadmap should allow testing through hackathons and following educational programs combined with mentoring the most appropriate elements for low to moderate innovative regions.

5. CONCLUSION

The aim of ENTREPRENEDU is closing the innovation and educational gap between different regions of the EU, as this gap causes unbalanced business activities and fewer job opportunities in less developed entrepreneurial ecosystems. Given that entrepreneurship phenomena follow a power law distribution, this report on success cases and go-to business scenarios underlines that low to moderate innovative regions need more support structures.

First, the report underscores the pivotal role of entrepreneurship education in shaping the student-entrepreneur mindset and motivations, acting as a catalyst for transforming intentions into tangible entrepreneurial actions. Since a multiplicity of determinants influences students' entrepreneurial motivation, encompassing a spectrum of cognitive, personality, environmental, educational, situational, and demographic factors, entrepreneurship education needs to take those context factors into account for stimulating entrepreneurship. Particularly in Europe, entrepreneurship education is recognized as a cornerstone for lifelong learning and a countermeasure to youth unemployment [95].

Research confirms that participation in entrepreneurship education significantly increases the likelihood of students engaging in entrepreneurial ventures, with nascent and intentional entrepreneurs more prevalent among those exposed to entrepreneurship education, and that the university entrepreneurial climate may play a role in entrepreneurial motivation. The need to incorporate cognitive, interpersonal, self-leadership, and technical skills in entrepreneurial education remains evident. As reflective action and experiential knowledge remain central to entrepreneurial learning, Universities are called upon to foster active collaboration between industry and academia, by also creating communities of practice and cross-field contaminations. Entrepreneurship education should also incorporate hands-on learning approaches, expose students to role models, and promote engagement with the business community. The facilitators of

entrepreneurial education encompass various elements, including business community interaction, experiential learning, incentives, infrastructures, mobility, peer-to-peer interaction, self-reflection, support, and motivation. This comprehensive approach aims to create effective entrepreneurial learning experiences, bridging the gap between academia and business while preparing students for the dynamic landscape of entrepreneurship.

Student entrepreneurship is, indeed, aligned with a Power Law Distribution, indicating concentration in advanced entrepreneurial ecosystems with integrated support structures within academic institutions and in contrast, a lack of such support in less developed ecosystems. In regions with low to moderate innovation, integrating entrepreneurship education within academic institutions is essential, alongside developing accessible external support structures for all students. In order to maximize effectiveness, student entrepreneurship programs should offer robust mentorship and venture building. Not necessarily, academic institutions need to offer entrepreneurial education: in entrepreneurial ecosystems the activities of a specific actor are determined by the actions of other legitimate actors [70]. In this sense, academic institutions can offer entrepreneurship programs substituting support structures as in the obvious case of the lack of support structures, or complement them or not offer them because support structures have effectively organized startup project support and education. In the end, the division of activities in entrepreneurial ecosystems is a question of legitimacy and competences and can be different from ecosystem to ecosystem [70].

Given this scenario, ENTREPRENEDU's objective to create an highly replicable and scalable Venture Building Program serving as a model for the European entrepreneurial ecosystems will need to account for diverse evidences underlined by this report. To start with, , VB programs applied to student entrepreneurship appear a promising option even if the effectiveness of such programs would need to be tested on smaller scales in the real world. VB programs appear to be more effective for student entrepreneurs than acceleration programs as they have a long-term perspective covering the whole startup process,

combined with a long-time commitment and higher stakes through investment which reduces mortality risk while increasing growth potential [142]. Getting acquainted with lean startup methods (a part that could be covered by educational institutions but hardly this is the case in low to moderately innovative regions) is a necessary condition for startup development. Moreover, venture builders offer potentially more financing options as they are not tied to the single VC model of accelerators [4]. Moreover, the option to apply the concept of VB studios to student entrepreneurship and enrich it from insights of acceleration programs, will require that some dimensions need to be adapted.

First, for what concerns idea sourcing, a VB program needs to define the degree of freedom of idea generation. This might range from delimiting the topic area(s) and then allowing for free and deliberate idea generation (for example through hackathons) to providing the idea and selecting the best teams to execute it. The idea sourcing is also strongly related to the definition of the project scope.

Second, the VB program can source partial teams or promising, nascent entrepreneurs and develop forums or events for team building. In any case, the VB program structure would need to develop - in the long run - an internal core team that would be able to run the startup and thus be completely prepared to assist entrepreneurs in developing their startups and eventually fill-in missing roles or competences.

Third, the VB program needs to provide initial funding or access to funding to the project and, thus, also decide the level of exercised control and the total number of hosted projects. Finally, since involving students who require more structured entrepreneurship education and a more effective network, the VB program would need to define the educational approach, the setup of a mentoring program and opportunities to network with and beyond the actors of the local entrepreneurial ecosystem. It would also need to define who should offer the education program and whether to confer (parts of) the educational programs to academic institutions.

Fourth, research on support structures suggest that a differentiation of the programs to its context is necessary. While VB programs need to offer ample possibilities for network development and access to financing, two elements appear crucial for young, first-time founders such as student entrepreneurs. Capability development through education programs. Education not only imparts essential entrepreneurial skills but also fosters a mindset of adaptability, preparing students to navigate the dynamic startup landscape. By instilling confidence and resilience, education becomes a cornerstone for student entrepreneurs, empowering them to overcome challenges and seize opportunities in their entrepreneurial journey.

Fifth, the choice of the management team of the ENTREPRENEDU venture building program will drive the credibility of the program and therefore influence the likelihood of attracting investors if no direct funding is provided. Sixth, mentoring is especially important for student entrepreneurs as it provides them with guidance from experienced individuals who have been through similar challenges. Through mentorship, students gain valuable insights, practical advice, and a broader perspective on the intricacies of entrepreneurship. This personalized support not only accelerates their learning curve but also enhances their decision-making capabilities, contributing to the overall success of student-led ventures.

With this research, we have provided key insights for the subsequent development of the ENTREPRENEDU venture building program prototype to be developed and tested in low to moderate innovative regions with the final goals to develop a scalable solution.

6. REFERENCE LIST

- [1] Lerner, J. (2009) *Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital Have Failed--and What to Do About It*. Princeton University Press.
- [2] Gupta, A. and Gupta, V. (2017) Just a lemonade stand an introduction to student entrepreneurship. *New England Journal of Entrepreneurship*. 20 (1), 34–45.
- [3] Åstebro, T., Bazzazian, N., and Braguinsky, S. (2012) Startups by recent university graduates and their faculty: Implications for university entrepreneurship policy. *Research Policy*. 41 (4), 663–677.
- [4] Hallen, B.L., Cohen, S.L., and Bingham, C.B. (2020) Do accelerators work? If so, how? *Organization Science*. 31 (2), 378–414.
- [5] Audretsch, D.B., Belitski, M., and Desai, S. (2015) Entrepreneurship and economic development in cities. *The Annals of Regional Science*. 55 33–60.
- [6] Iacobucci, D. and Perugini, F. (2021) Entrepreneurial ecosystems and economic resilience at local level. *Entrepreneurship & Regional Development*. 33 (9–10), 689–716.
- [7] Audretsch, D., Colombelli, A., Grilli, L., Minola, T., and Rasmussen, E. (2020) Innovative start-ups and policy initiatives. *Research Policy*. 49 (10), 104027.
- [8] Brown, R. and Mason, C. (2017) Looking inside the spiky bits: a critical review and conceptualisation of entrepreneurial ecosystems. *Small Business Economics*. 49 11–30.
- [9] Isenberg, D. (2011) Keynote address: how to froment an entrepreneurial revolution”. in: 10th International Entrepreneurship Forum, Bahrain.
- [10] Kansheba, J.M.P. and Wald, A.E. (2020) Entrepreneurial ecosystems: a systematic literature review and research agenda. *Journal of Small Business and Enterprise Development*. 27 (6), 943–964.
- [11] Spigel, B. (2017) The relational organization of entrepreneurial ecosystems. *Entrepreneurship Theory and Practice*. 41 (1), 49–72.

- [12] Isenberg, D. J. (2016) Applying the ecosystem metaphor to entrepreneurship: Uses and abuses. *The Antitrust Bulletin*. 61 (4), 564–573.
- [13] Autio, E., Nambisan, S., Thomas, L.D., and Wright, M. (2018) Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems. *Strategic Entrepreneurship Journal*. 12 (1), 72–95.
- [14] Acs, Z.J., Stam, E., Audretsch, D.B., and O'Connor, A. (2017) The lineages of the entrepreneurial ecosystem approach. *Small Business Economics*. 49 1–10.
- [15] Stam, E. and Van de Ven, A. (2021) Entrepreneurial ecosystem elements. *Small business economics*. 56 809–832.
- [16] Scaringella, L. and Radziwon, A. (2018) Innovation, entrepreneurial, knowledge, and business ecosystems: Old wine in new bottles? *Technological Forecasting and Social Change*. 136 59–87.
- [17] Wurth, B., Stam, E., and Spigel, B. (2022) Toward an entrepreneurial ecosystem research program". *Entrepreneurship Theory and Practice*. 46 (3), 729–778, 1042258721998948.
- [18] Spigel, B. and Harrison, R. (2018) Toward a process theory of entrepreneurial ecosystems. *Strategic Entrepreneurship Journal*. 12 (1), 151–168.
- [19] Scheidgen, K. (2021) Degrees of integration: how a fragmented entrepreneurial ecosystem promotes different types of entrepreneurs. *Entrepreneurship & Regional Development*. 33 (1–2), 54–79.
- [20] Voelker, T.A. (2012) Entrepreneurial ecosystems: evolutionary paths or differentiated systems?". *Business Studies Journal*. 4 43–61.
- [21] Pitelis, C. (2012) Clusters, entrepreneurial ecosystem co-creation, and appropriability: a conceptual framework. *Industrial and Corporate Change*. 21 (6), 1359–1388.
- [22] Crawford, G.C., Aguinis, H., Lichtenstein, B., Davidsson, P., and McKelvey, B. (2015) Power law distributions in entrepreneurship: Implications for theory and research. *Journal of Business Venturing*. 30 (5), 696–713.
- [23] Gladwell, M. (2008) *Outliers: The story of success*. Little, Brown, and Company, New York.

- [24] Bak, P. (1996) How nature works: the science of self-organized criticality. Copernicus, New York.
- [25] Andriani, P. and McKelvey, B. (2009) Perspective—from Gaussian to Paretian thinking: Causes and implications of power laws in organizations. *Organization Science*. 20 (6), 1053–1071.
- [26] Boisot, M. and McKelvey, B. (2011) Connectivity, extremes, and adaptation: A power-law perspective of organizational effectiveness. *Journal of Management Inquiry*. 20 (2), 119–133.
- [27] Aguinis, H., O’Boyle Jr, E., Gonzalez-Mulé, E., and Joo, H. (2016) Cumulative advantage: Conductors and insulators of heavy-tailed productivity distributions and productivity stars. *Personnel Psychology*. 69 (1), 3–66.
- [28] O’Boyle Jr, E. and Aguinis, H. (2012) The best and the rest: Revisiting the norm of normality of individual performance. *Personnel Psychology*. 65 (1), 79–119.
- [29] Bar-Yam, Y. (1997) Dynamics of complex systems.
- [30] Krugman, P. (1996) The self organizing economy. John Wiley & Sons, .
- [31] Crawford, G.C. (2012) Disobeying power laws: Perils for theory and method. *Journal of Organization Design*. 1 (2),.
- [32] Crawford, G.C. (2012) Emerging scalability and extreme outcomes in new ventures: Power-law analyses of three studies. in: Proceedings of the Seventysecond Annual Meeting of the Academy of Management. ISSN, pp. 1543–8643.
- [33] Crawford, G.C. (2015) The Emergence of Outliers in Entrepreneurship: A Self-Organized Criticality Framework. *Frontiers of Entrepreneurship Research*. 35 (16), 1.
- [34] Crawford, G.C. and McKelvey, B. (2012) Strategic implications of power-law distributions in the creation and emergence of new ventures: power-law analyses in three panel studies. *Frontiers of Entrepreneurship Research*
- [35] Crawford, G.C. and Lichtenstein, B.B. (2013) Is there a single driver of entrepreneurship? A power-law of organizational emergence and growth. *Academy of Management Proceedings Vol. 2013*. (1), 13865.

- [36] Crawford, G.C. and McKelvey, B. (2018) Using maximum likelihood estimation methods and complexity science concepts to research power law-distributed phenomena. in: *Handbook of Research Methods in Complexity Science*, Edward Elgar Publishing, pp. 227–253.
- [37] Birch, D.L. (1981) Who creates jobs? *The Public Interest*. 65 3.
- [38] Rocha, R.G. and Ferreira, J.J. (2021) Gazelles (high-growth) companies: A bibliometric science map of the field. *Journal of the Knowledge Economy*. 1–24.
- [39] Birch, D.L. and Medoff, J. (1994) Gazelles. in: L.C. Solmon, A.R. Levenson (Eds.), *Labor Markets, Employment Policy and Job Creation*, Westview Press, Boulder and Londonpp. 159–167.
- [40] Leiva Bonilla, J.C. and Alegre Vidal, J. (2012) Empresas gacelas: Definición y caracterización. *Academia Revista Latinoamericana De Administracion*. 50 31–43.
- [41] Lee, N. (2014) What holds back high-growth firms? Evidence from UK SMEs. *Small Business Economics*. 43 (1), 183–195.
- [42] Bos, J.W. and Stam, E. (2014) Gazelles and industry growth: a study of young high-growth firms in The Netherlands. *Industrial and Corporate Change*. 23 (1), 145–169.
- [43] Jansen, D. (2023) Navigating the path to high- and hypergrowth, The European Scaleup Monitor. *The European Scaleup Institute*.
- [44] Henrekson, M. and Johansson, D. (2008) Competencies and institutions fostering high-growth firms. *Foundations and Trends in Entrepreneurship*. 5 (1), 1–80.
- [45] (2023) *Cracking the Growth Code: Traits and Strategies of High-Growth Firms in Europe*. European Scaleup Institute, .
- [46] Acs, Z.J., Parsons, W., and Tracy, S. (2008) High-impact firms: gazelles revisited. 18 (3), 228–351.
- [47] Fleming, L. (2007) Breakthroughs and the ‘Long Tail’ of innovation. *MIT Sloan Manag. Rev.* 49 (1: Fall), 69–74.
- [48] Turetsky, A. (2016) Competencies, clusters, and star performance at a leading PE firm. *The Journal of Private Equity*. 19 (4), 19–34.

- [49] Lechner, C. and Dowling, M. (2003) Firm networks: external relationships as sources for the growth and competitiveness of entrepreneurial firms. *Entrepreneurship & Regional Development*. 15 (1), 1–26.
- [50] Netval (2021) Rapporto 2021: Investire sulla valorizzazione della ricerca per una resilienza generativa.
- [51] (2023) CDP e l’impatto sullo sviluppo del Paese: pubblicato il primo Report di Monitoraggio. CDP, .
- [52] Prevezer, M. (1998) Clustering in Biotechnology in the USA. in: *The Dynamics of Industrial Clustering: International Comparisons in Computing and Biotechnology*, pp. 124–193.
- [53] Bolland, E.J. and Hofer, C.W. (1998) *Future firms: how America’s high technology companies work*. Oxford University Press, New York.
- [54] Tödtling, F. (1994) The uneven landscape innovation poles: Local embeddedness and global networks. in: A. Amin, N. Thrift (Eds.), *Globalization, Institutions, and Regional Development in Europe*, Oxford, pp. 68–90.
- [55] StartupBlink (n.d.) Startup Map.
- [56] Crișan, E.L., Salanță, I.I., Beileu, I.N., Bordean, O.N., and Bunduchi, R. (2021) A systematic literature review on accelerators. *The Journal of Technology Transfer*. 46 62–89.
- [57] Fehder, D.C. and Hochberg, Y.V. (2014) Accelerators and the regional supply of venture capital investment. *Available at SSRN 2518668*.
- [58] Bauer, D., Junge, S., and Reif, T. (2023) May the resources be with you: a systematic review and framework of startup funding options. *Management Review Quarterly*. 1–32.
- [59] Hochberg, Y.V. (2016) Accelerating entrepreneurs and ecosystems: The seed accelerator model. *Innovation Policy and the Economy*. 16 (1), 25–51.
- [60] European Union (2023) European innovation scoreboard 2023.
- [61] Marzuki, M.J. and Newell, G. (2019) The evolution of Belgium REITs. *Journal of Property Investment & Finance*. 37 (4), 345–362.

- [62] Fazekas, M. (2017) Red tape, bribery and government favouritism: evidence from Europe. *Crime, Law and Social Change*. 68 403–429.
- [63] Mian, S.A., Klosthen, M., and Lamine, W., Eds. (2021) Handbook of research on business and technology incubation and acceleration: A global perspective. Edward Elgar Publishing.
- [64] Quas, A., Mason, C., Compañó, R., Testa, G., and Gavigan, J.P. (2022) The scale-up finance gap in the EU: Causes, consequences, and policy solutions. *European Management Journal*. 40 (5), 645–652.
- [65] Köhler, K. (2017) Investor relations in Germany: Institutionalization and professional roles. in: *The Handbook of Financial Communication and Investor Relations*, pp. 429–441.
- [66] (2020) European Financial Markets Report. Dealroom, .
- [67] Röhl, K.H. (2016) Entrepreneurial culture and start-ups: Could a cultural shift in favour of entrepreneurship lead to more innovative start-ups?
- [68] PwC (2019) Worldwide Tax Summaries. PwC.
- [69] Llobet, M.N. (2018) The efficiency of Incubators in Startups' Performance in France.
- [70] Lechner, C., Delanoë-Gueguen, S., and Gueguen, G. (2022) Entrepreneurial ecosystems and actor legitimacy. *International Journal of Entrepreneurial Behavior & Research*.
- [71] Politecnico di Torino (2019) Social Innovation Monitor.
- [72] Xifré, R. (2019) Business dynamism in Spain: Recent trends and outlook. *Spanish Economic and Financial Outlook*. 8 (4),.
- [73] Frisenna, C. and Rizzotti, D. (2020) Investment Decisions in Listed Family Firms: Risk Aversion and Emotional Attachment. in: *Management Controlling and Governance of Family Businesses: Theoretical Insights and Empirical Evidence from Italy*, pp. 97–108.
- [74] Giacomelli, S. and Tonello, M. (2018) Assessing bureaucratic start-up costs through Mystery Calls. Evidence from the One-stop shops for doing business. *European Journal of Political Economy*. 51 121–140.

- [75] Corno, F., Lal, R., and Colombo, S. (2014) entrepreneurship & new venture creation" key elements of the entrepreneurial ecosystem facilitating the growth of ict entrepreneurs in italy. *European Scientific Journal*.
- [76] Bergman, B.J. and McMullen, J.S. (2022) Helping entrepreneurs help themselves: A review and relational research agenda on entrepreneurial support organizations. *Entrepreneurship Theory and Practice*. 46 (3), 688–728.
- [77] Groh (2023) Support structures and venture financing. Unpublished working paper
- [78] Yu, S. (2019) How do accelerators impact the performance of high-technology ventures? *Management Science*. 66 (2), 530–552.
- [79] Dalle, J.M., Besten, M., and Morfin, J. (2023) Accelerator-mediated access to investors among early-stage start-ups. *Annals of Operations Research*. 1–28.
- [80] Kulchina, E., V, B.-G., and Whitbeck, J. (2023) The new old game: How do accelerators affect startups? in: SMS Annual Conference, Toronto.
- [81] Filion, L. (1997) From Entrepreneurship to Entreprenology, Journal of Best Papers. in: ICSB 42nd World Conference, San Francisco.
- [82] Global Student Entrepreneurship (2021): Insights From 58 Countries. Global University Entrepreneurial Spirit Students' Survey. .
- [83] Politis, D., Winborg, J., and Dahlstrand, Å.L. (2012) Exploring the resource logic of student entrepreneurs. *International Small Business Journal*. 30 (6), 659–683.
- [84] Passavanti, C., Ponsiglione, C., Primario, S., and Rippa, P. (2023) The evolution of student entrepreneurship: State of the art and emerging research direction". *The International Journal of Management Education*. 21 (2), 100820.
- [85] Linder, C., Lechner, C., and Petzel, F. (2020) Many roads lead to Rome: How human, social, and financial capital are related to new venture survival. *Entrepreneurship Theory and Practice*. 44 (5), 909–932.
- [86] G.E.M. (2023) Global Entrepreneurship Monitor 2022/2023 Global Report: Adapting to a "New Normal."

- [87] Le, T.T.K. and Tran, B.T. (2021) Entrepreneurial Motivations and Intentions among Students: A Case Study at a Vocational Institution". in: ICETT 2021: 2021 7th International Conference on Education and Training Technologies, .
- [88] Martínez-Gregorio, S., Badenes-Ribera, L., and Oliver, A. (2021) Effect of entrepreneurship education on entrepreneurship intention and related outcomes in educational contexts: a meta-analysis". *The International Journal of Management Education*. 19 (3), 100545.
- [89] Bae, T.J., Qian, S., Miao, C., and Fiet, J.O. (2014) The relationship between entrepreneurship education and entrepreneurial intentions: A meta-analytic review. *Entrepreneurship Theory and Practice*. 38 (2), 217–254.
- [90] Stamboulis, Y. and Barlas, A. (2014) Entrepreneurship education impact on student attitudes. *The International Journal of Management Education*. 12 (3), 365–373.
- [91] Souitaris, V., Zerbinati, S., and Al-Laham, A. (2007) Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. *Journal of Business Venturing*. 22 (4), 566–591.
- [92] Qin, F., Wright, M., and Gao, J. (2017) Are ‘sea turtles’ slower? Returnee entrepreneurs, venture resources and speed of entrepreneurial entry. *Journal of Business Venturing*. 32 (6), 694–706.
- [93] Maheshwari, G., Kha, K.L., and Arokiasamy, A.R.A. (2022) Factors affecting students’ entrepreneurial intentions: a systematic review (2005–2022) for future directions in theory and practice". *Management Review Quarterly*.
- [94] Zhang, Y., Duysters, G., and Cloudt, M. (2014) The role of entrepreneurship education as a predictor of university students’ entrepreneurial intention". *International Entrepreneurship and Management Journal*. 10 (3), 623–641.
- [95] Perić, J., Oberman Peterka, S., and Getoš, Ž. (2020) The role of vocational education in developing entrepreneurial competences of students. *Ekonomski Pregled*. 71 (5), 463–492.
- [96] Khelifi, S. (2023) Informal university entrepreneurship: The missing link in transition higher education systems". *International Journal of Educational Development*. 97 102725.

- [97] Rippa, P., Ferruzzi, G., Holienka, M., Capaldo, G., and Coduras, A. (2023) What drives university engineering students to become entrepreneurs? Finding different recipes using a configuration approach". *Journal of Small Business Management*. 61 (2), 353–383.
- [98] Leiva, J.C., Mora-Esquivel, R., and Solís, M. (2023) Nascent entrepreneurship in university students: the role of the context". *Venture Capital*. 25 (3), 255–284.
- [99] Franke, N. and Lüthje, C. (2004) Entrepreneurial intentions of business students—A benchmarking study. *International journal of innovation and technology management*. 1 (03), 269–288.
- [100] Honig, B. and Davidsson, P. (2000) the Role of Social and Human Capital Among Nascent Entrepreneurs". *Academy of Management Proceedings*. 2000 (1), 1–6.
- [101] Sá, E.S. and Pinho, J.C.M.R. d (2019) Effect of entrepreneurial framework conditions on R&D transfer to new and growing firms: The case of European Union innovation-driven countries". *Technological Forecasting and Social Change*. 141 47–58.
- [102] Wahid, N.A., Abd Aziz, N.N., and Halim, R.A. (2017) Networking and innovation performance of micro-enterprises in Malaysia: The moderating effects of geographical location". *Pertanika Journal of Social Sciences and Humanities*. 25 (S), 277–287.
- [103] Mets, T., Holbrook, J., and Läänelaid, S. (2021) Entrepreneurship education challenges for green transformation". *Administrative Sciences*. 11 (1),.
- [104] Soriano, D.R. and Castrogiovanni, G.J. (2012) The impact of education, experience and inner circle advisors on SME performance: insights from a study of public development centers". *Small Business Economics*. 38 (3), 333–349.
- [105] Staniewski, M.W. and Szopiński, T. (2015) Student readiness to start their own business". *Economic Research-Ekonomska Istrazivanja*. 28 (1), 608–619.
- [106] López-Núñez, M.I., Rubio-Valdehita, S., Díaz-Ramiro, E., and Martín-Seoane, G. (2021) The entrepreneurial profile of university students: A predictive model". *Revista de Educacion*. 2021 (392), 11–32.
- [107] Jones, O. (2022) Academic engagement with small business and entrepreneurship: Towards a landscape of practice". *Industry and Higher Education*. 36 (3), 279–293.

- [108] Karanassios, N., Pazarskis, M., Mitsopoulos, K., and Christodoulou, P. (2006) EU Strategies to Encourage Youth Entrepreneurship: Evidence from Higher Education in Greece". *Industry and Higher Education*. 20 (1), 43–50.
- [109] Hadjichristodoulou, V., Varnava Marouchou, D., Konis, E., and Mihai Yiannaki, S. (2020) The success of STEM graduates in entrepreneurship training: a European case study". *Global Business and Economics Review*. 22 (1/2), 198.
- [110] Ahsan, M., Zheng, C., DeNoble, A., and Musteen, M. (2018) From Student to Entrepreneur: How Mentorships and Affect Influence Student Venture Launch". *Journal of Small Business Management*. 56 (1), 76–102.
- [111] Lesinskas, K., Mavlutova, I., Peiseniece, L., Hermanis, J., Peiseniece, E., and Pokatayeva, O. (2021) Modern business teaching: The sable labor market provision for the emerging generations". *Estudios de Economia Aplicada*. 39 (5),.
- [112] Coleman, M., Hamouda, A., and Cormican, K. (2010) The Accelerating Campus Entrepreneurship (ACE) Initiative: Creating Entrepreneurial Graduates for Ireland". *Industry and Higher Education*. 24 (6), 443–454.
- [113] Slišāne, A., Lāma, G., and Rubene, Z. (2021) Self-assessment of the entrepreneurial competence of teacher education students in the remote study process". *Sustainability*. 13 (11),.
- [114] Provasi, G. and Squazzoni, F. (2007) Academic Entrepreneurship and Scientific Innovation: Micro-Foundations and Institutions.
- [115] Amiel, M., Yemini, M., and Kolleck, N. (2021) Questioning the rhetoric: A critical analysis of intergovernmental organisations' entrepreneurship education policy". *European Educational Research Journal*. 21 (5), 756–777.
- [116] Seikkula-Leino, J., Salomaa, M., Jónsdóttir, S.R., McCallum, E., and Israel, H. (2021) Eu policies driving entrepreneurial competences—reflections from the case of entrecomp". *Sustainability*. 13 (15),.
- [117] Bilić, I., Škokić, V., and Lovrinčević, M. (2021) Academic Entrepreneurship in Post-transition Country—Case Study of Croatia". *Journal of the Knowledge Economy*. 12 (1), 41–55.

- [118] Fonseca, B., Morgado, L., Paredes, H., Martins, P., Gonçalves, R., Neves, P., et al. (2012) PLAYER-a European project and a game to foster entrepreneurship education for young people". *Journal of Universal Computer Science*. 18 (1), 86–105.
- [119] Nosi, C., Mattiacci, A., and Sfodera, F. (2019) Online wine ecosystem: the digital narrative of Sangiovese". *British Food Journal*. 121 (11), 2683–2695.
- [120] Sansone, G., Ughetto, E., and Landoni, P. (2021) Entrepreneurial Intention: An Analysis of the Role of Student-Led Entrepreneurial Organizations. *Journal of International Entrepreneurship*. 19.
- [121] Cohen, S.L., Bingham, C.B., and Hallen, B.L. (2019) The role of accelerator designs in mitigating bounded rationality in new ventures. *Administrative Science Quarterly*. 64 (4), 810–854.
- [122] Shankar, R.K. and Shepherd, D.A. (2019) Accelerating strategic fit or venture emergence: Different paths adopted by corporate accelerators. *Journal of Business Venturing*. 34 (5), 105886.
- [123] Hutter, K., Gfrerer, A., and Lindner, B. (2021) From popular to profitable: incumbents' experiences and challenges with external corporate accelerators. *International Journal of Innovation Management*. 25 (03), 2150035.
- [124] Dempwolf, C.S., Auer, J., and D'ippolito, M. (2014) Innovation accelerators: Defining characteristics among startup assistance organizations. *Small Business Administration*. 10 1–44.
- [125] Kanbach, D.K. and Stubner, S. (2016) Corporate accelerators as recent form of startup engagement: The what, the why, and the how. *Journal of Applied Business Research (JABR)*. 32 (6), 1761–1776.
- [126] Connolly, A.J., Turner, J., and Potocki, A.D. (2018) IGNITE your corporate innovation: Insights from setting up an ag-tech start-up accelerator. *International Food and Agribusiness Management Review*. 21 (6), 833–846.
- [127] Pauwels, C., Clarysse, B., Wright, M., and Hove, J. (2016) Understanding a new generation incubation model: The accelerator. *Technovation*. 50 13–24.
- [128] Cohen, S. (n.d.) Accelerated Learning: Entrepreneurial Ventures Participating in Accelerators., University of North Carolina., Unpublished Dissertation.

- [129] Miller, P. and Bound, K. (2011) The startup factories. *NESTA*.
- [130] Mohamadi, F., Vinci, M., and Palo, R. (2021) Bringing ideas to life. Startup studio whitepaper. Mamazen, Torino.
- [131] Scheuplein, C. and Kahl, J. (2017) Do Company Builders Create Jobs? Examining the Rise of Incubation Finance in Germany.
- [132] Köhler, R. and Baumann, O. (2015) Organizing for factory-like venture creation: The case of company builder incubators. *Academy of Management Proceedings* (Vol. 2015. (1), 11699.
- [133] Cohen, S. and Hochberg, Y.V. (2014) Accelerating startups: The seed accelerator phenomenon.
- [134] Sun, Y., Zhang, C., and Wang, J. (2022) How to benefit from balancing external knowledge acquisition? A Chinese EIT industry case. *Technological Forecasting and Social Change*. 178 121587.
- [135] Gonzalez-Urbe, J. and Leatherbee, M. (2018) The effects of business accelerators on venture performance: Evidence from start-up Chile. *The Review of Financial Studies*. 31 (4), 1566–1603.
- [136] Rathgeber, P., Gutmann, T., and Levasier, M. (2017) Organizational best practices of company builders—a qualitative study. *Research Journal International School Management*. 4 (1), 29–54.
- [137] Lawrence, J., Fulton, K., Narowski, P., and Hurwitz, J. (2019) The rise of startup studios. *White Paper*.
- [138] Lesage, D. (2020) The Entrepreneurs Guide To Startup Studio Models. Medium, .
- [139] Teten, D., AbdelFattah, A., Bremer, K., and Buslig, G. (2013) The lower-risk startup: how venture capitalists increase the odds of startup success. *The Journal of Private Equity*. 16 (2), 7–19.
- [140] Alhokail, M., Celen, A., and Tilani, R. (2019) Startup Studios–Innovating Innovation. Hektographiertes Manuskript, .
- [141] Biert, J. (2020) Assessing Technology for a Deep Tech Venture Builder. Masters Dissertation. The Eindhoven University of Technology, .

- [142] de Alvarenga, R., Junior, O.C., and Estorilio, C.C. (2022) Venture Building Strategies: How Universities' Acceleration Programs Could Improve Based on this Approach. in: International Conference on Production Research, Springer Nature Switzerland, Champp. 675–690.
- [143] Stagars, M. (2015) Incubators and accelerators. in: In: University Start-Ups and Spin-Offs, Champp. 131-136 ,.
- [144] Corsi, C. and Prencipe, A. (2016) Improving innovation in university spin-offs: the fostering role of university and region. *Journal of Technology Management & Innovation*. 11 (2), 13–21.
- [145] Tzin, N. (2016) The artists start-up studio: an integrated new business model for a new company integrating entrepreneurs and artists.
-
-