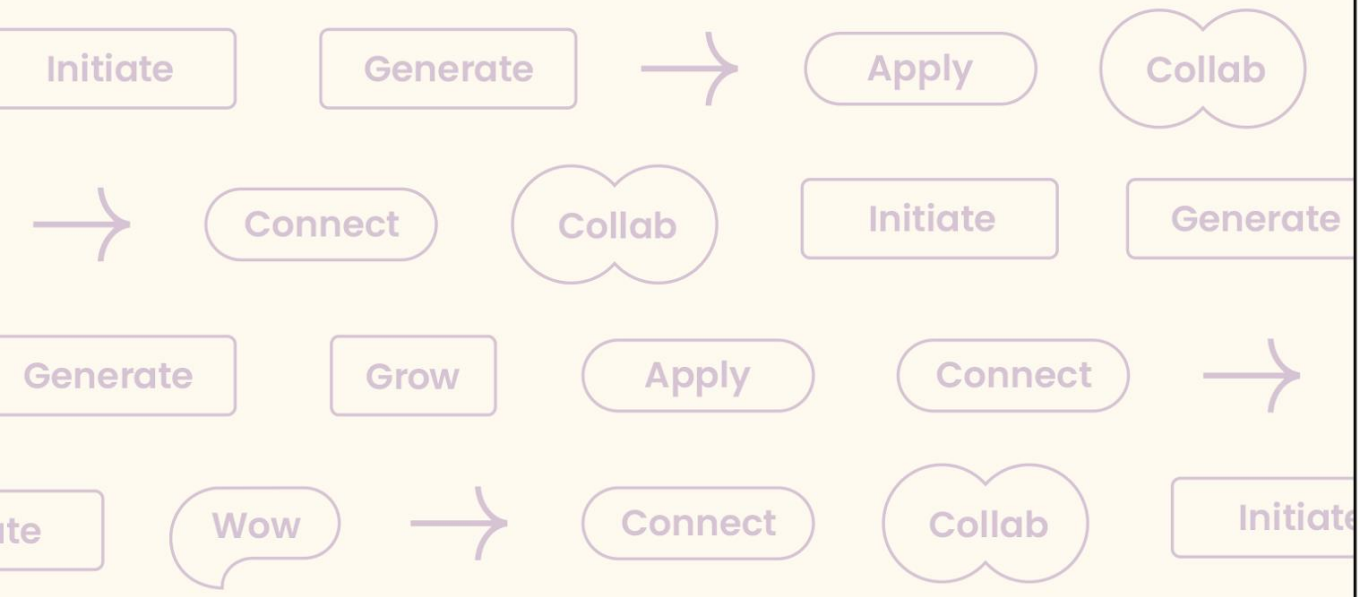
AccelerAction
Connecting European DeepTech Innovators

D2.1 ACCELERACTION ASSESSMENT METHODOLOGY

PROJECT N° 101072073



Funded by the European Union

This project has received funding from European Innovation Council and SMEs Executive Agency (EISMEA) under Grant Agreement No 101072073

Grant Agreement: 101072073

DOC. REFERENCE	D2.1 AccelerAction Assessment Methodology
RESPONSIBLE	TECHCELERATOR
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DATE OF ISSUE	28/02/2023
STATUS	OTHER
DISSEMINATION LEVEL	PU - PUBLIC
DESCRIPTION	The report explores the gaps and challenges faced by the business acceleration entities located in less connected innovation ecosystems (modest/emerging) and innovation hubs, with a strong focus on gender equality acceleration, having a dedicated section.

VERSION HISTORY	DATE	DESCRIPTION
0.1	27/01/2023	First draft
0.2	19/02/2023	Section 1 ready for the review
0.3	26/02/2023	Section 2 ready for the review
0.4	28/02/2023	Final version

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ABSTRACT

The purpose of the document is to showcase and analyse the gaps and challenges faced by the business accelerators that are located in less connected innovation ecosystems and to offer an assessment methodology in order to understand those challenges and to be further used by other entities that were not initially included in the report.

A special focus is dedicated to gender equality acceleration, which has a special section dedicated.

The deliverable D2.1 – Acceleraction Assessment Methodology was developed under Workpackage 2 - Strategic Discovery Process: assessing gaps & challenges and co-designing the new service programme with a special focus on gender equality acceleration.

The methodology focuses on evaluating the business acceleration entities' status of service delivery and operational capacity for supporting the startups to grow and scale, mapping, at the same time, the gaps and challenges faced by accelerators. The purpose is not to evaluate performance as good or bad, satisfactory or not, but rather to identify areas that are well- or under-developed.

The methodology covers 3 dimensions critical to benchmarking the level of accelerator operation:

- Service provision dimension: mentorship, networks, access to finance, gender / inclusivity focused programs
- Internal/operational capacity dimension: strategy and leadership, people, ecosystem presence
- Brand visibility dimension: the communication strategy and allocation of financial resources

The second section focuses on the state of diversity and inclusion, together with accelerators and startup programs.

The second section of the report shares the results of a survey about diversity and inclusion in the deeptech startups ecosystem from the perspective of female founders. It covers two areas: gender diversity in deeptech and diversity in accelerator and startup programs. The findings reveal that some ecosystems are doing better than others, and the lack of women

and diverse teams is a significant challenge. This is partly due to women's low involvement in STEM education and a lack of awareness about opportunities in deeptech. The survey emphasizes the need for ongoing efforts to promote diversity and inclusion in deeptech, as it can bring valuable perspectives and improve innovation.

Since the document is offering an in depth view on acceleration ecosystem across Europe, with a focus on gap and challenges, it is the foundation on which the round tables will be organized and based on both activities, the D2.3- Pan-EU Networked Acceleration Programme (EU-NAP) will be developed.

SECTION 1 - Gaps & Challenges faced by the Business Acceleration entities located in less connected innovation ecosystems and innovation hubs

1 THE ACCELERATORS' ECOSYSTEM AND DEEP TECH START-UPS ACROSS EUROPE

In recent years, Europe has emerged as a hub for deep tech startups, with numerous acceleration programs helping to drive innovation and growth in fields such as artificial intelligence, blockchain, and the Internet of Things. According to data from CB Insights, European startups raised over $81 billion in funding in 2022, with a majority of deals channeled to Early-stage companies (71%). And, according to Dealroom European - Deep Tech startups raised $17.7B in 2022, 22% less than 2021 total, but still +60% than 2020. As for the top equity deals of the last quarter of 2022, most of them are located in Western Europe.

	Company	Round Amount	Round Date	Round Valuation	Select Investors	Country	Sector	Industry Subindustry	% of Total Funding
1	Viva Wallet	$869M	Corporate Minority 2022-12-17	N/A	J.P. Morgan Chase & Co.	Greece	Mobile & Telecommunications	Mobile Software & Services Payments	7.0%
2	Matter Labs	$200M	Series C 2022-11-16	N/A	Blockchain Capital, Dragonfly, Andreessen Horowitz, Lightspeed Venture Partners, Variant Equity	Germany	Internet	Internet Software & Services Asset & Financial Management & Trading	1.6%
3	Snyk	$196M	Series G 2022-12-12	$7.4B	Qatar Investment Authority, BOLDstart Ventures, Sands Capital, Tiger Global Management, Evolution Equity Partners	United Kingdom	Internet	Internet Software & Services Testing	1.6%
4	Mews	$185M	Series C 2022-12-15	$865M	Goldman Sachs Asset Management, Kinnevik, Battery Ventures, Notion Capital, Thayer Ventures	Czech Republic	Internet	Internet Software & Services Customer Relationship Management	1.5%
5	Volocopter	$182M	Series E 2022-11-01	N/A	NEOM, GLy Capital Management	Germany	Automotive & Transportation	Air N/A	1.5%
6	Copper.co	$181M	Series C 2022-10-12	N/A	Undisclosed Investors	Switzerland	Internet	Internet Software & Services Asset & Financial Management & Trading	1.5%
7	Zappi	$170M	Private equity 2022-12-13	N/A	Sumeru Equity Partners	United Kingdom	Internet	Internet Software & Services Business Intelligence, Analytics & Performance Mgmt	1.4%
8	Oda	$150M	Series D 2022-12-06	$353M	Kinnevik, Summa Equity, Verdane Capital	Norway	Internet	E-Commerce Food & Grocery	1.2%
9	Allica Bank	$123M	Series C 2022-12-05	N/A	Technology Crossover Ventures, Atalaya Capital Management, Warwick Capital Partners	United Kingdom	Internet	Internet Software & Services Accounting & Finance	1.0%
10	Factorial	$120M	Series C 2022-10-11	$1.0B	Atomico, CRV, Creandum, K Fund, Tiger Global Management	Spain	Internet	Internet Software & Services HR & Workforce Management	1.0%

Figure 1: Top equity deals in Q4 2022 - CBInsights

One of the key drivers of this growth has been the proliferation of deep tech acceleration programs across the region, which provide support and resources to help startups bring their innovative ideas to market. These programs offer a range of benefits, including access to mentorship, funding, and networking opportunities with industry experts and potential investors.

The growth of acceleration programs focusing on deep tech startups in Europe is a positive sign for the region's innovation ecosystem, and suggests that Europe is well positioned to continue to play a leading role in the development of cutting-edge technologies in the years to come.

While Europe as a whole has seen significant growth in its deep tech startup ecosystem, there are still disparities between different regions within the continent. For example, countries in Western Europe, such as the United Kingdom, France, and Germany, tend to have well-established startup ecosystems and greater access to funding, compared to Eastern and Southern European countries.

However, there are signs of progress in these underrepresented regions as well. For example, Central and Eastern European countries such as Poland and the Czech Republic have seen an increase in the number of deep tech startups in recent years, and acceleration programs in these countries are helping to provide support and resources to these businesses.

Additionally, some countries, such as Switzerland and Sweden, are known for their strong focus on innovation and are home to a large number of deep tech startups, especially in the fields of life sciences and medical technology.

While there are differences between the deep tech startup ecosystems in different regions of Europe, the overall trend is one of growth and increased support for these businesses. As more acceleration programs and funding opportunities become available, it is likely that these disparities will continue to decrease and the deep tech startup ecosystem in Europe will become more uniform across the continent.

Some of the gaps and challenges that need to be addressed in order to overcome the disparities are as following:

- Access to funding: While funding has become more readily available for deep tech startups in Europe, many businesses still struggle to secure the capital they need to bring their ideas to market. This is particularly true for startups in underrepresented regions, such as Eastern and Southern Europe

- Talented workforce: Attracting and retaining top talent is a challenge for deep tech startups across Europe. Companies often struggle to find employees with the necessary technical skills and experience, especially in fields such as AI and blockchain.
- Regulatory barriers: The regulatory landscape in Europe can be challenging for deep tech startups, particularly in industries such as financial technology and health technology.
- Lack of mentorship and networking opportunities: Despite the growing number of acceleration programs and incubators across Europe, many deep tech startups still struggle to find the mentorship and networking opportunities they need to succeed. This can be especially challenging for startups in underrepresented regions, where access to experienced entrepreneurs and investors is limited.

In order to address these gaps and challenges, it will be important for policymakers, investors, and other stakeholders to continue to support the growth of the deep tech startup ecosystem in Europe. This could include initiatives to increase access to funding, provide training and resources for startups, and create a more favorable regulatory environment for deep tech businesses.

The European Commission has launched several initiatives aimed at supporting business accelerators and deep tech startups in Europe. Some of the most important initiatives include:

- Horizon Europe: This is the EU's key funding programme for research and innovation, with a total budget of € 95.51 billion.
- Startup Europe: This is a European Commission initiative aimed at boosting the competitiveness of European startups and scale-ups, with a focus on deep tech. The initiative provides a range of resources and support for startups, including access to funding, mentorship, and networking opportunities.
- European Innovation Council (EIC): The EIC provides funding and support to innovative startups and SMEs, with a focus on deep tech. The program provides funding through a variety of channels, including grants, equity investments, and offers a range of other support services, including mentorship and access to market.

These initiatives demonstrate the European Commission's commitment to supporting deep tech startups and promoting innovation and growth in the region. By providing funding, mentorship, and other support services, these initiatives are helping to drive the growth of the deep tech startup ecosystem in Europe and position the region as a leader in cutting-edge technologies.

In terms of the business accelerators supporting deep tech startups, despite the ecosystem growth across Europe, there are still some challenges and gaps that are worth being mentioned, such as:

- Providing access to funding: Deep tech startups often require large amounts of capital to develop and bring their technologies to market, which can be a challenge for many accelerators. This can make it difficult for accelerators to provide the level of funding and support that deep tech startups need to succeed.
- Fragmented ecosystem: The deep tech startup ecosystem in Europe is still relatively fragmented, with different regions and countries having their own strengths and weaknesses, being challenging for accelerators to provide consistent and comprehensive support to deep tech startups across the region.
- Competition with other regions: Europe faces strong competition from other regions, including North America and Asia, in attracting and retaining deep tech startups. This can make it challenging for accelerators to position Europe as a leader in cutting-edge technologies and to attract the best and brightest entrepreneurs and investors.

2 METHODOLOGY

2.1 CONTEXT OF THE REPORT

The report was elaborated within the **AccelerAction project** - a European funded project that aims to create more connected and efficient innovation ecosystems in the sector of advanced technologies, supporting the scaling of companies, encouraging innovation and stimulating cooperation among national, regional and local innovation actors through a pan-European Networked Acceleration Programme.

The report is the main deliverable under work package Strategic Discovery Process: assessing gaps & challenges and co-designing the new service programme with a special focus on gender equality acceleration, aiming at developing a holistic method to assess the gaps & challenges faced by the business acceleration entities located in less connected innovation ecosystems (modest/emerging) and innovation hubs.

2.2 ASSESSMENT METHODOLOGY FRAMEWORK

The main purpose of the study was:

- to assess through market research the gaps & challenges faced by business acceleration entities located in less connected innovation ecosystems (modest/emerging), respectively;
- to develop a holistic benchmarking method for future individual assessment, exemplifying its use.

The methodology focused on evaluating the Accelerators' state of service delivery and operational capacity for supporting the startups to grow and scale, while mapping the gaps and challenges they faced. Therefore, the aim was rather to identify areas well- or under-developed, and less to evaluate the performance in terms of good and bad.

The market research and the benchmarking covered three dimensions critical for Accelerators' operations, identified through literature review (see Table 1):

- Service provision dimension: program structure, access to finance, networking activities, mentorship program, gender inclusivity, performance indicators;
- Internal/operational capacity dimension: employees (leadership and operational team), corporate recognition/reputation (acknowledge the good operational

capacity), interaction and involvement with relevant public stakeholders (ecosystem presence);

- Brand visibility dimension: awareness building, communication and visibility (with strategic insights).

The benchmark methodology was developed based on a critical comparative assessment of existing methods/tool (see McKinsey & Company, 2013; Miller et al., 2018; APC, 2018; Vanderstraeten et al., 2012; Battistella et al., 2017; Informing Change, 2017; Mikicic, 2015; CSES, 2002). To adapt the tool to the specifics of the Accelerators activity, the literature in the field was consulted (see Table 1). The methodology and tools creation process (quantitative instrument, qualitative instrument, benchmarking instrument/grid) involved 4 experts: 1 from academia with marketing research expertise and business consulting, 1 from academia with marketing & management expertise and startups mentoring experience, 2 from practice with startups acceleration expertise focused on tech. All tools were pre-tested before implementation.

Table 1. Literature review for tools development

Service provision dimension	Source
Program structure	Miller & Bound (2011) ▪ McKinsey & Company (2013) ▪ Lall et al (2013) ▪ Tasic et al (2015) ▪ Mishigragchaa (2017) ▪ Fowle (2017) ▪ Battistella et al (2017) ▪ Kos et al. (2017) ▪ Mahmoud-Jouini et al (2018) ▪ Miller et al. (2018) ▪ Kulkov et al. (2020) ▪ Blair et al. (2020) ▪ Nichols et al. (2020) ▪ Riley (2021) ▪ Canovas-Saiz et al (2021) ▪ Guardiet et al (2022) ▪ GALI (sd)
Access to finance	Christiansen (2009) ▪ Miller &Bound (2011) ▪ McKinsey & Company (2013) ▪ Tasic et al (2015) ▪ Fowle (2017) ▪ Rostarova, &Janac (2017) ▪ Kos et al. (2017) ▪ Pandey et al (2017) ▪ Battistella et al (2017) ▪ Kupp et al (2017) ▪ Mishigragchaa, (2017) ▪ Miller et al. (2018) ▪ Kulkov et al (2020) ▪ Blair et al. (2020) ▪ Lange (2020) ▪ Nichols et al. (2020) ▪ Riley (2021) ▪ Crișan et al (2021) ▪ Canovas-Saiz et al (2021) ▪ GALI (s.d.)
Networking activities (internal & external)	Huijegevoort (2012) ▪ Lall et al (2013) ▪ Tasic et al (2015) ▪ Fowle (2017) ▪ Pandey et al (2017) ▪ Kupp et al (2017) ▪ Kos et al. (2017) ▪ Battistella et al (2017) ▪ Mishigragchaa, (2017) ▪ Bagnoli et al (2020) ▪ Lange (2020) ▪ Blair et al. (2020) ▪ Kulkov et al (2020) ▪ Nichols et al. (2020) ▪ Crișan et al. (2021)
Mentorship program	Radojevich-Kelley & Hoffman (2012) ▪ Lall et al (2013) ▪ Tasic et al (2015) ▪ Kupp et al (2017) ▪ Kos et al. (2017) ▪ Battistella et al (2017) ▪ Pandey et al (2017) ▪ Fowle (2017) ▪ Bagnoli et al (2020) ▪ Lange (2020) ▪ Blair et al. (2020) ▪ Nichols et al. (2020) ▪ Crișan et al (2021)

Gender inclusivity	Pandey et al (2017) ▪ Nichols et al. (2020) ▪ Blandos, 2022
Performance indicators	McKinsey & Company (2013) ▪ Lall et al (2013) ▪ Dempwolf et al (2014) ▪ Mishigragchaa, (2017) ▪ Canovas-Saiz et al (2021) ▪ Guardiet et al (2022)
Internal capacity dimension	**Source**
Employees	Christiansen (2009) ▪ McKinsey & Company (2013) ▪ Wise & Valliere (2014) ▪ Tasic et al (2015) ▪ Kupp et al (2017) ▪ Fowle (2017) ▪ Kos et al. (2017) ▪ Miller et al. (2018) ▪ Bagnoli et al (2020) ▪ Kulkov et al (2020) ▪ Riley (2021) ▪ Guardiet et al (2022) ▪ Habiburrahman et al. (2022)
Corporate recognition/ reputation	Christiansen (2009) ▪ Fowle (2017) ▪ Bagnoli et al (2020)
Interaction & involvement with relevant public stakeholders	McKinsey & Company (2013) ▪ Tasic et al (2015)
Brand visibility dimension	**Source**
Awareness building	Christiansen (2009) ▪ McKinsey & Company (2013) ▪ Fowle (2017) ▪ Kos et al. (2017) ▪ Pandey et al (2017) ▪ Bagnoli et al (2020)
Communication and visibility	McKinsey & Company (2013) ▪ Kos et al. (2017) ▪ Bagnoli et al (2020) ▪ Nichols et al. (2020) ▪ Kulkov et al (2020)

2.2.1 SAMPLING PLAN

For the market research, a sampling plan was developed, structured as follows:

- Population: all high active business acceleration entities located EU 27
- Sample unit: any highly active acceleration entity located in EU 27 (depending on the national ecosystem)
- Sampling method: non-probability judgmental sampling
- Sample size: minimum 1 for country; maximum not fixed a priori, being influenced by the number of potential accelerators, and calendar/temporal constraints.

2.2.2 DATA COLLECTION METHOD

Both the market research and the benchmarking exemplification were performed through a descriptive transversal research design and a mixed data collection method – quantitative and qualitative.

A quantitative instrument and a qualitative instrument were used for data gathering, and one sample for each tool. Consequently, the market research analysis and benchmarking exemplification were carried out using the same quantitative and qualitative databases.

Quantitative research: An e-mail survey using a self-administered questionnaire, was sent to the management team/operational team. Prior to initiating the survey, direct phone contacts were initiated with selected Accelerators (the sample) to build a relationship and to ensure their involvement in the research. Furthermore, they were given instructions on completing the questionnaire. The preparation process ensured a very high response rate, as well as compliance with the deadline.

Qualitative research: Based on a selection process, several acceleration entities from the quantitative sample were chosen for the qualitative research. A remote interview (using platforms such as Zoom) was conducted with the management team/operational team to explore in-depth gaps and challenges, along with best practices. Before the survey was initiated, direct phone contacts were initiated with the selected Accelerators, to ensure their involvement in the research. The approach ensured a high rate of interview participation and engagement in providing accurate and detailed answers.

2.2.3 RESEARCH CALENDAR

Table 2. Research calendar

Tasks	Calendar interval
Methodology assessment	October-November 2022
Mapping the accelerators	October
Quantitative data collection	November-December 2022
Qualitative data collection	December 2022 – January 2023
Data analysis	January-February 2023

2.2.4 STATISTICAL ANALYSIS FOR DATA PROCESSING

Taking into account the type of questions, variables and scales used in the data gathering instruments, as well as the statistical techniques appropriate to each category of variables, the following statistical analyses were selected: frequency tables, column charts and structure circle, crosstabs, parameters (sum, mean and complex indicators created for benchmarking score calculation). Data processing was performed using the IBM SPSS Statistics 26 program and Microsoft Excel. For the benchmarking analyses a Microsoft Excel tool/grid was designed, which automated the calculation process

2.3 BENCHMARKING TOOL

Used as a strategic component of Total Quality Management, benchmarking can be seen as an effective planning tool, capable of generating ideas and solutions to improve organizational performance and enhance competitive advantage (Bergin, 2015; Kyro, 2003). Nevertheless, a major challenge in conducting benchmarking analysis is the inability to secure adequate benchmarking partners, which implies persuading best-practice competitors to join for comparison; this is even more difficult for small businesses (Bergin, 2015).

Given the context, we developed a benchmarking tool (with a **Microsoft Excel calculation grid**) and method that overcomes this obstacle, providing the possibility to perform the analysis even to small Accelerators or on markets with reluctant competitors. When using this tool, Accelerators can choose between two methods for benchmarking analysis:

- *Ideal case comparison* method: the Accelerator compares to the ideal case (maximum 100 points):
    - phase 1: calculate the score for the Accelerator using the tools (questionnaire, interview, benchmarking tool/grid); the scores for the ideal case are already calculated.
    - phase 2: compare the Accelerator's scores with the ideal ones (maximum). The bigger the gap, the more issues and challenges the Accelerator faces. Identify explanations and in-depth details using the interview data.
- *Inter-accelerator comparison* method: the Accelerator compares to one or several best-practice accelerators in the field:
    - phase 1: calculate for both parties the score using the tools (questionnaire, interview, benchmarking tool/grid); the scores are calculated as a part of the ideal case (maximum 100 points).
    - phase 2: compare the Accelerator's score with the scores of the best-practice one/ones. The approach resembles the comparison with the ideal case. The bigger the gap, the more issues and challenges the Accelerator faces. Identify explanations and in-depth details, ideas and possible solutions from best-practice Accelerators using the interview data.

The benchmarking framework (the tools are included in the next 3 sub-chapters):

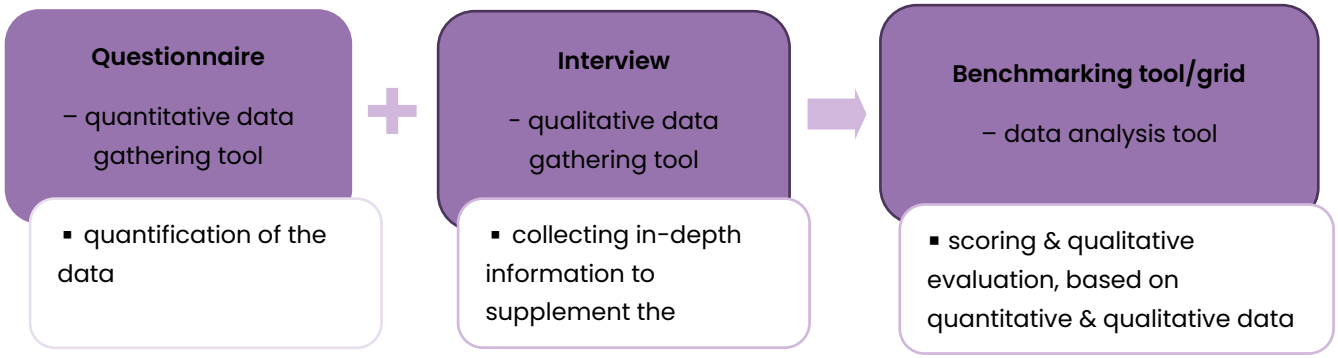

Figure 2. Benchmarking tools - Framework

2.3.1 BENCHMARKING TOOL/GRID - DATA ANALYSIS

Accelerator – TOTAL SCORE 100 Points (100%)			
Accelerator – Service provision 65 Points (65%)	Accelerator – Internal capacity 25 Points (25%)	Accelerator – Brand visibility 10 Points (10%)	Ideal case = 100 Points (Maximum)

Accelerator – Service provision 65 Points (65%)				
65 points (65%) Contribution to Global Score	**Factors**	**Score contribution to factor**	**Items** (association with the question number in the questionnaire & interview)	**Measurement - scale & scores for answers (min 0; max 3)**
10 points (10%) Global score Program structure Global contribution = Factor score*10/max = Factor score*10/3	Program structure 100% Value interval [0-3] min 0- 0%; max 3 – 100%	20 % (20% * score answer)	Average length of an acceleration program – in 2022 [Q2.1 & Qi15]	• 1-3 weeks (0) • 1-3 months/4-12 weeks (1) • 3-6 months (2) • 6 months- 1 year or more (3)
		30%	Accelerator's sector focus [Q2.2 & Qi16]	• Agnostic Tech & Non-tech (0) • Agnostic Tech (1) • Multiple tech sectors focus – from the list or other (2) • One tech-sector focus – from the list or other (3)
		10%	The activity of the business acceleration entity [Q1.2 & Qi6]	• Business accelerator and other activities/programs not related to startups' environment (0) • Business accelerator and other activities/programs related to startups' environment (1) • Business accelerator and incubator programs (2)

				• Pure business accelerator (3)
		20%	Number of cohorts/programs year – in 2022 [Q1.8. & Qi12]	• 0 (0) • 1 (1) • 2-3 (2) • ≥ 4 /ongoing (3)
		10%	Region's coverage [Q1.9. & Qi13]	• 1-2 national regions (0) • National coverage/all country (1) • 2-3 countries (2) • More than 4 countries (3)
		10%	Startups' ratio – national vs international – in 2022 [Q1.10. & Qi14]	• 100% national, 0 international(0) • Majority national, ≥60% (1) • Similar values national and international (2) • Majority international, ≥60% (3)
15 points (15%) Global score Access to finance Global contribution= = Factor score*15/max = Factor score*15/3	Access to finance 100% Value interval [0-3] min 0- 0%; max 3 – 100%	40%	Provided financial grants or investments [Q2.3.1. & Qi18]	• None (0) • Yes, for some participants - exceptional/minority (1) • Yes, for some participants – high amount /majority (2) • Yes, for all participants (3)
		20%	Guaranteed financial grants or investments through a related funding arm [Q2.3.2. & Qi18]	
		10%	Provided information on available funding options / assistance to secure funding [Q2.3.3. & Qi19]	
		20%	Provided opportunities to interact with investors/funders (e.g. pitch nights, demo days) [Q2.3.4. & Qi20]	
		10%	Asked for fees and/or equity stake (shares) [Q2.3.5. & Qi21 & Q22]	• No fees or equity (0) • Fees (1) • Equity (2) • Fees and equity (3)
15 points (15%) Global score Networking activities Global contribution = Factor score*15/max = Factor score*15/3	Networking activities 00% Value interval [0-3] min 0- 0%; max 3 – 100%	25%	Hosted/invited the accelerated startups to internal networking events (to meet other startups in the Accelerator, Alumni, sponsors, staff) [Q2.4.1. & Qi23 & Qi27 & Qi28]	• None (0) • Yes, for some participants - exceptional/minority (1) • Yes, for some participants – high amount /majority (2) • Yes, for all participants (3)
		25%	Hosted/invited the accelerated startups to networking events with various external stakeholders [Q2.4.2. & Qi24 & Qi27]	
		25%	B2B connections facilitated to increase business agreements between accelerated startups and other stakeholders (potential partners, clients) [Q2.4.3. & Qi25 & Qi27]	

		25%	Networking after the acceleration process ended (with Alumni) [Q2.4.4. & Qi26 & Qi27]	
15 points (15%) Global score Mentorship program Global contributio n= Factor score*15/m ax = Factor score*15/3	Mentorship program 100% Value interval [0-3] min 0- 0%; max 3 – 100%	15%	Workshops adapted to the industry [Q2.5.1. & Qi29]	• No (0) • Yes (3)
		15%	Workshops adapted to startups' development stage [Q2.5.2. & Qi29]	
		10%	International workshops and other activities [Q2.5.3. & Qi29]	
		10%	Soft Landing Programs/Visits (connecting startups with experts to help them get in the market) [Q2.5.4. & Qi29]	
		15%	Experienced and/or renowned mentors [Q2.5.5. & Qi30 & Q2.9.2. & Qi31]	
		10%	Good database of mentors (many) [Q2.5.6. & Qi30 & Q2.9.2. & Qi31]	
		15%	Mentorship matching (startups – appropriate mentors) [Q2.5.7. & Qi30 & Q2.9.2. & Qi31]	
		10%	International mentors [Q2.5.8. & Qi30 & Q2.9.2. & Qi31]	
5 points (5%) Global score Gender inclusivity Global contributio n= = Factor score*5/m ax = Factor score*5/3	Gender inclusivity 100% Value interval [0-3] min 0- 0%; max 3 – 100%	40%	% of women (co)-founders in the portfolio -in 2022 [Q2.6.1. & Qi33 & Qi34]	• 0% (0) • 1-25% (1) • 26-50% (2) • 51-75% (3) • 76-100% (3)
		40%	% of invested startups with a woman as a (co)-founder – in 2022 [Q2.6.2. & Qi36 & Qi37]	
		10%	… programs dedicated to women entrepreneurs (exclusive cohort/ program)? – in 2022 [Q2.7.1. & Qi32 & Qi35]	• No (0) • Yes (3)
		10%	… activities adapted to women entrepreneurs (dedicated support: mentors, events, financial resources or network, flexible & adapted schedules for women with specific responsibilities such as family)? - in 2022 [Q2.7.2. & Qi32 & Qi35]	• No (0) • Yes (3)
5 points (5%) Global score Performanc e indicators/	Performanc e indicators/ metrics 100%	40%	the average survival rate of participating startups (alive with clients or only alive at the moment of the interview) [Q2.10.1. & Qi38]	• 0% (0) • 1-25% (1) • 26-50% (2) • 51-75% (3) • 76-100% (3)
		30%	% of portfolio startups that got funded [Q2.10.2. & Qi39]	

metrics Global contribution = Factor score*5/max = Factor score*5/3	Value interval [0-3] min 0- 0%; max 3 – 100%	30%	amount of investments raised by the startups from portfolio (€), up to now. [Q2.11. & Qi40]	• < 1 million € (0) • 1 – 5 million € (1) • 5 – 10 million € (2) • > 10 million € (3)
Global score contribution for service provision (65% = 65 Points)	Program structure + Access to finance + Networking activities + Mentorship program+ Gender inclusivity + Performance indicators/metrics Simulation/Example: *E.g. Program structure = 20%*0+30%*1+10%*3+20%*3 + 10%*1+ 10%*2 =1.5 P* *Access to finance = 40%*2 + 20%*0 + 10%*1+ 20%*2+ 10%*2 = 1.5 P* *Networking activities = 25%*1+25%*2+25%*1+25%*0= 1 P* *Mentorship program = 15%*2+15%*1+10%*2+10%*2+15%*2+10%*3+15%*1+10%*2=1.8 P* *Gender inclusion = 40%*3+40%*1+10%*0+10%*0 =1.6 P* *Performance indicators/metrics = 40%*2+ 30%*1+30%*2= 1.7P* *Reconversion for final score contribution:* *Contribution to Global score: 3pct …. 10% factor …… global contribution ?%* or *Contribution to Global score: 3pct …. 15% factor …… global contribution ?%* or *Contribution to Global score: 3pct …. 5% factor …… global contribution ?%* *Program structure = factor*10/3 = 1.5*10/3=15/3= 5* *Access to finance = factor*15/3 = 1.5*15/3=22.5/3= 7.5* *Networking activities = factor*15/3 = 1*15/3=15/3= 5* *Mentorship program = factor*15/3 = 1.8*15/3=27/3= 9* *Gender inclusion = factor*5/3 = 1.6*5/3=8/3= 2.66* *Performance indicators/metrics = factor*5/3 = 1.7*5/3=8.5/3= 2.83* *Global score contribution Service provision = 5+7.5+5+9+2.66+2.83 = 31.99 (out of 65 points maximum)*			
Accelerator – Internal capacity 25 Points (25%)				
25 points (25%) Contribution to Global Score	**Factors**	**Score contribution to factor**	**Items** (association with the question number in the questionnaire & interview)	**Measurement – scale & scores for answers (min 0; max 3)**
10 points (10%) Global score Employees Global contribution= = Factor score*10/max= Factor score*10/3	Employees 100% Value interval [0-3] min 0- 0%; max 3 – 100%	20 % (20% * score answer)	Number of full-time employees [Q3.1. & Qi41 & Q2.9.4]	• 1-5 (0) • 6-10 (1) • 11- 20 (2) • ≥ 21 (3)
		30 %	Leadership/management team [Q3.2.1. & Qi42 & Q3.2]	• Inexperienced/unqualified (0) • Limited experience & skills (0) • Some prior experience & skills (1) • Significant experience & skills (2) • Highly experienced & qualified (3)
		30 %	Operational team [Q3.2.2 & Qi42 & Q3.2]	

		20%	Staff's expertise and skill sets match the subject areas or domains [Q3.3.7 & Qi42 & Q3.2.]	• No (0) • Yes (3)
5 points (5%) Global score Corporate recognition /Reputation = = Factor score*5/max= Factor score*5/3	Corporate recognition /Reputation 100% Value interval [0-3] min 0- 0%; max 3 – 100%	40%	Received prizes and recognitions – regional and/or national [Q3.3.1 & Qi43]	
		60%	Received prizes and recognition – international [Q3.3.2 & Qi43]	• No (0) • Yes (3)
10 points (10%) Global score Interaction and involvement with relevant public stakeholders Global contribution= = Factor score*10/max = Factor score*10/3	Interaction and involvement with relevant public stakeholders 100% Value interval [0-3] min 0-0%; max 3 – 100%	25%	3.3.3. Participation in public consultations, working groups that are relevant for the ecosystem [Q3.3.3. & Qi44]	
		25%	3.3.4. High interaction with relevant public stakeholders (government, regional authorities) [Q3.3.4. & Qi44]	• No (0) • Yes (3)
		25%	3.3.5. Have strategic partners [Q3.3.5]	
		25%	3.3.6. An important player in the national entrepreneurial ecosystem (based on the activity) [Q3.3.6. & Qi45]	

Global score contribution for internal capacity (25 Points = 25%)	*Employees + Corporate recognition/Reputation + Interaction and involvement with relevant public stakeholders* *Simulation/Example:* *Eg. Employees = 20%*2+30%*1+30%*2+20%*0=0.4+0.3+0.6=1.3 P* *Corporate recognition/Reputation = 40%*3+60%*0= 1.2 P* *Interaction and involvement with relevant public stakeholders = 25%*0+25%*3+25%*0+25%*3 =1.5 P* *Reconversion for final score contribution:* *Contribution to Global score:* *3pct …. 10%* *factor …… global contribution ?%* *or* *Contribution to Global score:* *3pct …. 5%* *factor …… global contribution ?%* *Employees = factor*10/3 = 1.3*10/3=13/3= 4.33* *Corporate recognition/Reputation = factor*5/3 =1.2*5/3=6/3= 2* *Interaction and involvement with relevant public stakeholders = factor*10/3 = 1.5*10/3=15/3=5* *Global score contribution Internal capacity = 4.33+2+5= 11.33 (out of 25 points maximum)*

Accelerator – Brand visibility 10 Points (10%)				
10 points (10%) Contribution to Global Score	**Factors**	**Score contribution to factor**	**Items** (association with the question number in the questionnaire & interview	**Measurement - scale & scores for answers (min 0; max 3)**
5 points (5%) Global score Awareness building /branding strategy Global contribution= = Factor score*5/ max = Factor score*5/3	Awareness building/branding strategy 00% Value interval [0-3] min 0- 0%; max 3 – 100%	50 % (50% * score answer)	The Accelerator had a general communication strategy to increase notoriety (objectives, campaigns) [Q4.3.1. & Qi46 & Qi47]	• Strongly disagree (0) • Disagree (0) • Neither, nor (1) • Agree (2) • Strongly agree (3)
		25 %	Each cohort/program had a communication campaign (call for startups) [Q4.3.2.]	
		25 %	Each cohort/program had a communication campaign (after the program ended, to share the results) [Q4.3.3.]	

5 points (5%) Global score Communication & visibility Global contribution= = Factor score*5/ max = Factor score*5/3	Communication & visibility 100% Value interval [0-3] min 0- 0%; max 3 – 100%	20%	How well known the Accelerator is among B2B at national level [Q4.1.]	• Very low notoriety (0) • Low (0) • Average (1) • High (2) • Very high notoriety (3)
		15%	Unpaid communication activity using mass-media (eg. presence with live interviews or press release on offline & online newspapers, TV, radio, Youtube vlogs, podcasts, etc.) - in 2022 [Q4.2.1]	• 0 actions (0) • 1-2 actions (1) • 3-4 actions (2) • ≥ 5 actions (3)
		15%	Paid communication activity using mass-media (eg. to be broadcasted/displayed offline & online newspapers, TV, radio, Youtube vlogs, podcasts, etc.) – in 2022 [Q4.2.2]	
		5%	Organic communication activity using own channels of Social Media (unpaid posts) – in 2022 [Q4.2.3]	
		15%	Paid (sponsored) communication activity using own channels of Social Media and/or Google Ads for website – in 2022 [Q4.2.4]	
		10%	Communication using direct marketing (eg. newsletters, e-mail announcements, messages) – in 2022 [Q4.2.5]	
		5%	Communication/ messages in international press – in 2022 [Q4.2.6]	
		10%	Using influencers (e.g. experts in field, mentors) to share posts or promote the event or call for program – in 2022 [Q4.2.7]	
		5%	Website accelerator (& SEO) [Qi8 & Q1.4]	• No website (0) • Website not dedicated/Shared – on the company's page (1) • Dedicated website (2) • Dedicated website & SEO (3)

Global score contribution for Brand visibility (10% = 10 Points)	Awareness building/branding strategy + Communication & visibility *Simulation/Example:* *Eg. Awareness building/branding strategy = 50%*3+25%*2+25%*0= 1.5+0.5+0 = 2 P* *Communication&visibility=20%*3+15%*2+15%*2+5%*0+15%*3+10%*3+5%*0+10%*2+5%*3= 0.6+0.3+0.3+0+0.45+0.3+0+0.2+0.15=2.5* *Reconversion for final score contribution:* *Contribution to Global score:* *3pct …. 5%* *factor …… global contribution ?%* *Awareness building/branding strategy = factor*5/3 = 2*5/3=10/3= 3.33* *Communication & visibility= factor*5/3 = 2.5*5/3=12.5/3=4.16* *Global score contribution Brand visibility = 3.33+4.16= 7.49 (out of 10 points maximum)*

2.3.2 BENCHMARKING QUESTIONNAIRE – QUANTITATIVE DATA GATHERING INSTRUMENT

PART 1. Profile – Business acceleration entity & Accelerator

- The questions cover the general profile of the business acceleration entity (provider of the Accelerator) and of the Accelerator.
- Consider only the business acceleration activity if more activities are provided by the entity.

1.1. Business acceleration entity (name of the providers/organizations)_____

1.2. The activity of the business acceleration entity is:

- pure business accelerator
- business accelerator and incubator programs
- business accelerator and other activities/programs

1.3. Accelerator (full name)_____

1.4. Website (Accelerator's platform) _____

1.5. Year of establishment (for the Accelerator)_____

1.6. Country of headquarter (for the Accelerator)_____

1.7. NUTS 2 Region of operation for the Accelerator (please use the Excel on https://ec.europa.eu/urostat/web/nuts/background)_____

1.8. Number of cohorts (groups/ programs) for acceleration, in 2022?
If it is an ongoing system where the startups can register in program any time, please mention 'ongoing'._____

1.9. Local/ regional reach (the areas targeted/covered with most accelerator programs).
If it is the case of equality, mention more regions._____

1.10. What is the ratio of national vs international startups that finished an acceleration program in 2022 (% of alumni)? E.g. 70% national, 30% international_____

PART 2. Accelerator – Service provision

- The questions cover the services provided by the Accelerator to their program participants.
- Consider only the business acceleration activity if more activities are provided by the entity.

2.1. The average length of an acceleration program, in 2022?
For several programs with different length – select multiple answers.
For Other – provide the length

- 12 weeks
- 8 weeks
- 4 weeks
- 2 weeks
- 1 week
- Other _____

2.2. Accelerator's explicit sector focus (multiple choice answer).
For focus that is not specific – choose ,no explicit sector focus'
For Other – provide the sector

- Agritech
- Proptech
- Mobility
- Climate tech
- Fintech
- Healthtech
- Deeptech – Advanced Materials
- Deeptech -Artificial Intelligence
- Deeptech – Biotech innovations
- Deeptech – Blockchain
- Deeptech – Robotics
- Deeptech – Electronics, including electronics manufacturing
- Deeptech – Virtual Reality (hardware, computer vision)
- Deeptech – Quantum computing
- No explicit sector focus (agnostic)
- Other _____

2.3. What access to finance did the Accelerator provide to the program participants – startups (in 2022)?

	No	Yes, to some participants (minority)	Yes, to some participants (majority	Yes, to all participants
Provided financial grants or investments				
Guaranteed financial grants or investments through a related funding arm				
Provided information on available funding options / assistance to secure funding				

Provided opportunities to interact with investors/funders (e.g. pitch nights, demo days)				
Asked for fees and/or equity stake (shares)				

2.4. What networking activities did the Accelerator provide to the program participants -startups (in 2022)?

	None	Yes, to some participants (minority)	Yes, to some participants (majority	Yes, to all participants
Hosted/invited the accelerated startups to internal networking events (to meet other startups in the Accelerator, Alumni, sponsors, staff, etc.)				
Hosted/invited the accelerated startups to networking events with various external stakeholders				
B2B connections facilitated to increase business agreements between accelerated startups and other stakeholders (potential partners, clients etc.)				
Networking after the acceleration process ended (with Alumni)				

2.5. Which mentorship-related aspects did the Accelerator provide to the program participants-startups (in 2022)?

	No	Yes
Workshops adapted to the industry		
Workshops adapted to startups' development stage		
International workshops and other activities		
Soft Landing Programs/Visits (connecting startups with experts to help them get in the market)		
Experienced and/or renowned mentors		
Good database of mentors (many)		
Mentorship matching (startups – appropriate mentors)		
International mentors		

2.6. Select the answer that fits best the gender inclusivity of the Accelerator, in 2022:
Please consider all programs/cohorts in 2022.

	0%	1-25%	26-50%	51-75%	76-100%
% of women (co)-founders in the portfolio					
% of invested startups with a woman as a (co)-founder					

2.7. In 2022, did the Accelerator provide …

	No	Yes
… programs dedicated to women entrepreneurs (exclusive cohort/program)?		
… activities adapted to women entrepreneurs (dedicated support: mentors, events, financial resources or network, flexible & adapted schedules for women with specific responsibilities such as family)?		

2.8. Overall, the Accelerator provides to the startups …

	Strongly disagree	Disagree	Neither, nor	Agree	Strongly agree
… easy access to clients or pilot partners (Ease of Market Access)					
… substantial access to Knowledge Exchange Programs (access to information, particularly from peers, mentors, and external experts)					
… substantial financing or support access to finance (Financing)					
… substantial access to Talent Pool (STEM-focused talent pool for any deeptech startup)					
… substantial access to Technological Facilities (availability)					

2.9. The biggest challenges (problematic) for the Accelerator:

	1 (low difficulty/ easy)	2	3	4	5 (highly difficult/ problematic)
Financial sustainability (to continue the activity)					
Creating the mentor pool (number, availability, expertise)					
Scouting for relevant startups					
Human Resource (employees)					
Other					

2.10. The performance of the startups included in the Accelerator (up to now):

	0%	1-25%	26-50%	51-75%	76-100%
the average survival rate of participating startups (alive with clients or only alive at the moment of the interview)					
% of portfolio startups that got funded					

2.11. Total amount of investments(€) raised by the startups in the portfolio, up to now._____ €

PART 3. Accelerator – Internal capacity

- The questions cover the internal capacity of the Accelerator.
- Consider only the business acceleration activity if more activities are provided by the entity.

3.1. Number of full-time employees in the Accelerator (in 2022)_____

3.2. Level of expertise & skills for the team in working with startups, in Accelerator (2022)?
If members in same team have different levels of experience and skills – evaluate an average.

	Inexperienced/ unqualified	Limited experience & skills	Some prior experience & skills	Significant experience & skills	Highly experienced & qualified
leadership/management team					
operational team					

3.3. Which aspects correspond to the Accelerator's status (up to now)?

	No	Yes
Received prizes and recognitions – regional and/or national		
Received prizes and recognition – international		
Participation in public consultations, working groups that are relevant for the ecosystem		
High interaction with relevant public stakeholders (government, regional authorities)		
Have strategic partners		
An important player in the national entrepreneurial ecosystem (based on the activity)		
Staff's expertise and skillsets match the maturity subject areas or domains		

PART 4. Accelerator – Brand visibility

- The questions cover aspects related to the brand visibility of the Accelerator.
- Consider only the business acceleration activity if more activities are provided by the entity.

4.1. How well known the Accelerator is, among B2B at national level?

- very low notoriety
- low
- average
- high
- very high notoriety

4.2. Communication actions used by the Accelerator (in 2022)?

	0 actions	1 -2	3-4	≥ 5 actions
Unpaid communication activity using mass-media (e.g. presence with live interviews or press release on offline & online newspapers, TV, radio, YouTube vlogs, podcasts, etc.)				
Paid communication activity using mass-media (e.g. to be broadcasted/displayed offline & online newspapers, TV, radio, YouTube vlogs, podcasts, etc.)				
Organic communication activity using own channels of Social Media (unpaid posts)				
Paid (sponsored) communication activity using own channels of Social Media and/or Google Ads for website				
Communication using direct marketing (e.g. newsletters, e-mail announcements, messages)				

Communication/ messages in international press				
Using influencers (e.g. experts in field, mentors) to share the posts or promote the event or call for program				

4.3. The Accelerator's the communication format (in 2022):

	Strongly disagree	Disagree	Neither, nor	Agree	Strongly agree
The Accelerator had a general communication strategy to increase notoriety (objectives, campaigns)					
Each cohort/program had a communication campaign (call for startups)					
Each cohort/program had a communication campaign (after the program ended, to share the results)					

2.3.3 BENCHMARKING INTERVIEW GUIDE – QUALITATIVE DATA GATHERING INSTRUMENT

For the qualitative data collection has been chosen the semi-structured interview, based on an interview guide. An additional training session was provided by a research expert to form the interview operators. Each interview operator had to prepare in advance the interview guide, by adapting it to the interviewee (Accelerator). In other words, to include the answers provided in the quantitative research, and select which questions are appropriate to be addressed.

Hence, overall the qualitative data collection process included three stages: the pre-interview preparations, data gathering and post-interview transcription. Interview settings:

I. Pre—interview activities:

- Prepare the interview /adapt the questions based on the questionnaire completed by the Accelerator during Stage 1 (quantitative research) – include the answers in the guide
- Test the programs/tools used for audio recording
- Set the meeting with the Accelerator

II. Interview activities:

- Length: estimation 40-50 minutes
- Format: online video conference – zoom or similar platforms
- Recording: use the audio recording for the entire interview
- Required: the questionnaire (recommendation – printed) with the answers provided by the Accelerator during Stage 1

III. Post—interview activities:

- Transcribe the answers & check for accuracy: in the interview guide document, in the space for each question.

INTERVIEW GUIDE

Start the audio recording, before the questions.

Qi1. The interviewer's presentation: name, organization, role in the project ____________________

Participant' rights: assure the participant that the responses will be entirely anonymous, and no data collected will show individual persons identification, and the data will be used only for the purpose of analysis.

Interview focus: make sure the participant/interviewee will provide answers for the Accelerator's activity (excluding other activities provided by the entity).

PART 1. Profile – accelerator & participant/ interviewee

Qi2. Participant's name ______________________

Qi3. Business acceleration entity (name of the providers/organizations)______________________

Qi4. Job/position in the Business acceleration entity ______________________

The interviewer can share a document with the answers provided by the Accelerator to the questionnaire, to assist visually the participant for Q1.1. – Q1.10.

Note:

- the questions in the interview guide also include the numbering from the questionnaire, to ease the process of pre-interview preparation, by adapting the tool to the interviewee (using the answers provided in the quantitative research)
- "assistance if needed" = the information can be used to assist the interviewee in order to obtain detailed answers

Accelerator – Profile (includes aspects related to Service provision & Brand visibility too)	
I will recap the answers provided for the profile of Accelerator and the business acceleration entity. Please check the accuracy and if there are additional comments, maybe exceptional or more complex situations, please provide information	
Qi5 [Q1.1.] Business acceleration entity (name of the providers/organizations) + Answer provided	
Check accuracy	▪ Comment if it is the case ________
Qi6 [Q1.2.] The activity of the business acceleration entity is: + Answer provided	

Check accuracy	▪ Comment if it is the case _____
If *'business accelerator and other activities/programs'*	▪ The activities/programs are all related to the start-ups environment or also non-related? Provide details _____ [assistance if needed: examples of related or non-related activities]
Qi7 [Q1.3.] Accelerator (full name): + Answer provided	
Check accuracy	▪ Comment if it is the case _____
Qi8 [Q1.4.] Website (Accelerator's platform): + Answer provided	
▪ Is the website dedicated for the accelerator or shared (just a section on the entity's platform)? _____	
▪ Does the website have SEO activities – to improve the traffic or just updates? _____	
Qi9 [Q1.5.] Year of establishment (for the Accelerator): + Answer provided	
▪ Check accuracy	▪ Comment if it is the case _____
Qi10 [Q1.6.] Country of headquarter (for the Accelerator): + Answer provided	
▪ Check accuracy	▪ Comment if it is the case _____
Qi11 [Q1.7.] NUTS 2 Region of operation for the Accelerator: + Answer provided	
▪ Check accuracy	▪ Comment if it is the case _____
Qi12 [Q1.8.] Number of cohorts (groups/ programs) for acceleration, in 2022? + Answer provided	
▪ Check accuracy	▪ Comment if it is the case _____
▪ If *'Ongoing'*	▪ Provide details on the format _____ [assistance if needed: same acceleration format for all, or different types of acceleration and how many? – consider the services provided, assistance, benefits, length of acceleration etc.]
Qi13 [Q1.9.] Local/ regional reach (the areas targeted/covered with most accelerator programs): + Answer provided	
▪ Check accuracy	▪ Comment if it is the case _____
▪ Based on the answer provided, address questions to identify if the regions are national (and how many national; or is the case of full national coverage) and international (how many countries) _____	
Qi14 [Q.1.10.] What is the ratio of national vs international startups that finished an acceleration program in 2022 (% of alumni)? + Answer provided	
▪ Check accuracy	▪ Comment if it is the case _____

STOP sharing the word document.

PART 2. Accelerator – Service provision	
I will recap answers provided for the Service provision of Accelerator. For an in depth understanding, please assist me with additional answers and comments.	
Qi15 [Q2.1.] The average length of an acceleration program, in 2022? + Answer provided	
▪ If there were multiple answers selected (or multiple indicated at Others), then: Provide details on how many programs and lengths _____ [assistance if needed: e.g. 2 programs of 12 weeks, 1 of 8 weeks]	
** Address the question Qi16 [Q2.2.] only if 'no explicit sector focus (agnostic)' and/or 'Other _' was selected (alone or with other answers) Qi16 [Q2.2.] Accelerator's explicit sector focus + Answer provided	
▪ Do you have a dominant focus on specific non-tech fields? [assistance if needed: e.g. circular clothing, sustainable energy, medical non-tech, etc.]	
Qi17 [Q2.9.3.] How difficult or easy is for Accelerator to scout for relevant startups + Answer provided	
▪ Why this answer (difficult or easy)? _____ [assistance if needed: relevant – from their field; Are there few on the market? Don't trust in Accelerators/reticent? Costs involved – as fees/shares? Have better alternatives on the national market (strong competition on the market with bigger Accelerators or international ones active on the market), there is no database with startups, Preference for free programs or offered by the government? etc.]	
Q2.3. What access to finance din the Accelerator provide to program participants	
Qi18 [2.3.1.] Provided financial grants or investments & [2.3.2.] Guaranteed financial grants or investments through a related funding arm	
If *'No'* (2.3.1. or 2.3.2, or both)	▪ Why not? _____ [assistance if needed: to consider their experience, investors' networking and or number of potential investors in the country, interest of investors in the field, existence/opportunities of investment/financing programs of different nature – private/public-governmental/ EU funding and how the Accelerator assists the startups in the process, etc.]
If *'Yes, to some participants'* (2.3.1. or 2.3.2, or both)	▪ Why to some? _____ [assistance if needed: they have to consider to how many the provided the opportunity, not how many decided to take advantage of the opportunity. E.g. If they created a pitch night event and invited most of their startups, then is 'majority', even if only few decided to attend the event]
If *'Yes, to all participants'* (2.3.1. or 2.3.2, or both) or *'Yes, to some participants'* (2.3.1. or 2.3.2, or both)	▪ How easy is for the Accelerator to provide/attract investments for the startups? ▪ Provide details on the investment context _____ [assistance if needed: to consider number of potential investors, interest of investors in the field, existence/opportunities of investment/financing programs of different nature – private/public-governmental/ EU funding and how the Accelerator assists the startups in the process, etc.]

Qi19 [2.3.3.] Provided information on available funding options / assistance to secure funding	
If *'Yes, to some participants'*	▪ Why to some? _____ [assistance if needed: they have to consider to how many the provided the opportunity, not how many decided to take advantage of the opportunity]
Qi20 [2.3.4.] Provided opportunities to interact with investors/funders (e.g. pitch nights, demo days)	
If *'No'*	▪ Why not? _____ [assistance if needed: experience & knowledge to assist, networking, etc,]
If *'Yes, to some participants'*	▪ Why to some? _____ [assistance if needed: they have to consider to how many the provided the opportunity, not how many decided to take advantage of the opportunity]
If *'Yes, to all participants'* or *'Yes, to some participants'*	▪ What type of opportunities? Mention the most important ones, without providing details. [assistance if needed: e.g. meetings, pitch nigh]
Qi21 [2.3.5.] Asked for fees and/or equity stake (shares)	
If *'No'*	▪ Why not? _____ [assistance if needed: e.g. the program founded from another source such an EU program, a collaboration with the government authorities]
If *'Yes, to some participants'*	▪ Why to some? _____ [assistance if needed: reason used to differentiate between]
If *'Yes, to all participants'* or *'Yes, to some participants'*	▪ Provide details on fees and or equity stake (shares) _____ [assistance if needed: type – fees , equity, or mixed, how much, the system]
Q2.9. Challenges for the Accelerator? Qi22 [2.9.1.] How difficult or easy is for Accelerator be financial sustainable (to continue activity) + Answer provided	
▪ Why this answer (difficult or easy)? _____ [assistance if needed: How do you obtain financial resources? Which are the highest costs?]	
Q2.4. What networking activities did the Accelerator provide to the program participants startups in 2022?	
Qi23 [2.4.1.] Hosted/invited the accelerated startups to internal networking events (to meet other startups in the Accelerator, Alumni, sponsors, staff, etc.)	
If *'Yes, to some participants'*	▪ Why to some? _____ [assistance if needed: they have to consider to how many the provided the opportunity, not how many decided to take advantage of the opportunity.]
Qi24 [2.4.2.] Hosted/invited the accelerated startups to networking events with various external stakeholders	
If *'Yes, to some participants'*	▪ Why to some?_____ [assistance if needed: they have to consider to how many the provided the opportunity, not how many decided to take advantage of the opportunity.]
Qi25 [2.4.3.] B2B connections facilitated to increase business agreements between accelerated startups and other stakeholders (potential partners, clients etc.)	
If *'Yes, to some participants'*	▪ Why to some? _____

	[assistance if needed: they have to consider to how many the provided the opportunity, not how many decided to take advantage of the opportunity.]
Qi26 [2.4.4.] Networking after the acceleration process ended (with Alumni)	
If *'Yes, to some participants'*	▪ Why to some? _____ [assistance if needed: they have to consider to how many the provided the opportunity, not how many decided to take advantage of the opportunity.]
Qi27. How easy or difficult is for the Accelerator to facilitate connections/networking events: a) between the accelerated startups _____ b) between startups and alumni _____ c) between startups and other stakeholders (potential clients for the startups, potential partners for the startups)? _____ d) Is there a significant number of business agreements developed? _____ [assistance if needed: to consider willingness on both sides to participate to events and engage, the Accelerator's resources – financial, human, experience, networks, etc.]	
Qi28. Did you use other networking activities? Provide details	
_____	
Q2.5. Which mentorship-related aspects did the Accelerator provide to the program participants, in 2022?	
Qi29 [2.5.1.] Workshops adapted to the industry [2.5.2.] Workshops adapted to startups' development stage [2.5.3.] International workshops and other activities [2.5.4.] Soft Landing Programs/Visits (connecting startups with experts to help them get in the market)	
If *'No'* [at least one of 2.5.1, 2.5.2., 2.5.3, 2.5.4.	▪ Can you provide reasons why some of the activities/workshops weren't provided? [assistance if needed: to consider the Accelerator's resources – financial, employees number and skills, experience, networks with mentors/experts, etc.]
If 'Yes' [at least one of them 2.5.1. or 2.5.2. or 2.5.3. or 2.5.4]	▪ All the startups benefited of same amount of workshops or differentiated? How were they provided? (online, onsite) ▪ How easy or difficult was to implement the workshops? [assistance if needed: to consider willingness to participate to events and engage, the resources – financial, human, experience, networks, etc.] Did the Accelerator benefit of specific assistance that might have helped? (e.g. being part of a EU program, collaboration between entities etc.?)
Qi30. How would you describe the Accelerator's database of mentors?	
[assistance if needed: consider the number, the type (academia, business owners, business experts - consultancy companies etc.), the level experience, renowned, international vs national] _____	
Q2.9. Challenges for the Accelerator? Qi31 [2.9.2.] How difficult or easy is to create the mentor pool (consider the number on the market, the level experience, willingness) + Answer provided	
▪ Why this answer (difficult or easy to create the mentor pool)? _____ ▪ How do you attract new mentors/ create the mentor pool? _____	

▪ Is more difficult for tech and deep-tech? _____ ▪ What benefits do you provide to your mentors, to ensure their involvement? _____
Qi32 [Q2.7.] In 2022, the Accelerator provided …
2.7.1. Programs dedicated to women entrepreneurs (exclusive cohort program)? 2.7.2. Activities adapted to women entrepreneurs
If *'No'* (2.7.1. and 2.7.2, both) ▪ Why not? _____ [assistance if needed: weren't requests, don't have many women entrepreneurs, didn't know they need specific assistance]
If *'Yes'* (to 2.7.2.) ▪ What activities were provided? [assistance if needed: e.g. mentors, events, financial resources or network, flexible & adapted schedules for women with families, etc.]
Qi33. Is there a difference in business ownership based on gender, in case of startups (Accelerator's country)?
_____
Qi34. But in case of tech and deep-tech startups (Accelerator's country)?
_____
Qi35. Does the Accelerator differentiate between startups that have a woman as founder/co-founder and the ones owned only be men?
[assistance if needed: Do you consider that the ones owned by women may have specific needs and support? Or they are assisted in the same way?] _____
Qi36. Is it easier or more difficult to receive investments, if the founder/co-founder is a woman? (consider the Accelerator's case) Qi37. But in case of tech and deep-tech startups?
_____ _____
Q2.10. The performance of the startups included in the Accelerator (up to now):
Qi38 [2.10.1.] the average survival rate of participating startups (alive with clients or only alive at the moment of the interview) + answer _____
▪ Is this a good rate reported to the ecosystem? (what happened in the local industry) _____ ▪ What can explain the survival rate (low or high)? _____ [assistance if needed: consider the role of the Accelerator; consider the business environment after acceleration; consider the businesses – what they lack after acceleration?]
Qi39 [2.10.2.] % of portfolio startups that got funded
▪ What can explain the % (high or low)? _____ [assistance if needed: consider the role of the Accelerator; consider the ecosystem and investment & funding opportunities; consider the businesses – why they didn't convince the investors?]
Qi40. Does the Accelerator have a system of monitoring the startups while being accelerated?
[assistance if needed: e.g. with indicators of progress, collects regularly information, sets milestones] _____

PART 3. Accelerator – Internal capacity	
I will recap answers provided for the Internal capacity of Accelerator. For an in depth understanding, please assist me with additional answers and comments.	
Q2.9. Challenges for the Accelerator? Qi41 [2.9.4.] How difficult or easy is to find the human resources + Answer provided	
▪ Why this answer (difficult or easy)? _____ [assistance if needed: Few skilled? Payment? Full-time vs part-time necessity?, Reticence towards the field?] ▪ Does the Accelerator have also part-time employees? Outsourcing activities or uses the services of consultancy companies for activities (e.g. research)? _____	
Qi42 [Q3.2.] Level of expertise & skills for the team in working with startups, in Accelerator (2022)?	
▪ What type of experience and expertise with Accelerators/startups have the members in leadership/management team? _____ - Is it in tech and deep-tech field? _____ ▪ Were the other employees trained to develop their skills and expertise to work with startups for acceleration? _____	
Q3.3. Which aspects correspond to the Accelerator's status (up to now)?	
Qi43 [3.3.1.] Received prizes and recognitions – regional and/or national [3.3.2.] Received prizes and recognition – international	
If *'Yes'* (3.3.1. or 3.3.2, or both)	▪ Were the providers important? _____ (the prize gives a high recognition or low?)
Qi44 [3.3.3.] Participation in public consultations, working groups that are relevant for the ecosystem [3.3.4.] High interaction with relevant public stakeholders (government, regional authorities)	
If *'No'* (to both 3.3.3 and 3.3.4)	▪ Why not? _____ [assistance if needed: consider the Accelerator's willingness; consider the access and willingness of the government/regional authorities to engage with Accelerators and similar entities]
If *'Yes'* (3.3.3. or 3.3.4, or both)	▪ At governmental level or regional authorities? _____ ▪ Is the Accelerator powerful enough to influence decisions related to the ecosystem? (proven ability to influence) _____ ▪ Can the Accelerator get support from public stakeholders when expressing specific problems, requests, wishes related to the ecosystem? (advocacy) _____
Qi45 [3.3.6.] An important player in the national entrepreneurial ecosystem (based on the activity)	
If *'Yes'*	▪ Is the Accelerator the main player in the national ecosystem? Or top 3? ▪ But in tech and deep-tech field?

PART 4. Accelerator – Brand visibility
I will address few questions related to the Brand visibility of the Accelerator:
Qi46. Does the Accelerator have a person/team responsible for the communication/marketing aspects (campaign, messages, visual materials, website)?
[assistance if needed: a person dedicated for the Accelerator or for other activities too?] _ _ _ _ _ _ _ _ _
Qi45. Does the Accelerator allocate in advance a budget for the marketing strategy?
[assistance if needed: e.g. companied use to allocate a budget at the beginning of the year to be spent for specific activities] _ _ _ _ _ _ _ _ _ _

Q2.9. Challenges for the Accelerator? Qi47 [2.9.5.] Are there Other important challenges for Accelerator?
_ _ _ _ _ _ _ _
Qi48. Considering the Accelerator's challenges, which type of support its projects/initiatives needs?
[assistance if needed: e.g. resources of different types, information dissemination, networks} _ _ _ _ _ _ _ _

Wrapping up

Ask if there are additional comments _
Stop the audio recording.

3 DATA ANALYSIS

3.1 MARKET INSIGHTS

The research aimed to provide additional insights into the business acceleration entities' market and assess the gaps & challenges they face. A total of 58 questionnaires were validated, representing highly active acceleration entities located in EU 27. Of these, 23 entities went through the interview phase. For each business acceleration entity, corresponds one Accelerator, also called unit in the analysis. For their clients, the startups and program participants terms were used interchangeably. The Accelerator's owner (provider) was named *business acceleration entity* or *entity.*

Given the aspects included, the program *structure* component can also serve as a profile of the sample (see the benchmarking tool/grid table which reorganizes the *service provision*, the *internal capacity* and *the brand visibility* dimensions to include data from both quantitative and qualitative instruments). Besides the aspects that make up the *program structure*, information on the country of headquarters and years of activity were included in the analysis, thus covering all the aspects related to the profile.

3.1.1 SERVICE PROVISION

Program structure: The success of an Accelerator depends on how the structure of the program is designed. In this regard, several factors should be considered: the program package, size of a cohort/batch, the selection process and quality of participants, the territory covered, the length of the program, the level of sector specificity/ focus (Kos et al., 2017; Lall et al, 2013; Guardiet el al., 2022; Kairikko & Dhaliwal, 2021).

The research results showed that very few entities focus purely on business acceleration (8.62%) and therefore can be considered specialized on the startups acceleration process. The majority have a more diversified activity, either within the boundaries of startups' support, covering both the acceleration and the incubation phases (34.48%), or extending to other activities mostly related to the field (56.90%). The interviews revealed that such auxiliary activities can include:

- organizing events for community,
- training for access to international markets,

- researching the national/international ecosystem,
- offering support services to connect corporates and startups, outside the program,
- getting involved as partners in organizing hackathons,
- collaborating with NGOs that aim to promote, and support the startups' interests (e.g. free-of-charge incubators),
- getting involved in (co)-organizing programs that provide support to startups or the ecosystem, as those offered by EIT or EIF,
- accessing EU grants as Horizon, individually or in partnership with similar entities,
- developing the local/national/European ecosystem,
- offering innovation-related services such as Open innovation programs and consultancy on innovation governance, Digital Innovation Hubs,
- getting involved in other European projects,
- running labs as Technology Transfer Center, etc.

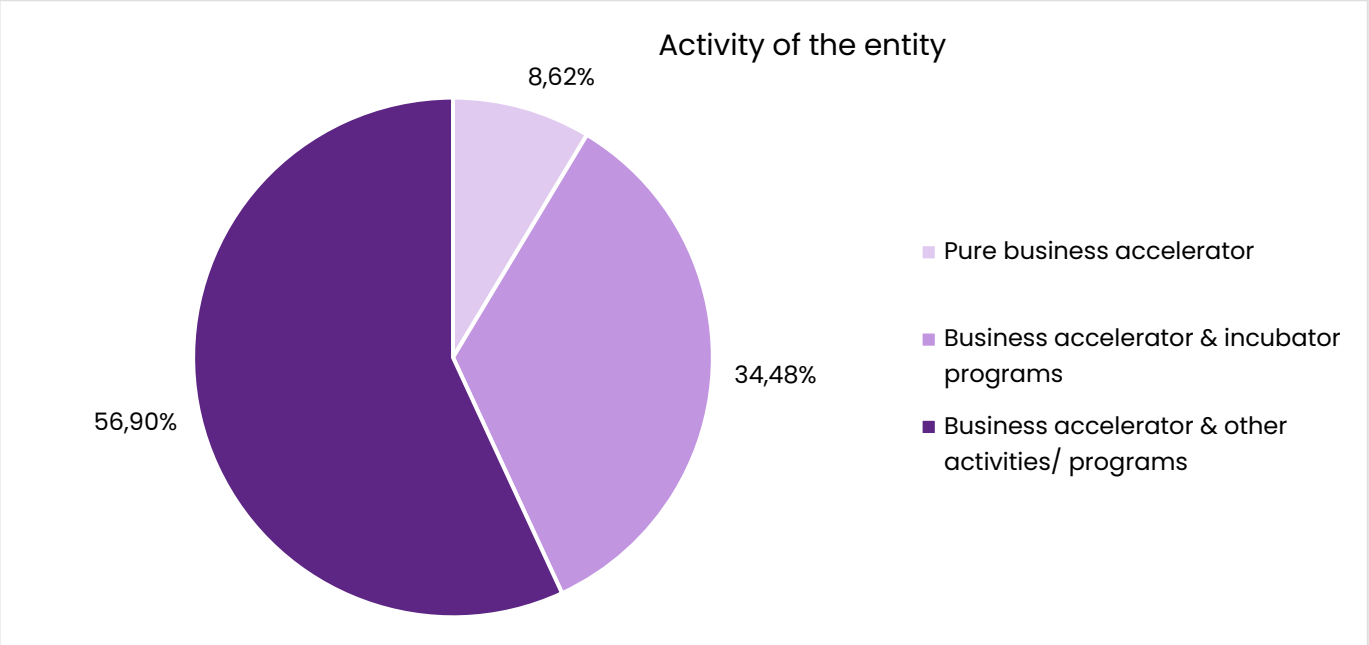

Figure 3. Activity of the business entity

A varied activity can be a limitation or an advantage for the business acceleration entities, depending on the type of activities, the level of sector focus (unique or multi-directional), the size of their Accelerator, market experience, resources and challenges they face. By providing relevant auxiliary activities related to the startup's environment, the entities and their

Accelerators can strengthen their network (partners, sponsors, investors, mentors), improve brand visibility, and attract additional financial resources. For example, Accelerator A7 stated that they also have pro-bono activities and these "bring a good reputation to the company". Another case is Accelerator A8 which revealed that they combine "not just financial, but also human resources [from digital innovation hubs, national resources, EU projects] … to provide this acceleration environment for the companies". However, taking the case of Accelerators that are understaffed and struggling to hire skilled personnel, engaging in other activities can be a disadvantage. This is because the effort of employees will also be distributed to secondary activities, and will engage them in a greater variety of tasks for which they may not have the expertise and abilities; such a system can reflect on the employee turnover rate. With this in mind, it is relevant to emphasize that approximately 58% of the entities indicate that their Accelerators' workforce is problematic (understaffed, hiring difficulties), but also manage incubation programs and/or other auxiliary activities. In addition, a significant number of Accelerators (46.55%) have less than 5 employees, and there are cases with teams made up only of part-timers.

As Kos et al. (2017, p. 9) argue, the "specialization of startup accelerators is the right choice for the upcoming decade". Previous studies underline the existence of a strong paradigm around Accelerators that "the new ones are usually more specialized and focused" on certain industries, segments or growth stages (Kos et al., p. 5; Bagnoli et al., 2020). However, only few Accelerators in the sample (5.17%) have a clear focus on a single tech sector and can be considered niche accelerators. The majority (56.90%) simultaneously cover multiple tech sectors, such as Agritech, Proptech, Mobility, Climate tech, Fintech, Healthtech, Deeptech sub-sectors, while 1.72% collaborate with any tech company, regardless of their domain of activity (agnostic tech). 36.21% of the units don't have an explicit sector focus, providing support for both tech and non-tech startups (agnostic tech and non-tech). The results of the actual research contradict the specialization tendency among newest Accelerators, because almost all units launched since 2015 (95% of 41 units) have a multi-tech sector focus or agnostic tech and non-tech. However, the results are consistent with Riley's reporting (2021), that Accelerators are still primarily agnostic. If operating on several sectors has the advantage of attracting more participants to the programs, it can be more difficult to offer the appropriate expertise for all of them, respectively to find mentors, investors and partners that cover all the sectors. Ultimately, this reflects on the overall quality of the program provided. The situation can be even more problematic when Accelerators have a small team of employees, which, as previously indicated, is true for almost half of the sample. The interviews provide additional insights for choosing the agnostic orientation. For example, Accelerator A1 noted that "the

focus sectors change year to year, depending on what the current trends are […] deliberately don't want to limit in one specific sector […] most of our mentors come from the digital field and this influences the kind of startups we want to support". Another unit, Accelerator A8, stated that "there are not enough companies in one sector and the critical mass is not there, to cover just one or two sectors […] it is our wish and responsibility to provide as much support as possible to companies operating or emerging in different sectors". Other examples are the Accelerators with short-term programs created to take advantage of financial opportunities, such as EU initiatives, however with the same downsize.

Focusing on one or two linked tech sectors has the advantage of turning the business into a specialized one (niche Accelerator), increasing the chance to excel in that market:

- better understanding of the startups' needs and providing a greater value,
- developing know-how and employees' skills,
- creating a long-term database of mentors with field knowledge, and connections with investors and partners that can better suit the startups' needs (better matched),
- creating a valuable database of alumni that can share advice and information with startups,
- providing easy access to pilot partners and clients,
- developing a tighter network,
- easily identifying and seizing field-specific opportunities,
- greater brand visibility associated with greater trust and credibility,
- more Word-of-Mouth,
- more efficient communication strategies,
- reduced (specialized) competition.

Guardiet et al. (2022) mentions that many Accelerators advertise the experience they have on the market to attract participants, investors, mentors. In their opinion, it can be assumed that the level of experience can be reflected in the success of the program, however, when they investigated the relationship, the assumption wasn't confirmed.

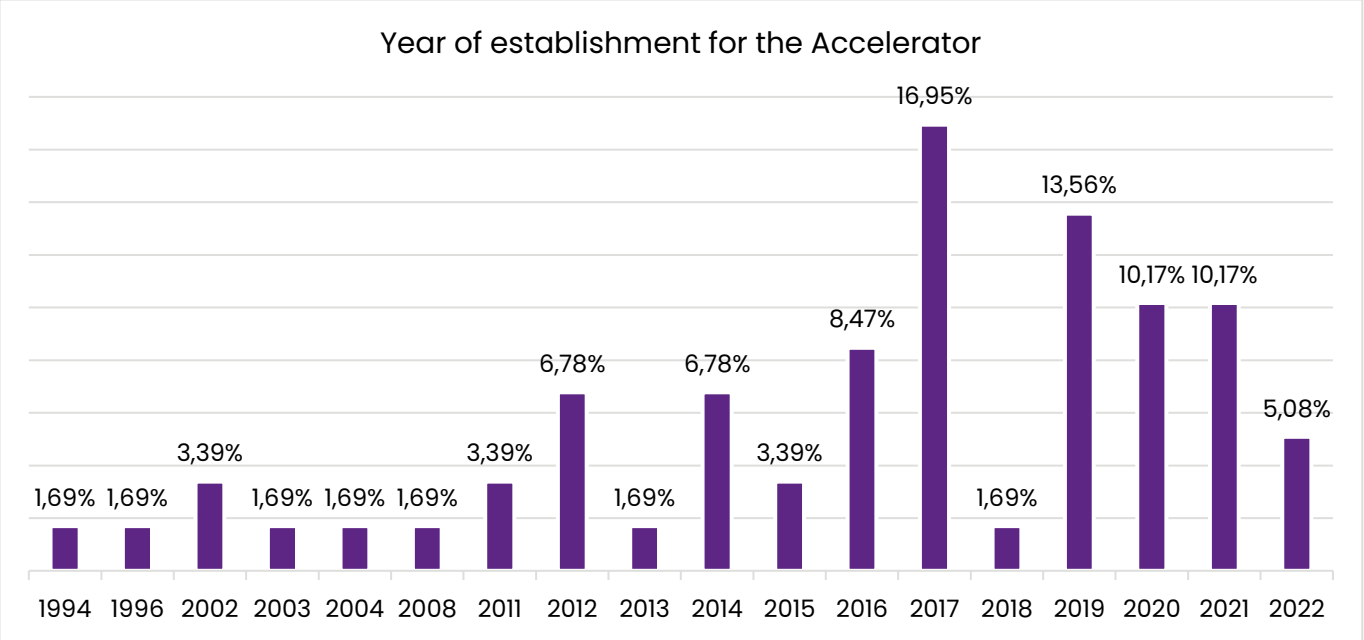

Figure 4. Year of establishment for the Accelerator

The present research revealed that most of the Accelerators in the sample, were launched in the last decade, dominating the group between 2016-2020 (50.84%), followed by the ones from 2011-2015 period (22.03%). The findings are in line with previous research that indicated a high growth rate of Accelerators in Europe after the 2008 financial crisis (Salido et al., 2013). 15.25% of the units in the sample have the shortest period of activity being inaugurated between 2021-2022, whereas 11.84% have the longest presence on the market, since before 2010. However, although some Accelerators are quite new, it doesn't necessarily imply that the acceleration business entity that runs them lacks or has limited experience within the startups' ecosystem. For example, one accelerator had a previous program discontinued and was substituted with a new revised program covering a different stage (transition from pre-acceleration to acceleration), thus the business has a different ownership and those entities that began with incubators then expanded their portfolio to also run Accelerators.

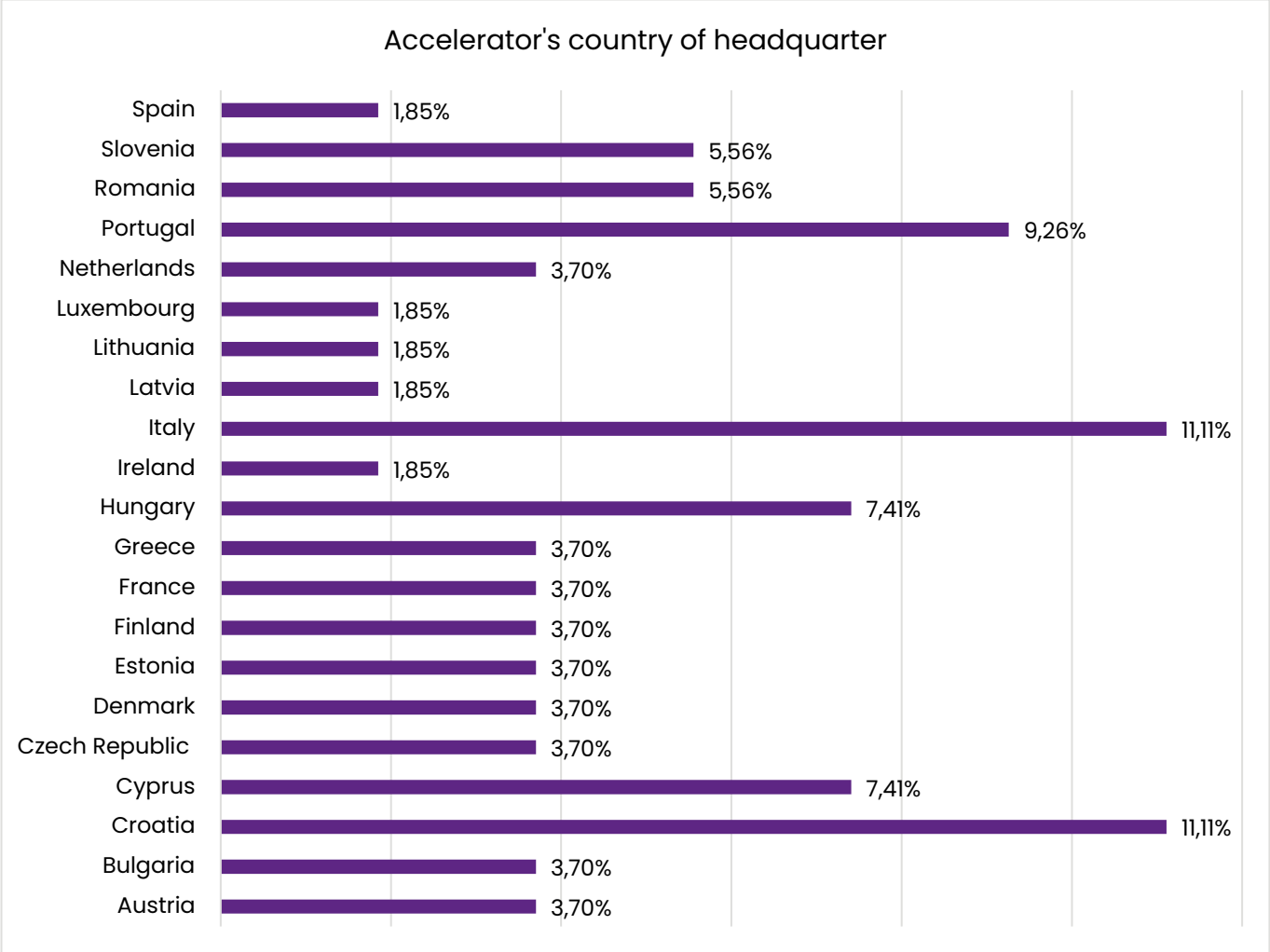

Figure 5. Accelerator's country of headquarter

The sample consists of Accelerators with headquarters in 21 countries: Austria, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Portugal, Romania, Slovenia, Spain. The wide variety of locations is explained by the fact that most of the countries are represented by 1 or 2 Accelerators. A greater presence is met for Italy (11,11%), Croatia (11.11%), Portugal (9.26%), Hungary (7.41%), Cyprus (7.41%), Romania (5.56%), Slovenia (5.56%).

The country of headquarter is largely reflected in the areas covered by the Accelerator's programs, however, in more than half of the cases it does not constrain it. The research indicated three main situations – national, European and global coverage. 50% of the Accelerators extend beyond the borders of their headquarter country into the European

territory, yet the coverage varies from few neighboring countries, to SEE, CEE, EU 27 or even the whole of Europe. 43.10% of Accelerators stay within the borders of their headquarter country, targeting the entire national territory or only specific regions (e.g. NUT S2, HR050, RO32). A much smaller percentage of units (6.90%) state that they are open to startups from around the world or have a global reach, nevertheless the focus is on Europe. What may be somewhat surprising is that a 10-year-old research on the European acceleration ecosystem, revealed a similar pattern, with little international footprint and a dominating national reach (Salido et al., 2013).

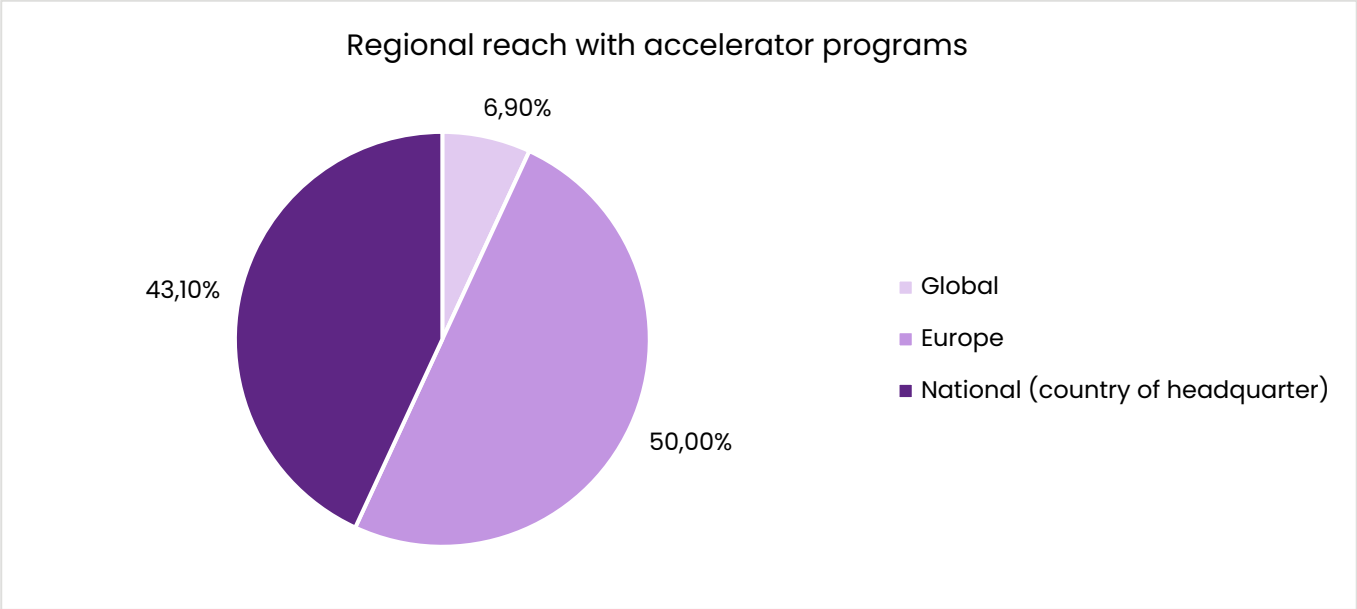

Figure 6. Regional reach with accelerator programs

To better understand if there is no actual change in the internationalization of the ecosystem or if there are some pan-European rollout tendencies, a cross-analysis with the years of activity was considered. Given the resources and the experience, it would be expected for a business to begin with a national reach and, in time, to extend at European level, then to go globally. The interviewed Accelerator A3 claimed that their exclusive national coverage is because they "don't have much experience in the acceleration sector". However, around half of the oldest Accelerators (launched before 2015) remained active only at national level. The interviews revealed that this may be due to government-backed Accelerators or receiving public funding as part of a national program and may have a strategic focus based on the national ecosystem ("local needs, gaps, potential and governmental economy development

strategy" – Kos et al., 2017, p. 10). But there are signs of change among long-standing Accelerators with national coverage, as Accelerator A21 points out "there is a strong will to develop the services in Europe". Consequently, in some cases it may not be a matter of challenges to attract international startups or reluctance to expand beyond the national borders, but rather of a business restriction. The pattern is different for the newest entries on the market, where over 70% of the units inaugurated in the last 5 years (since 2018), already target the European and/or global territory. Concluding, there is a shift in the internationalization process driven by the newest Accelerators, however the effects will be seen in the next decade. Notably, the EU grants have played a role in stimulating the pan-European collaboration between Accelerators, between Accelerators and other participants in the ecosystem, but they also pushed them to look for startups beyond the national borders.

The results regarding the varied territorial coverage are, to a certain extent, confirmed by the national-international alumni ratio (startups that completed an acceleration program) in 2022. As expected, for the majority of Accelerators (81.04%), the national alumni dominated; the exclusive national coverage was also confirmed for 43.10% of them. To better understand the relationship between alumni and territorial coverage, a cross-analysis was carried out. Although a higher percentage of units claimed to have an international business coverage, only 15.52% recorded more international alumni (than national) completing a program, whereas 3.45% had solely international. This proves that even when the Accelerators target international startups, the national startups base still plays a significant role in their activity. The results may be partially explained by the governmental fundings, participation in national programs or similar situations that might imply a national restriction. However, the limited representation of the international startups, signals that it is a challenge for Accelerators aiming for international reach to attract a large number of international participants. This statement is reinforced by the interviews, where among the type of support needed, several Accelerators indicated the assistance for internationalization.

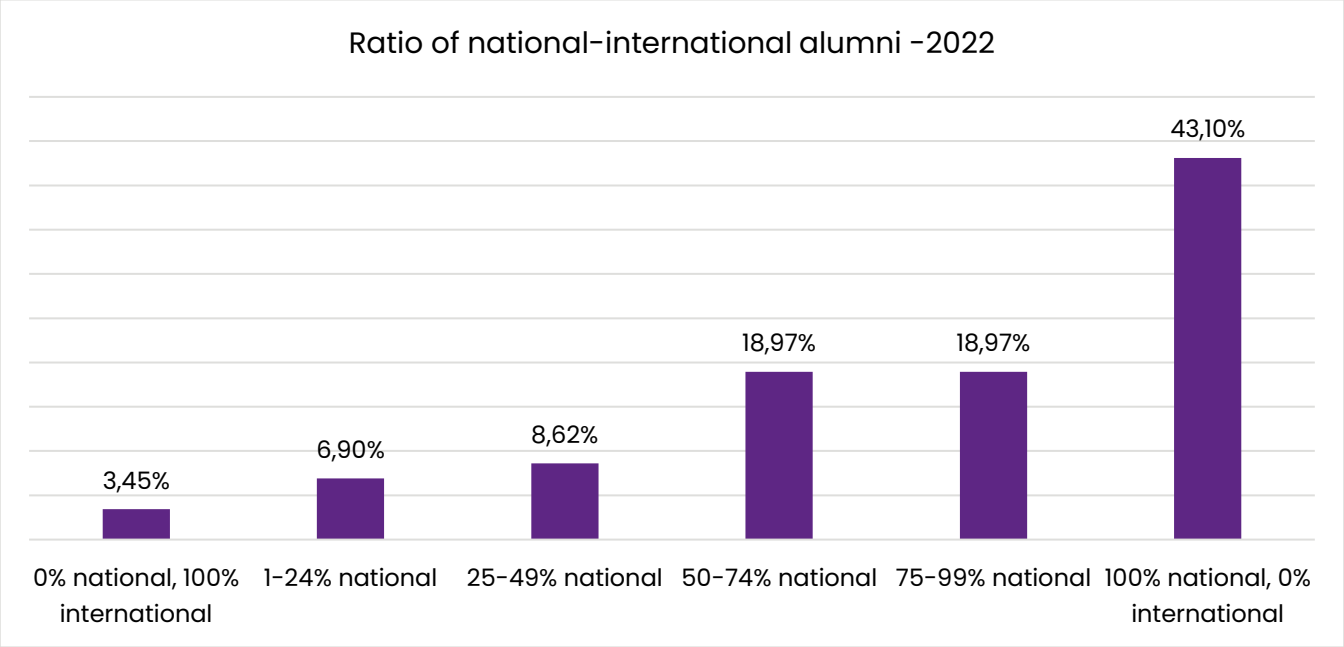

Figure 7. Ratio of national-international alumni -2022

There is no consensus on the number of cohorts or startups that an acceleration program should include. Guardiet el al. (2022) argue that for small batches the advantage is a better focus of the acceleration team, however, this depends on the size and how resourceful the Accelerator is; they should work with bigger batches/more startups if the resources and capabilities allow it. Yet, recent papers showed the existence of a more flexible approach to managing the program participants, namely without defining cohorts/batches but enrolling based on how many resources are available at the time. In other words, there is a trend of switching from applications with deadlines to rolling admissions (Riley, 2021). The research results showed that in 2022, all the Accelerators enrolled startups for acceleration. The vast majority had one single cohort (30.51%) or applied an ongoing/"rolling" system where startups could register for support any time (30.51%). Therefore, the results confirm the trend identified by Riley (2021). Of the total sample, 20.33% of the Accelerators worked with 2-4 cohorts, 11.85% had 5-8 cohorts, and 6.78% exceeded 10. The interviews revealed that in most cases the ongoing enrollment implied a one-on-one acceleration process, tailored to the needs of the startups. A specific case is Accelerator A9, which noted that they have changed the approach from 2 cohorts/year to ongoing, due to the pandemic context that required a "flexible approach".

Additionally, several Accelerators mentioned that they combined online/virtual interaction with on-site visits, or having simultaneously multiple on-going programs covering different sectors. Cross-analysis indicated that most Accelerators active since 2015 (73.17% of 41), had a single cohort or an ongoing system, while only a third of the older units used the same format. The same type of analyses showed that there was no remarkable difference based on the size of the Accelerator (by number of employees), or the level of sector specificity; yet, can be noted that all units focused on a single tech sector worked with the ongoing system.

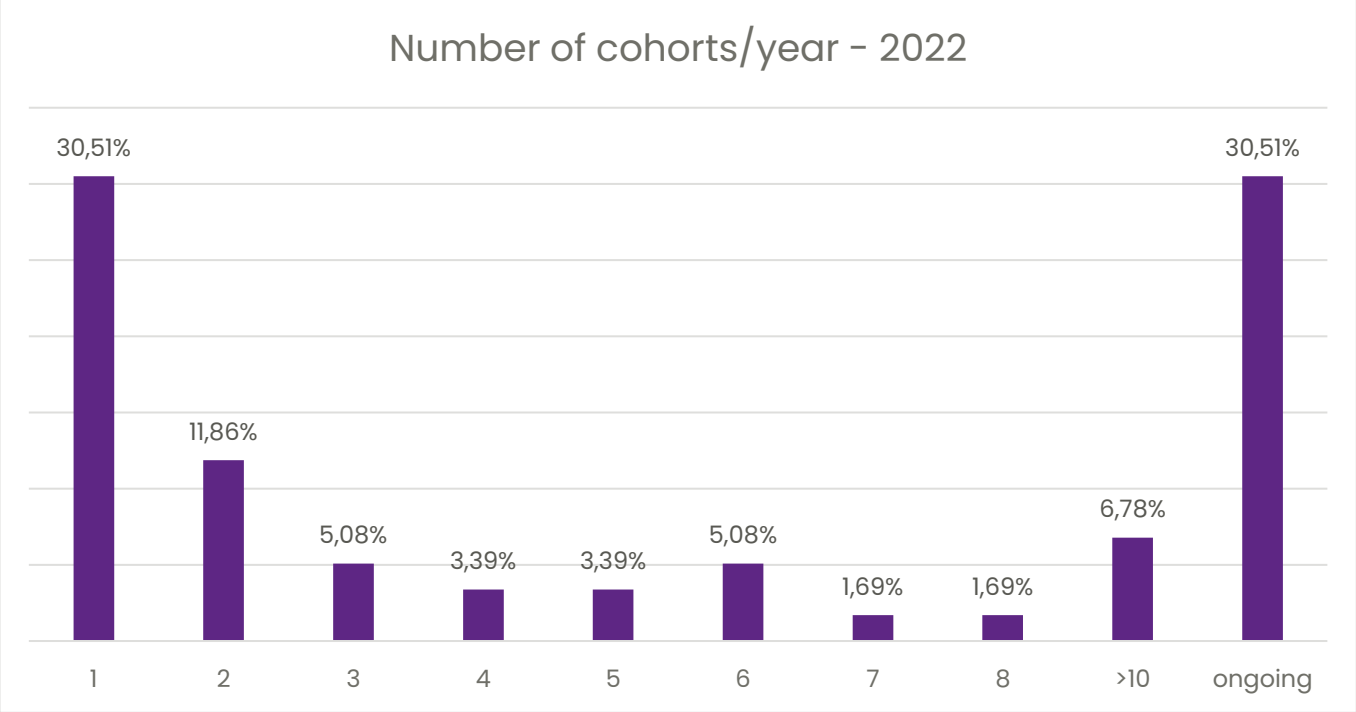

Figure 8. Number of cohorts/year – 2022

Previous studies indicate a connection between the success of an acceleration program and the quality of the participants as to why an increased selectivity in scouting for startups is recommended (Guardiet el al., 2022; Kos et al., 2017). In line with this, Kos et al. (2017) emphasize the critical role of properly setting a highly competitive selection process and criteria "where only the best startups get accepted". A thorough recruitment and selection will result in a lower number of program participants, but with greater chances of becoming successful alumni. According to the research findings, 31.04% of the Accelerators scouted easily for relevant startups, whereas for the majority (68.96%) the process was challenging. The interviews confirmed that, to some extent, the difficult recruitment is explained by the restrictive selection process, as stated by Accelerator A1 "we are picky […] we want to make a

difference […] we would rather go for a smaller number of startups". In addition, Accelerator A9 indicated an example of strict entrance criteria - "not eligible if it is involved in another accelerator program or has already received some kind of funds […] we focus more on new teams, to work with from the very beginning". Another strict entrance criteria was provided by Accelerator A14 who claimed that they require an owner with a minimum of 10 years experience. Other reasons related to the selection process, were: ▪ the difficulty of finding eligible startups due to "entrepreneurs that are not dedicated to their business and don't have the right mindset" (Accelerator A8); ▪. the preference to work "in the very early stage", but given their field, they often happened to find "startups that in some ways have already armored their position concerning an investor" (Accelerator A23). However, the selection process may not be the only cause behind the difficulty in finding sufficient appropriate startups. Other motives cited included: ▪ limited or inappropriate communication for the programs or Accelerator, ▪ high competition with many initiatives in the market, ▪ small pool of tech startups in the region and can be affected by the arduous transfer between university researchers and entrepreneurial sector (even more reduced when the Accelerator targets specific stages, such as mature startups), ▪ the manual scouting without specialized tools "we screen the national and regional media platforms, social media, and use our own network of mentors and VCs […] and recommendations from our alumni" (Accelerator A15), ▪ a lack of a place where to discover startups. As a special mention, there were Accelerators that placed the decrease in the number of program participants in the pandemic context.

In contrast, units that managed to scout easily for relevant startups, provided as reasons: ▪ their good reputation and brand visibility which attract startups to contact them, ▪ the significant improvement of the national ecosystem, as Accelerator A4 noted "many startups are emerging and we receive many applications […] 2-3 per month", ▪ receiving financial governmental support encourages the startups to apply for acceleration (Accelerator A8), ▪ good network channel with private and public ecosystem actors who will assess and send startups (e.g., chambers of commerce, committees or association of the region), ▪ organizing high-notoriety events in the field that attract many participants including startups, ▪ scouting at the universities among researchers, PhDs "and then we find the CEOs for them […] is a quite successful approach" (Accelerator A20), ▪ incubating startups, then selecting the best for acceleration, ▪ working on a niche sector, hence with low competition, ▪ agreements and collaborations, for example "3 major Capital Funds in the region" (Accelerator A7) or "a bank that sends us profiles after having done a financial analysis of the startup" (Accelerator A21), ▪ getting involved in various activities, as example "the partners are part in other mentorship and acceleration programs […] we are involved in government grant programs targeting

early-stage startups […] every early-stage startup comes to our attention" (Accelerator A7). Besides, several means of recruitment were reported: social media, own website, Digital Hub, creation of an online platform for product testing and risk reduction.

Another section of the interviews confirmed that recruiting relevant startups was a challenge, with several Accelerators including among the types of support needed: ▪ EU collaborations to find more promising mature startups, ▪ a way to map the startups from the market and link them with Accelerators, ▪ stronger partnerships with academia that can provide access to early-stage startups and mentors.

There is no standardized or average length for acceleration programs. Most of the authors state that the programs should be around 3 months, while others suggest a typical duration of 3-6 months (Haines, 2014; Guardiet al el., 2022; Kos et al., 2017). Based on the research findings, the average length of the programs delivered in 2022, knows significant variations, from the shortest period of 1 week (1.67%) to "as long as it is necessary" (1.67%). Nevertheless, the percentage distribution is different, given that most of the Accelerators (53.33%) offered programs that lasted between 1 - 3 months, and only 5% offered support for at least 1 year. The prevailing lengths were: 3 months (38.83%), 6 months (16.67%) and 2 months (10%).

Table 3. Acceleration program length in 2022

Program length	%	Program length	%	Program length	%
1 week	1.67%	5 months (18-20 weeks)	5%	1 year	1.67%
4 weeks (1 month)	5%	6 months (24-26 weeks)	16.67%	1-2 years	1.67%
8 weeks (2 months)	10%	7 months	1.67%	2 Years	1.67%
12 weeks (3 months)	38.33%	8 months	1.67%	As long as it's necessary	1.67%
4 months (15-16 weeks)	3.33%	9 months	5%	Case to case basis	5%

Furthermore, some Accelerators reported to have programs with different length, especially when applying the ongoing recruitment system, or when the programs change over time (e.g. when carrying out short-term period programs that change periodically). The length of the programs can be explained by the model of acceleration and the number of stages covered (pre-acceleration, acceleration, growth – Kos et al., 2017). Cross-analysis revealed no patterns based on the year of establishment, number of employees, level of sector focus or number of cohorts/year.

Access to finance: Kos et al. (2017) highlight the importance of providing access to funding, through direct investments of the Accelerator or facilitating the connection with investors. Most of them offer some type of investment, either public (from local/national/European budget/grants), private (from VC fund, business angels, banks, other investment institutions) or mixed. Investments can improve the survival rate of the startups (Bagnoli et al., 2020) and their future development; however, when this is not possible, alternatives may be considered: monetary rewards/sponsorship and/or non-monetary rewards and subsidies.

The research results indicated that in 2022, all Accelerators created opportunities for participants to engage with investors/funders, even when matchmaking was not an objective per se, and provided information on available funding options or assistance in securing funding. In most cases, these aids were offered to all program participants. Opportunities to interact with investors or to attract financial resources were mainly provided through: ▪ one-on-one meetings, pitching and matchmaking events; ▪ demo days, while also educating the startups for negotiating with potential investors, ▪ direct recommendation to investors in their network, ▪ channeling funds coming from EU grants, ▪ co-matching programs connecting public and private fundings. In addition, it should be mentioned that some Accelerators select the startups that will be presented to potential investors – e.g. Accelerator 22 chose only startups with the "a MVP and a small team in place".

The direct forms of investment, made by Accelerators, were more limited. 13.79% of the units provided financial grants or investments to all program participants, while 46.55% offered only to some startups. Several interviewed Accelerators pointed out that they act as "a pipeline towards the investors", connecting startups with different resources for funding, but do not invest directly. In this regard, several reasons were reported: ▪ they are limited by the business format/program that doesn't allow them or doesn't have a budget- e.g. educational institutions; technology park; part of EU projects that don't include direct investment, ▪ they struggle to find financial resources - e.g. difficult to meet the criteria for opening a fund and national bureaucracy, difficulties in being financially sustainable; the business is new, thus they lack financial resources and connections, ▪ the decision can vary - e.g. years with investment and years without; the model they are currently working with doesn't involve investment, but other models do. Specific cases are Accelerator A2 which is in the process "of setting up a small investment, fund and venture [...] to invest" and Accelerator A15 which plans "to build up our own VC arm for pre-seed investments". There are also units claiming that they don't focus on matching startups with fund providers, but only do it exceptionally. In addition, a group of Accelerators invest, but only in few program participants, selecting the startups based on criteria such as: "the winning participants" (Accelerator A9), the most promising

"ready-to-market" (Accelerator A5), "with radical innovations" (Accelerator A18), with "high TRL and clear value proposition (Accelerator A17), or "with a cohesive and committed team" (Accelerator A23). On the other hand, a percentage of 6.90% of the Accelerators guaranteed financial grants or investments through a related funding arm to all program participants, while 29.31% only to some of the startups. Most Accelerators looking to find funds from other resources, indicate a variety of options (EU funding mechanism, national grants and other governmental support instruments, VCs, business angels), but, in most cases, it is difficult to secure the investments signaling: ▪ a problematic ecosystem because "the region is still underfunded compared" to other countries, as the US, Israel (Accelerator A7); ▪ investors are looking for "8-9 TRLs" (Accelerator A13) or "unicorns" (Accelerator A17). Cross-analysis revealed no patterns between the previous financial aspects and the type of Accelerator (by number of cohorts/year, number of employees, the level of sector focus) or years in market.

Table 4. Access to finance provided to program participants (in 2022)

	No	Yes, to some participants	Yes, to all participants
Provided financial grants or investments	39.66%	46.55%	13.79%
Guaranteed financial grants or investments through a related funding arm	63.79%	29.31%	6.90%
Provided information on available funding options / assistance to secure funding	0%	24.14%	75.86%
Provided opportunities to interact with investors/funders (e.g. pitch nights, demo days)	0%	17.24%	82.76%
Asked for fees and/or equity stake (shares)	51.72%	32.76%	15.52%

Although the Accelerators must be designed to ensure long-term financial sustainability, many have closed their doors in the past decade (Kos et al., 2017). From this perspective, it is not surprising that the current research found that for most Accelerators (82.76%) it is a challenge to secure their financial sustainability (at least average). Detailing, it can be mentioned that in exchange for the services provided, half of the Accelerators asked for fees and/or equity stake, from all (15.52%) or some of the startups (32.76%). Which means that the remaining 51.72% used only alternative sources to finance their activity. Cross-analysis did not reveal different patterns based on financial struggle and payment received from startups; more, there are Accelerators without financial difficulties that do not ask for fees and/or equity

(10.34%), and units that do, but have high difficulty maintaining their financial sustainability (29.31%). Regardless of their size (by number of employees), most Accelerators tend to face medium to high difficulties in ensuring financial sustainability; an exception are the large units, with over 25 employees, which report average to low financial issues. Similarly, the cross-analysis revealed an intensified struggle regardless of years in the market or cohorts/year.

Most of the interviewed Accelerators which provide free-of-charge programs, indicated an association with different public funding schemes/organizations: ▪ are publicly owned programs or institutions/organizations (e.g. affiliated with a university, city), ▪ are coupled with public/governmental funding, ▪ rely on EU fundings/grants. If some of them could not ask for fees/equity, other admitted that they did not consider the option when the projects were designed; a specific case is Accelerator A6 which has hinted at a future intention "to create an equity fund". In addition to this group, there are free-of-charge Accelerators that use other resources to sustain their activity, such as: ▪ external funding from corporate sponsors or partners; ▪ commercialization of industrialization services/products "prototyping and first series" (Accelerator A2). Regarding Accelerators which ask for fees/equity, several schemes were cited: ▪ collect it from the most promising startups (e.g. high TRL and clear value proposition) or ▪ collect it if the startups get funded -"a fee on the investment"(Accelerator A4), "% from annual grants" (Accelerator A7), ▪ starting with a small fee and increasing it in time based on the startup's performance.

Interviews also brought to light the motives behind the financial struggle. A frequently cited reason for having difficulty ensuring long-term financial sustainability, is related to high costs: operational costs, rental, energy, salaries, events, PR & communication services. However, the costs are not a problem by themselves, but in correlation with low and unstable/uncertain revenues, as most Accelerators noted. When it comes to financial resources, Accelerators struggling with financial sustainability accuse: ▪ primarily the lack of government support/funding for private Accelerators, hence the need to identify other resources and which is difficult in several countries; for example, Accelerator A5 provided an overview of the national ecosystem and reported that "there is only one way to be financial sustainable: to be supported by public entities, banks or important national/international players", ▪ a long time until seeing the result of their investments (e.g. the long development period for startups) or difficulties in making those startups sustainable, so that equity can be collected, ▪ relying solely on Eu funding or even free volunteering when funds are not available, ▪ difficulty to recruit program participants to ensure economic sustainability, ▪ delayed governmental payments, ▪ difficulties in the private sector in persuading corporate financial sponsors to collaborate, mainly due to their general reluctance to acceleration businesses; ▪ even when

governmental fundings are involved, there are cases when the funding is "year a year […] so they can never be 100% sure that funding will continue" (Accelerator A9), ▪ when the Accelerator has varied programs that change, the financial resources are not stable. Overall, Accelerators that are more financially stable, place their success on: ▪ external funding from partners (that "come forward and say they want to support us" - Accelerator A22; several sponsors "always looking forward to renewing it" - Accelerator A19), ▪ governmental support although they can simultaneously use auxiliary resources or means of generating revenue (see again the case of Accelerator A21 which sells prototypes and first series as additional source of income). Based on the previous findings, it can be concluded that Accelerators operate on two different national ecosystems: ▪ an ecosystem where they benefit from government support and easily find partners/sponsors open to collaboration, hence a more educated entrepreneurial ecosystem, respectively ▪ an ecosystem that lacks or has little government support and it is difficult to attract partners/sponsors, hence a less educated entrepreneurial ecosystem.

The financial sustainability challenge was also reported in another section of the interview. Of the type of support needed by Accelerators, the "funding/access to finance" is the most frequently mentioned. Also related to the financial aspect, Accelerators called for assistance to connect with VCs at European level, or to educate investors (VCs) in deep tech.

Networking activities: The value and the success of an acceleration program depends "largely on the social learning" experiences provided through networking events and activities (Fowle, 2017; Bagnoli et al., 2020). Reason why, in addition to educating and facilitating access to financial resources, the Accelerators must focus on building a strong community/network that integrates all partners in the ecosystem and to provide the opportunity to interact through informal and formal events (Kos et al. 2017). Through a systematic literature review, Crișan et al. (2021) confirmed the fundamental role of Accelerators as "network builders". The wide network should include various stakeholders such as mentors, investors, corporate sponsors, academia, peers, incubators, public entities, etc. Special attention should be paid on building a long-term relationship with their alumni, through regular alumni community meetings, networking events and mentoring sessions between alumni entrepreneurs and new startups involved in the program; alumni are a valuable asset (Kos et al. 2017; Bagnoli et al., 2020).

The research findings revealed that, in 2022, all the Accelerators orchestrated a type of internal networking event, creating occasions for the program participants to meet other program participants, alumni, sponsors, staff, etc. Most Accelerators offered these types of activities to

all program participants (77.59%). For the other cases, the interviews provided insights on why only some startups benefited from them: ▪ everyone/all cohort was invited to the events, but not all startups chose to take advantage of the opportunity; also, the number of events was reduced due to the pandemic context; ▪ the events were small and tailored for particular groups, meaning that all cohort members had access to internal networking events but not during the same event , ▪ the opportunity was given to startups in an advanced stage, arguing that it may be a disadvantage for the business to meet other companies before they are "ready", ▪ because the focus of the unit was not the organization of such events. Additionally, one of the Accelerators claimed that they did not organize the events due to the pandemic context. Another aspect tackled by the interviews concerned the ease of facilitating these connections. Thus, most of Accelerators stated that it was easy to facilitate connections between startups, due to their good relationships, but also because they can interact online/on phone; some mentioned an average difficulty. However, connecting startups with alumni has been noted by several Accelerators as being difficult/highly challenging. Most of Accelerators who find it easy, stated that this was possible due to their good connections with alumni, emphasizing the importance of "building a strong community" and a database of alumni "that want to give back" and become mentors (Accelerator A15, Accelerator A9). One specific case is Accelerator A3 which used alumni as mentors even though their business failed. Instead, Accelerator A1 shared the reason behind their difficult engagement with alumni – "once they grow, they don't have much time […] being overwhelmed with their activities". Also, another Accelerator claimed that usually it was easy, but the events were reduced by the pandemic context.

In addition, most Accelerators invited all (75.86%) or some (22.41%) program participants to networking events with various external stakeholders. The interviews revealed that the reasons behind the selective participation were: ▪ everyone/all cohort was invited to the events, but not all chose to take advantage of the opportunity; also, the number of events was reduces due to pandemic context; ▪ because the focus of the unit was not the organization of such events, ▪ the events were small and customized for specific needs, so only the startups that fit were invited, ▪ were invited only the startups that fit the stakeholders, had an advanced level of development (e.g. ready to market) and/or the highest potential.

Table 5. Networking activities provided to program participants (in 2022)

	No	Yes, to some participants	Yes, to all participants

Hosted/invited the accelerated startups to internal networking events (to meet other startups in the Accelerator, Alumni, sponsors, staff, etc.)	0%	22.41%	77.59%
Hosted/invited the accelerated startups to networking events with various external stakeholders	1.72%	22.41%	75.87%
B2B connections facilitate increased business agreements between accelerated startups and other stakeholders (potential partners, clients etc.)	3.45%	41.38%	55.17%
Networking after the acceleration process ended (with Alumni)	10.34%	25.86%	63.79%

Out of total, 55.17% of the Accelerators facilitated for all their program participants some B2B connections, to increase the business agreements with various stakeholders (potential partners, clients etc.); 41.38% offered the opportunity only to some of the startups. The interviews showed that when this type of connections were facilitated for some of startups, the motives behind the selective participation were: ▪ it depended on the stage of business development and only the startups "ready for market" were selected, ▪ all startups that reached in the last stage of the program obtained a business agreement, ▪ the unit did not plan to find customers. Additionally, the interviews revealed that facilitating connections between startups and other stakeholders (potential clients, partners), was mostly perceived as easy or moderately difficult, being influenced by Accelerator's network; other factors that might influence were: the sector's specificity and matching the market, the maturity of the startups, the willingness of both sides. If some Accelerators didn't get involved in facilitating business agreements, others try to provide opportunities for all startups, or, on regular bases – "we have big companies looking at our projects" (Accelerator A23).

More, 63.79% of Accelerators provided post-acceleration networking opportunities to all alumni, while 25.86% engaged only some alumni in networking activities. The interviews revealed that when only some (alumni) were engaged in post-acceleration networking, the reasons were: ▪ all alumni were welcomed to join networking events, but not everyone will participate especially if the events were specialized, ▪ the unit follows up only the alumni that got funded, to provide them with new opportunities related to funding, call for innovations, meeting renowned experts; ▪ the events dedicated to alumni were reduced by the pandemic context, ▪ the event's location limited the participation, ▪ not all successful startups remain in

contact with the unit, ▪ the unit was trying to match the startups with the right stakeholders and continued to support them only if they have enough expertise and network. A specific case was an Accelerator that did not offer such opportunities, but expressed its intention to do it in the future.

Mentorship program: The core activity of a business Accelerator is to provide support for the startups through various interventions such as workshops, bootcamps, coaching/mentorship activities, national and international Soft Landing Programs/Visits, peer-on-peer help, etc. (Crișan et al., 2021). Authors in the field note that most often the interventions are similar for the whole cohort and only some units provide interventions customized to their participant's needs (Aljalahma & Slof, 2022). The quality of the mentorship package is reflected in the number of successful alumni and increases the chance of attracting investments from VC's and business angels (Radojevich-Kelley & Hoffman, 2012; Fowle 2017). A good mentoring package is "highly structured and competitive", grounded on a wide database of mentors with various types of knowledge from different fields such as experienced entrepreneurs, academic background, national and international mentors, consultants, corporate representatives/industry, alumni; studies show that Accelerators have between 30-100 mentors (Kos et al. 2017), while Guardiet et al. (2022) found an average of 129 mentors when investigating approximately 100 Accelerators.

The research results showed that the vast majority of Accelerators had a large database of mentors (81.03%), who were experienced and/or renowned (96.55%), and suitable for the startups (84.48%). Around 20% of the Accelerators, had a small pool of mentors, and/or that don't match the program participants. Cross-analysis revealed no patterns based on the year of establishment, as 91.3% of the Accelerators active in the market since 2018 assessed their mentor database as being good/large. The results were confirmed by the interviews, which indicated that most Accelerators rated their pool of mentors as being large/very good, and perceived it as "the biggest strength" (Accelerator A4), "one of the strengths" (Accelerator A1) or "one of the best networks […] among the active accelerators in the country" (Accelerator A15). Several Accelerators provided details on the size, the most mentioned being between 25-40 mentors, while two Accelerators exceed 90. There were also cases of very small databases (an Accelerator with 2 mentors, who are the founders of the business; or newly launched business), or without a database (because the program's structure is not based on mentorship activities). The mentor databases were typically diverse, and included experienced entrepreneurs, academia, tech experts, and in some cases investors and alumni; they usually have experts on business development (legal, marketing sales) and industry experts (mostly IT field).

Table 6. Mentorship-related aspects provided to program participants (in 2022)

	No	Yes
Workshops adapted to the industry	17.24%	82.76%
Workshops adapted to startups' development stage	3.45%	96.55%
International workshops and other activities	27.59%	72.41%
Soft Landing Programs/Visits (connecting startups with experts to help them get in the market)	31.03%	68.97%
Experienced and/or renowned mentors	3.45%	96.55%
Good database of mentors (many)	18.97%	81.03%
Mentorship matching (startups – appropriate mentors)	15.52%	84.48%
International mentors	20.69%	79.31%

The research indicated that in addition to the national mentors, 79.31% of Accelerators collaborated with international mentors. Cross-analysis revealed no pattern based on the year of establishment, in the sense that many new Accelerators have an international network of mentors; thus 91.3% of the units active since 2018 reported that they also collaborate with international mentors. Surprisingly, the cross-analysis showed that some Accelerators who claim European coverage (10% of them), do not collaborate with international mentors. Furthermore, the interviews revealed that even when the Accelerators mentioned to have international databases of mentors, in most cases, included mainly national mentors.

For most Accelerators, creating and expanding the mentor database was not a challenge (60.35%), while other placed a medium (18.97%) or high difficulty (20.69%). Cross-analysis revealed that most units with a good/large database of mentors (around 80% of them) didn't find it difficult anymore to create/extend it. There was no pattern based on the level of sector focus or year of establishment; yet, it can be signaled that around 80% of the Accelerators who are active since 2018, gave a medium to very easy rating on the creation the database of mentors. Maybe more surprising are some units that have over a decade activity, but still claimed that it was difficult to create/extend the pool of mentors. The cross-analysis based on level of notoriety showed that most of Accelerators with high and very high notoriety (88.57% of them) put a medium to very low difficulty in creating/extending the data base of mentors. The interviews confirmed the results. Thus, for Accelerators that found it relatively easy (easy to average score) to create/extend the mentor database, ▪ their good reputation along with ▪ brand visibility and ▪ the strong connections/network played an important role

in attracting the mentors. Examples: "mentors who contact us […] want to join the community" (Accelerator A4), "it's all about reputation […] people in the innovation ecosystem know each other […] because of the community" (Accelerator A6), "they put a lot of effort and time to create a strong network a big community and attract new actors […] mentors just want to join because of strong connections, the network" (Accelerator 9)", "they ask to join the mentor network" because of the intensive communication in media (Accelerator A1), "many, many want to join [..] because it's a way for them to expand their narrow topics [..] we don't need to attract them, we have good visibility" (Accelerator A21). Additionally, the following were mentioned: direct contact during events, conferences and scouting on LinkedIn. However, those several units with a good/large database admitted that they did not have a specific strategy and did not search intensively for new members. The majority revealed that they don't provide special benefits to the mentors, since when engaging with startups, the mentors can find good investment opportunities, build networks/connections, and even increase their brand visibility/exposure (example: "they "engage voluntarily because they like our products, teams and want to give back […] and like us as team, as brand" - Accelerator A15). Exceptional, were mentioned: ▪ the stock option in case of "work-for-equity" and financial rewarding when the mentors have a higher involvement like providing workshops, not just short mentoring sessions, ▪ bonuses if they are internal/hired in the parent company, or ▪ financial rewards for tailored programs created for other entities that may have a dedicated budget. The Accelerators that found it challenging to create the appropriate database of mentors, cited as reasons: ▪ difficulty in finding experienced people in the field and that are willing to get involved, ▪ difficulty in attracting the international mentors although, at the same time mention they revealed that "don't have a strategy, it depends mostly on the financing" (Accelerator A2), ▪ general lack of digital skills to find online information hence unable to see their communication materials. To attract mentors, these Accelerators used personal contact during events, calls, online campaigns, offline recruitment via local offices. The benefits provided were limited to enhancing visibility/exposure, access to startups and hence opportunities for investment, network/connections and recommendations to other players in the ecosystem. The opinions on the ease of creating the mentor database in tech and deep tech fields are divided, with some stating that the difficulty was the same, while others found it more challenging because there are fewer people skilled in the field.

In 2022, most Accelerators offered workshops tailored to the startups' development stage (96.55%), to the industry (82.76%) or international workshops and other activities (72.41%). A significant percentage (68.97%) intermediated Soft Landing Programs/Visits, thus connecting the startups with experts to help them get in the market. However, for about 20% of the units,

the workshops provided to program participants weren't adapted to the industry, and in few cases, did not match the development stage of the startups. The interviews provided additional insights. The Accelerators mentioning that all the startups benefited of the same number of workshops and amount of treatment, saw the activity as "a part of the so-called educational package" (Accelerator A1) which usually was general, less adapted sectorial, and "everyone in the cohort can participate" (Accelerator A10). There were Accelerators who mentioned that they offered the same number of workshops with different content or differentiated the number of workshops according to the startups' stage of development, level of knowledge and skills, on the field/industry; more, there were units that targeted only one type of startups based on development (e.g. early stage), or niche sector, hence all their activities were customized. Among the reasons behind the lack of workshops implementation or adaptation to the industry/stage of development were mentioned: ▪ the costs, while having limited financial and time resources - e.g. "financial issues […] we had on an overview on how mentoring programs should look like, but for now, we not provide it at all levels" (Accelerator A2); ▪ it was never intended, as the program's structure sets on one-on-one mentoring, yet there were different situations – they either provided only general educational packages one reason being that they "don't have in their team many experts in certain tech fields" (Accelerator 8), or they don't do training courses because "there are many around, and we take advantage of the ones that are there […] we work on the operational part" (Accelerator 23), ▪ small number of startups to justify the organization of specific workshops. Some Accelerators claimed that they saw the limitations and intend to change the exclusive one-on-one approach "to organize single-day workshops […] on specific business aspects" (Accelerator A5), respectively the focus from the exclusive educational program "in the future will put in contact mentors and startups with target industries" (Accelerator A5). Regarding the Soft Landing Programs/Visits, among the motives for not providing them were cited: ▪ it wasn't intended due to the program's structure, ▪ it did not fit the early-stage startups they target - "for scale-ups they we an agreement […] through the technology park at the national level […] we work with early stages […] then transfer to other institutions" (Accelerator A8), ▪ it was not that cost efficient "it's more cost efficient for us to arm them with good knowledge and connect them with potential users/partners in other markets and let them do the landing part by themselves […] we would want to facilitate a peer-round for them to ease this step, but it doesn't always happen" (Accelerator A15). The Accelerators able to provide international Soft Landing Programs/Visits underlined the importance of strong international networking; for example: "we have international and structured partners […] and bring their most interesting business projects there" but same time they have a local program "a week of guided tours for foreign companies that want to come to our country" (Accelerator A23).

The interviews provided additional insights into the format of the workshops. Hence most of the Accelerators who organized workshops and other activities, benefited from specific assistance/resources such as: being part of an EU program, EEN support, governmental support, national scale labs. Among the units that provided workshops, predominated the ones who opted for a hybrid system, alternating onsite with online activities; yet, there were cases of units mentioning that the online activity was exceptional. Few Accelerators had exclusively onsite workshops and activities. In addition, some Accelerators revealed that they had exclusive online workshops due to pandemic context, but intend to return to the onsite system. One exception is Accelerator A5, which pointed out that their program was exclusive online, providing the reasons behind their decision: "it is important to avoid the imposition of participation in presence"; it would be difficult to organize activities in various cities and to move the mentors and investors between them. Most Accelerators who offered workshops claimed that it was easy to implement them, due to their significant experience or to participants' willingness to join the events and engage. Some units mention that the hybrid version was easier to manage, or that the difficulty varied by workshop. Nevertheless, the most mentioned reason behind the high difficulty was the financial aspect.

Regarding networking and mentorship, the interviewed Accelerators mentioned that they need several types of support or initiatives: ▪ to increase the database/pool of suitable mentors, ▪ to empower the network in the innovation ecosystem, ▪ to enhance the collaboration with peers across EU and inter-accelerator exchange of knowledge, ▪ to create connections with incubators for knowledge exchange and integration of incubator-accelerator activities, ▪ to find more industrial partners.

Gender inclusion: The world-wide gender-gap in entrepreneurship in general, and in acceleration entrepreneurship in particular, is well documented; more, the women underrepresentation runs deeper in the tech startups landscape. Recent research has shown that the trend is perpetuated, fueled by external obstacles such as: ▪ limited access to financial resources, ▪ limited business support (smaller networks, lack of mentors, lack of tailored programs/activities), ▪ stereotyping sectors as tech, ▪ gender-based discrimination of skills and capabilities, along with individual barriers such as ▪ lack of self-confidence to start and grow businesses often associated with high risk aversion, ▪ impostor syndrome, ▪ difficulty to achieve the work-life balance (Nichols et al., 2020; Blandos, 2022). However, more in-depth investigation is needed to understand the causes of the "gender gap in the startup landscape globally" and to implement measures to reduce it (Blandos, 2022). Accelerators along with incubators can play a critical role in disrupting the gap, while taking advantage of the opportunities that arise when turning the startups landscape into a gender-equitable one;

this involves: ▪ facilitating access financial resources, ▪ raising awareness of issues in women entrepreneurship, ▪ providing tailored programs, processes and measures to support the women entrepreneurs (program structure, communication strategy, scouting, program delivery etc.), ▪ increasing the support from the whole ecosystem (Nichols et al., 2020).

The research results revealed that, in 2022, the majority of Accelerators (48.28%) had around 26-50% program participants with women (co)-founders, while for 10.34% of the units the women (co-)founders representation exceeded 51%. In addition, a significant percentage (41.38%) of Accelerators reported having less than 25% of program participants with a woman founder/co-founder. The interviews revealed that about half of the Accelerator identified differences in startups ownership by gender, although in several cases they emphasized that this was not the case in their portfolio. In addition, the same units reported a male predominance in tech and deep tech sectors, argued by the low number of women educated in the field. The rest of the Accelerators claimed that there has been some change in the national entrepreneurial ecosystem.

Table 7. Startups with women entrepreneurs, supported (in 2022)

	0%	1-25%	26-50%	51-75%	76-100%
% of women (co)-founders in the portfolio	1.72%	39.66%	48.28%	8.62%	1.72%
% of invested startups with a woman as a (co)-founder	10.34%	44.83%	36.21%	8.62%	0%

Most of Accelerators (44.83%), reported that a small percentage of their invested startups had a woman as a (co)-founder (between 1-25%), while 10.34% of the units had no such case. For 36.21% of the Accelerators, between 26-50% of invested startups had a woman as (co)-founder, while for 8.62% of units, the percentage exceeded 51% In terms of investment, several interviewed Accelerators signaled that it is more difficult for women entrepreneurs to obtain funding; some examples of statements: “they suffer prejudices: for example, can be pregnant, have a child” (Accelerator A2), “it is harder if she is a mom” (Accelerator A11), “most of the times are not taken as seriously as should be” (Accelerator A8). However, Accelerator A6 mentioned that they have noticed a change, mainly due to the opportunities created by EU programs and that “now have criteria based on women participation”.

In addition, the research revealed that most Accelerators have not focused on tailoring their programs and activities to women entrepreneurs. In 2022, a very small percentage of the units (8.62%) offered programs dedicated exclusively to women entrepreneurs, while 31.03% implemented some customized activities (dedicated support: mentors, events, financial resources or network, flexible & adapted schedules for women with specific responsibilities such as family). The interviews showed that, in generally, Accelerators did not differentiate between startups by gender; for example, "we don't focus on gender. We want the best that came" (Accelerator A19) or "we would like to have more female entrepreneurs […] but aren't too many in their field" (Accelerator A10). The interviews also provided insights on how the Accelerators understand the challenges faced by women entrepreneurs and their needs; the results revealed significant differences. There were units that mentioned that ▪ on the one hand there is a different work-life balance for women which can lead to special needs when they have children, and ▪ on the other hand, women can have a different mindset doubting more about themselves and therefore "need more encouragement" (Accelerator A9). For example, Accelerator A1 stated that "women would need some kind of customization ….programs not only for women funders, but also for women that are thinking about starting a business: they need confidence and support". Others claimed that both genders need same knowledge, or perhaps to improve the negotiation skills for women because "they are too soft" (Accelerator A3). The majority of the Accelerators provided the same assistance and services, regardless of gender, arguing that they "didn't receive specific requests". None had programs dedicated to women, providing as reasons: ▪ the underrepresentation of women entrepreneurs in the field which implied that there weren't enough startups for a program, ▪ their programs were suitable for both genders; Accelerator A9 pointed out that by offering a program that is "accommodating both male and female founders […] it is an equal and fair program". Another case is Accelerator A22 which stated that they are willing to provide additional support, but don't want to favor the women entrepreneurs and intermediate connections with investors before "they are ready […] because we're in fact killing the projects", while Accelerator A4 stated they "evaluate only the quality and potential of the startup". However, this means that some Accelerators do not know or understand the challenges faced and the particular needs of women entrepreneurs, and believe that by providing tailored programs they discriminate, and not in the positive way – "once you create a specific program, you are discriminating" (Accelerator A5). This statement is in line with what Accelerator 2 pointed out "the biggest problem is that the ecosystem doesn't conduct a research" […] to find how many women entrepreneurs are […] and what kind of programs are better for women: education, mentoring, some specific skills". "" . However, there are also Accelerators that made efforts to support the women entrepreneurs with: ▪ special finances

and schemes, ▪ flexible and adapted schedule for those with family, ▪ tailored events, ▪ female mentors, ▪ tailored PR activities. In addition, two Accelerators mentioned future intentions to involve in EU projects regarding women entrepreneurship.

Table 8. Programs and activities adapted to women entrepreneurs provided (in 2022)

	No	Yes
… programs dedicated to women entrepreneurs (exclusive cohort/program)?	91.38%	8.62%
… activities adapted to women entrepreneurs (dedicated support: mentors, events, financial resources or network, flexible & adapted schedules for women with specific responsibilities such as family)?	68.97%	31.03%

Regarding the overall support provided to startups, the Accelerators assessed that: 96.55% of them offered an easy access to clients or pilot partners, 100% offered a good or substantial access to Knowledge Exchange Programs, 89.66% offered good or substantial financing or support access to finance (Financing), 82.75% offered good or substantial access to Talent Pool, respectively 87.5% offered good or substantial access to Technological Facilities.

Table 9. General assessment of the support provided to startups

	Strongly disagree	Disagree	Neither, nor	Agree	Strongly agree
… easy access to clients or pilot partners (Ease of Market Access)	0%	3.45%	15.52%	51.72%	29.31%
… substantial access to Knowledge Exchange Programs (access to information, particularly from peers, mentors, and external experts)	0%	0%	3.45%	62.07%	34.48%
… substantial financing or support access to finance (Financing)	1.72%	8.62%	12.07%	53.45%	24.14%
… substantial access to Talent Pool (STEM-focused talent pool for any deeptech startup)	0%	17.24%	37.93%	31.03%	13.79%

… substantial access to Technological Facilities (availability)	4.17%	8.33%	39.58%	43.75%	4.17%

Performance indicators: Using metrics or performance indicators is a common business practice, usually corelated with the achievement of objectives (Guardiet et al., 2022). The success of a program can only be assessed if the Accelerator defines an evaluation system based on several metrics and monitors the progress of the startups; examples of performance metrics can be the database of mentors, number of startups in a cohort, the survival rate of startups, amount of investment (Kos et al., 2017; Mishigragchaa, 2017; Lall et al., 2013; Canovas-Saiz et al., 2020). The implementation requires regularly data collection through reports, feedback forms, interviews, etc. (Kos et al., 2017).

In terms of Accelerators' performance indicators, the research revealed that (up to now) 25.86% of Accelerators claimed having a very high average survival rate of participating startups: between 76-100% of their startups were alive, with or without clients. For 41.38% of the units, the survival rate is recorded between 51-75%, for 24.14% it is between 26-50% and for 6.90% is less than 25%. Only one Accelerator signaled a 0% survival rate for the program participants. Cross-analysis showed that Accelerators with more experience in the market have a participants' survival rate of at least 26-50%, while some of the newest units indicated even a percentage between 1-25%. Cross-analysis revealed no patterns based on the size of the Accelerators (by number of employees; or by number of cohorts); yet, the units with less than 5 employees were the only ones that also had a 1-25% survival rate, while the bigger units exceeded 26%. The interviews provided additional insights on this matter. Accelerators evaluated the 26-50% survival rate as average and rated everything above as good. They argued that the startups' failure (especially the case of low survival rate) was related to the lack or limited funding in early stages, strong competition, high operational costs. The Accelerators with a higher survival rate cite as reasons for their performance: ▪ good new investment options that can be channeled towards the startups, ▪ low risks with thorough process of selection (e.g. at least 10 years' experience founder, promising startups with some entrepreneurial expertise), ▪ focus on mature startups that overcame critical stages, ▪ the support provided (e.g. comprehensive support based on strong networking and where alumni become incubators, connection with business partners, expertise of the unit, customization of support in common industrialization modules), ▪ focus on startups' sustainability and less on scalability.

Most Accelerators reported that less than 50% of their program participants have been funded. Detailing, 15.52% of Accelerators stated that between 76-100% of their startups received funds, while for 12.07% the rate was between 51-75%. A similar percentage (32.76%) had between 1-25% or 26-50% funded startups. There were also Accelerators (6.90%) who reported that none of their program participants received funds. Cross-analysis revealed no patterns based on Accelerator's experience on the market; there were experienced Accelerators that cited a 1-25% investment rate, respectively new Accelerators with at least 51% funded rate. Similarly, no pattern was found based on the size of the unit (by number of employees). Some Accelerators claiming a less than 25% funding rate, explained the low percentage with: ▪ working with early-stage startups, that have limited/lack early funding and/or face strong competition; ▪ difficulty in evaluating the startups during the scouting process, hence they realize in time that the business had problems; ▪ the startups were not qualified/good enough to receive funding from financial programs and that can be "oriented to the companies with global ambitions" (Accelerator A8). Additionally, Accelerator A6 pointed out that they "do not recommend grants […] we saw many startups have failed because they got grants". On the other side, Accelerators with high funding rate, provided as reasons for their performance: ▪ working with mature startups TRL 6-7, ▪ strategies of reducing the risk, ▪ focus on developing skills not only to market the product as quickly as possible. Particular cases are Accelerator A2, Accelerator A3 and Accelerator A10 which mentioned that they do not keep track.

Table 10. Performance of the startups included in the Accelerator (up to now)

	0%	1-25%	26-50%	51-75%	76-100%
the average survival rate of participating startups (alive with clients or only alive at the moment of the interview)	1.72%	6.90%	24.14%	41.38%	25.86%
% of portfolio startups that got funded	6.90%	32.76%	32.76%	12.07%	15.52%

For one quarter of Accelerators, the amount raised by the startups was less than € 5 million. 12.07% of the units raised between € 5-10 million, while 17.24% registered between € 10-90 million. Since the beginning of their activity, for 13.79% of the Accelerators, the program participants have raised investments of more than € 100 million, whereas one unit exceeded € 2 billion in startups investment. It is relevant to highlight that several Accelerators did not

have evidence of the investment obtained by their program participants, or by their alumni. his lack of data collection on startups' performance over time is consistent with the study of Lall et al. (2013) and Guardiet et al (2022).

In addition, most of the interviewed Accelerators reported having a system for monitoring the program participants during the acceleration process, by regularly collecting information on the progress, setting objectives/milestones and/or using monthly reports. However, there were also units without a monitoring system, claiming that: ▪ "the progresses they register are not tangible or measurable for each startup, being in different stages of development; it's not easy to standardize everything" (Accelerator A6), or ▪ that they don't set indicators of progress or milestones, but just stay in touch if the startups need assistance (Accelerator A1; Accelerator 2). Moreover, there are cases of Accelerators that have realized the importance of implementing a monitoring system and have expressed their intention to develop one for future programs.

Table 11. Total amount of investment raised by the startups in the portfolio (up to now)

Million €	%	Million €	%	Million €	%
0.2	1.72%	9-10	3.45%	400-500	1.72%
1-2	15.52%	10-20	3.45%	500-600	3.45%
2-3	6.90%	20-30	6.90%	600-700	1.72%
4-5	1.72%	60-70	1.72%	2 billion €	1.72%
6-7	6.90%	80-90	5.17%	Confidential/n/a	29.31%
8-9	1.72%	100-200	6.90%	-	-

3.1.2 INTERNAL CAPACITY

Employees: McKinsey & Company (2013) state that "the employees" is among the relevant factors to be considered when assessing the internal capacity, proposing as evaluation criteria the level of experience in the field and skills. The number of employees, their experience and skills, reflect on the quality of the acceleration programs. For this reason, the Accelerator's team can be a factor of success, while competent employees a key resource (Kos et al., 2017; Kanbach & Stubner, 2016). When assessing the employees, there should be a separation between the management/leadership team and the staff (McKinsey & Company, 2013). Several authors place more importance on the management/leadership team, underlining

that the managers with experience and knowledge in startups acceleration can better identify the "opportunities for collaboration and synergy among the portfolio", select more promising startups, set better strategies for them (Wise & Valliere, 2014), being at the same time the "bridge-makers" between the startups and various actors of the entrepreneurial ecosystem (Kohler, 2016). In terms of team size, one recent report found that the average staff size was 5 members per acceleration program (Riley, 2021).

The research findings revealed that, in 2022, 5.18% of Accelerators operated only with part-time employees and/or volunteers, while 25.87% had one or two full-time employees. Most Accelerators (62.07%) had between 3 and 20 full-time employees, as follows: 24.15% had small teams of 3-5 employees, 22.42% had 6-10 employees, while 15.5% had 11-20 employees. Several units were bigger, operating with 25 (1.72%) or over 40 full-time employees (5.16%). The interviews evidenced that although most Accelerators have small teams of full-time employees, they often extend the team with part-timers or outsource activities. Half of the interviewed Accelerators outsourced some of their activities, mainly related to marketing (branding, communication, events), of a technical nature or other expertise. In addition, around one third of the units hired part-time employees because ofthe fluctuating volume of work.

Table 12. Number of full-time employees (in 2022)

No employees	%	No employees	%	No employees	%
0	5.18%	9	1.72%	17	3.45%
1	3.45%	10	8.62%	19	1.72%
2	22.42%	5 – 10	1.72%	25	1.72%
3	8.62%	11	1.72%	42	1.72%
4	6.91%	12	1.72%	43	1.72%
5	8.62%	14	1.72%	74	1.72%
6	5.18%	15	3.45%	-	-
7	5.18%	16	1.72%	-	-

More than half of the Accelerators stated that it is a challenge to find adequate human resources (62.07%, average – very high). The interviews revealed that the main reasons are the limited number of people with specific skills in a field (e.g. deep tech, multidisciplinary) and with experience, especially in specialized sectors or smaller cities. One specific case is Accelerator A2, who mentioned that the difficulty is not related to finding people, but the "small

space and financial capacity" of the unit. Several Accelerators that easily find suitable employees, revealed that the reasons were: ▪ ensuring a good working environment, ▪ being well-known and with a good reputation ▪ offering good jobs, ▪ people's willingness to work in the field.

The vast majority of Accelerators (89.66%) were managed by a team with significant or high experience and skills, while for 10.34% the leadership team had limited or some prior experience in working with startups. The interviews confirmed the presence of highly experienced management teams, predominantly with a strong entrepreneurial background (including startups) and tech or IT. The results are similar for the operational team. Thus, 77.59% of Accelerators claimed to have a well-experienced and skilled operational team, while for 22.41% of the units, the operational team had limited or some prior experience and skills. In addition, for 94.83% of the units, the staff's expertise and skill sets match the mature subject areas or domains. Accelerators ensured that the skills specific to the acceleration activity existed or were being developed. In this sense, 75% of the interviewed Accelerators stated that they train the new employees, while several units reported multiple training activities over time, not just immediately after employment.

Table 13. Level of expertise & skills for the team working with startups (2022)

	Inexperienced/ unqualified	Limited experience & skills	Some prior experience & skills	Significant experience & skills	Highly experienced & qualified
leadership/ management team	0%	5.17%	5.17%	24.14%	65.52%
operational team	0%	10.34%	12.07%	36.21%	41.38%

Corporate recognition/reputation: Previous studies have shown that corporate reputation is a significant competitive advantage, able to positively influence the financial performance, to increase customer loyalty and employee retention, trust in the brand, respectively to stimulate positive word-of-mouth (Hasan & Hossain, 2021). In addition, the managerial and operational excellence or exceptional CSR, can be appreciated and awarded by various public and/or private organizations. In their research, Hasan & Hossain (2021) confirmed that corporate recognition awards and corporate reputation have an impact on the corporate reputation consequences (e.g. trust, satisfaction, loyalty, word-of-mouth). More, Bagnoli et al. (2020) state that these connections are also true for Accelerators, therefore credibility associated

with the reputation, should be perceived as an important resource. A good reputation enhances the Accelerator's brand notoriety and attracts more and better program participants, investors, mentors, sponsors, partners.

According to the research, 62.07% of the Accelerators achieved some type of regional and/or national recognition for their activity, while for 39.66% the recognition was international. Insights from the interviews revealed that the majority of award-winning Accelerators claimed that the distinctions played an important role in raising brand awareness, in increasing their recognition and in promotional communication.

Interaction and involvement with relevant public stakeholders: When assessing the internal capacity, the existence and impact of external relationships built with relevant parties such as local/ governmental entities/ community agencies must be considered (McKinsey & Company, 2013). Given the nature of their activity, Accelerators focus not only on providing individual support to startups, but also on developing the entrepreneurial ecosystem, by interconnecting actors at all levels and creating networks and opportunities (Goswami et al., 2017). As the ecosystem depends on governmental measures, the Accelerators with expertise should engage in public initiatives and influence local, regional or even national policy-makers. By becoming important players, they can influence political and governmental institutions to reduce bureaucracy and increase the support provided for the ecosystem (Ahuis et al., 2019).

The research results evidenced that 91.38% of Accelerators had strategic partners, 94.83% had a high interaction with relevant public stakeholders (government, regional authorities), 91.38% got involved in public consultations or working groups relevant for the ecosystem, while 86,21% regarded themselves as important players in the national entrepreneurial ecosystem. This level of engagement was confirmed by the interviews. Hence, almost all interviewed Accelerators noted that they participated in public consultations and had a high interaction with relevant national or regional public stakeholders, hoping to change the ecosystem. Examples of actions mentioned: "working to develop the ecosystem …] try to change the legislation" (Accelerator A7), "working on, but we miss a European strategy" (Accelerator A20), "monthly meeting with ministry and a development agency" (Accelerator A5). Exceptions are a new Accelerator that lacks connections and Accelerator A2 that had previous experience with public working groups but stopped getting involved, arguing that groups were "coping with tendencies from previous years, always applying on the same program without any relevant criteria". Less than half of the interviewed Accelerators claimed that they have enough power to influence ecosystem-related decisions, while some units pointed out that

"it's not easy", they have "scarce results", or their influence is "only indirectly or with other ecosystem players" (Accelerator A15). A particular negative answer was argued by Accelerator A4 with "nobody in the community can influence the government". Regarding the support Accelerators can receive from public stakeholders when seeking ecosystem-related assistance, almost half of the interviewed units mentioned that they have received it. However, among them were cases indicating that the assistance was rather exceptional: "sometimes", "it depends on the initiatives" (Accelerator A8), "hardly, just small amounts" (Accelerator A3), or "yes, but when you organize events that bring visibility […] it depends" (Accelerator A1).

Table 14. Accelerator's recognition (in 2022)

	No	Yes
Received prizes and recognitions – regional and/or national	37.93%	62.07%
Received prizes and recognition – international	60.34%	39.66%
Participation in public consultations, working groups that are relevant for the ecosystem	8.62%	91.38%
High interaction with relevant public stakeholders (government, regional authorities)	5.17%	94.83%
Have strategic partners	8.62%	91.38%
An important player in the national entrepreneurial ecosystem (based on the activity)	13.79%	86.21%
Staff's expertise and skillsets match the maturity subject areas or domains	5.17%	94.83%

3.1.3 BRAND VISIBILITY

Communication & visibility: A high brand notoriety (familiarity) and a good reputation can enable Accelerators to attract startups, valuable mentors, investors and other stakeholders such as potential partners or clients for startups (Fowle 2017). Additionally, it can help to differentiate from competitors with similar programs (Gustafson & Chabot, 2007). The research findings revealed that more than half of the Accelerators (60.35%) are well known at national level, among B2B entities, while 34.48% enjoy an average notoriety. Although 5.17% of the Accelerators claimed to have a low level of notoriety, the situation can be considered reasonable given that they were inaugurated in 2020 and have a short period of activity (cross-analysis). Among the old Accelerators, there is an exception of units with low notoriety

- present in the market since 2015 and owned by a business entity that carries out several auxiliary activities.

Table 15. Communication actions used (in 2022)

Very low notoriety	Low	Average	High	Very high notoriety
1.72%	3.45%	34.48%	32.76%	27.59%

The act of creating notoriety implies to make the brand visible, indirectly, through Word-OF-Mouth (alumni, partners, mentors etc.) and corporate recognition (Fowle, 2017), and directly, by exposing the brand on the market through marketing communication actions (Kotler et al., 2019). It takes time and resources to build notoriety, and once established, it requires consistent marketing activities to maintain it. An efficient approach implies a multi-channel multi-media integrated communication strategy, because different channels and media (online – offline, paid-unpaid) play different roles and have different effects in terms of coverage and reach (Keller, 2010).

Based on the research, it can be stated that in 2022, all Accelerators used multiple communication actions across multiple channels, even if not in the context of a well-defined communication strategy. A hierarchy in actions revealed the following order of utilization: 100% of the units had unpaid communication on mass-media (89.65% > 3 actions), 98.27% unpaid posts social media (94.82% > 3 actions), 93.11% direct marketing (74.14% > 3 actions), 72.42% paid posts social media (46.56% > 3 actions), 68.96% paid communication on mass-media (37.93% > 3 actions), 62.07% messages in international press (32.76% > 3 actions) and 56.89% business/field influencers (34.48% > 3 actions). As can be seen, three of the most intensively used communication actions, are unpaid, however they can have significantly different results. Unpaid mass-media communication (e.g. presence with live interviews or press release on offline & online newspapers, TV, radio, YouTube vlogs, podcasts, etc.), can lead to a large but non-specialized audience if the media has a general-audience; and to a more limited, yet suitable audience, if it is a mass-media specialized in business (or with a dedicated column). Unpaid social media posts, in most cases, have extremely low reach and predominantly among existing followers/subscribers who may be alumni, mentors, investors and partners; consequently; there is a reduced reach to new startups, new mentors and new investors. In contrast, direct marketing can allow them to reach specific targeted clusters of potential customers, investors, mentors etc.; the method implies creating a database with potential target audience (startups, mentors, investors, etc.) which can be an issue when the

access to information on the market and the networking is narrow (Chaffey & Ellis-Chadwick, 2022; Kotler et al., 2019).

Almost one third of Accelerators reported that they also paid for social media communication; this can help increase the visibility of their activity among stakeholders and startups outside the group of followers/subscribers, therefore it can lead to new opportunities. A similar percentage, paid for mass-media communication, thus securing coverage to a wider audience. In addition, the interviews identified that around 40% of the units in the qualitative sample had a dedicated website for their Accelerator and there was a case of shared platform with the Incubator; yet, the majority had a shared website, meaning that on the entity's website there are sections that cover various activities related to acceleration, incubation, auxiliary activities in or outside the field, various project. This may reduce the visibility of the Accelerator on the platform. Even so, the interviews indicated that the website was an important means of disseminating information and scouting for startups; for example, Accelerator A23 noted "we try to use the website as a means of communication for anyone in their ecosystem to come and take the information they need". Half of the interviewed Accelerators revealed that they implement SEO activities on the website (regardless of if dedicated or shared), which are critical to increase the visibility of the platform and attract visitors on the page. Except for the few cases of units that didn't know how to answer, the rest stated that they do SEO only "from time to time […] not systematically" (Accelerator A7) or the website is only updated with information. One reason that explained the absence of SEO activities was the lack of financial resources (for example "it was an objective for last year […] we did not because of financial results" - Accelerator 2).

Communicating in the international media can provide opportunities to attract international startups for Accelerators with international coverage, but it can also help to increase notoriety and expand the pool of mentors, investors, partners. Although 37.93% of Accelerators did not communicate in the international press, the absence of action was not specific only to units that target the national territory (cross-analysis). Rather half of them claimed to have international business coverage; this may be one reason explaining why most of them had a majority/or exclusively national alumni in 2022.

43.10% of Accelerators didn't use business influencers to promote or call for programs. Experts in the field, mentors, investors that enjoy a certain visibility in the ecosystem (influencers) and are active on social media, can be seen as a valuable communication resource. Their social-media followers/subscribers include individuals from the entrepreneurial ecosystem, hence, by disseminating information through them, Accelerators have the possibility to reach a

specialized audience. Moreover, given the trust the audience places on them, they can also lead to action. It should be emphasized that the category includes all types of influencers from micro- to macro- such that when using this type of communication, Accelerators can start with existing collaborators. In this context, the communication action can be unpaid, hence a good option for units that have limited financial resources. Given that it can be a challenge to persuade external influencers to disseminate materials on their platforms, one possible solution may be to involve them in the acceleration program; in other words, build or expand the network.

Table 16. Communication actions used (in 2022)

	0 actions	1 -2	3-4	≥ 5 actions
Unpaid communication activity using mass-media (e.g. presence with live interviews or press release on offline & online newspapers, TV, radio, YouTube vlogs, podcasts, etc.)	0%	10.34%	31.03%	58.62%
Paid communication activity using mass-media (e.g. to be broadcasted/displayed offline & online newspapers, TV, radio, YouTube vlogs, podcasts, etc.)	31.03%	31.03%	20.69%	17.24%
Organic communication activity using own channels of Social Media (unpaid posts)	1.72%	3.45%	13.79%	81.03%
Paid (sponsored) communication activity using own channels of Social Media and/or Google Ads for website	27.59%	25.86%	18.97%	27.59%
Communication using direct marketing (e.g. newsletters, e-mail announcements, messages)	6.90%	18.97%	15.52%	58.62%
Communication/ messages in international press	37.93%	29.31%	24.14%	8.62%
Using influencers (e.g. experts in field, mentors) to share the posts or promote the event or call for program	43.10%	22.41%	20.69%	13.79%

Awareness building/branding strategy: Communicating is not enough in order to increase the visibility. It must be planned in a complex process that implies establishing objectives, target audience, media and channels, forms of communication, content, schedule, financial

and human resources – to develop a communication strategy (Kotler et al., 2019; Chaffey & Ellis-Chadwick, 2022).

The research results showed that in 2022, 72.41% of the Accelerators had a general communication strategy (objectives, campaigns) aimed at enhancing the Accelerator's notoriety. 17.24% mentioned the existence of communication actions with the same goal but not shaped as a well-planned strategy, while for 10.35% the communication strategy lacked. Cross-analyses revealed that, for both cases, most Accelerators had at least an average notoriety. Besides the general communication strategy, 84.48% of the units created a communication campaign before each cohort/program started to call for startups; and when the programs ended, 65.52% made campaigns to share the results. Some units reported using forms of communication before all programs started (6.90%) and ended (20.69%), but not designed as campaigns. Although few, there are Accelerators that did not use communication campaigns/actions to call for startups before each program started (8.62%) or ended (13.79%).

Around 60% of the interviewed Accelerators have allocated in advance a budget for the marketing strategy. However, there are Accelerators that may have budgets "only within EU projects" (Accelerator A3), or a small budget because "they have more than enough work" (Accelerator A7). The rest didn't have a dedicated budget or did not allocate money at all for marketing activities; one such example is Accelerator A9, which revealed a preference for organic communication as "they have built a good relationship with media". A similar percentage of units had an employee or a department responsible for communications and other marketing-related aspects. However, there were also Accelerators without dedicated employees, motivating it with the small size of the unit; in their case, the communication and other marketing activities are divided among the existing staff, although they don't have expertise in the field. As a solution for their small business, some Accelerators combine the internal dedicated employees with outsourcing.

Taking into account an overall picture of the results, some challenges faced by Accelerators can be attributed, to a certain extent, to the lack of communication strategies and/or inefficient usage of communication activities. For instance, the only exception without a general communication strategy and low notoriety, was recorded for a unit that didn't use campaigns before each cohort/program started or ended, and is owned by a business entity that carries out auxiliary activities. The same unit claimed to have great difficulties to scout for relevant startups and to create the pool of mentors, while struggling to ensure financial sustainability. In such a situation, well-defined communication strategies aiming at

announcing the start of a program and enhancing the notoriety could, at least, attract more startups.

Table 17. Communication format (in 2022)

	Strongly disagree	Disagree	Neither, nor	Agree	Strongly agree
The Accelerator had a general communication strategy to increase notoriety (objectives, campaigns)	3.45%	6.90%	17.24%	41.38%	31.03%
Each cohort/program had a communication campaign (call for startups)	3.45%	5.17%	6.90%	31.03%	53.45%
Each cohort/program had a communication campaign (after the program ended, to share the results)	3.45%	10.34%	20.69%	29.31%	36.21%

Additionally, given the challenges they faced, the interviewed Accelerators indicated the need for support/ initiatives on the legal framework at the national level, more integrated actions by public bodies, and on educating people in the entrepreneurial ecosystem about deep tech time frames, challenges and technologies.

3.2 BENCHMARKING– EXAMPLE ANALYSIS

To exemplify how to use the tool and to make the benchmarking analysis when the Accelerator compares to the ideal case, a simulation was created for Accelerator A14 (codification for the interview). The analysis includes the data collected with the questionnaire and the interview.

The profile: The small-sized Accelerator A14 is owned by a business entity that is a business accelerator and other activities/programs in the field like training, community interest events and international market research. With a 12 years experience, the Accelerator A14 targets mostly one region from the country of headquarter, but also has some opportunities to collaborate with startups from neighboring countries.

The following table presents the synthesis of the benchmarking results. The global score obtained by the Accelerator A14 for the benchmarking is 68.33 out of maximum 100 points possible, a gap that places the unit among the ones with rather developed activities. The service provision dimension scored 46.17 points out of 65 possible, the internal capacity dimension had 18 out of 25 points, while the brand visibility received 4.17 out of 10 points. Hence, the results indicate, at first glance, a very good service provision and internal capacity (well-developed area), yet an average brand visibility (under-developed area). However, in-depth analysis shows that there are contradictions between how they see themselves and how the actual situation is.

Considering the *service provision* dimension (71.03% of the associated score), it can be observed that overall, it seems to indicate a good-quality acceleration program. However, in-depth analysis shows that there is room for significant improvement.

The Accelerator A14 has very good scores when it comes to networking activities component (75%), hosting external events for all program participants. Within the activities, they create opportunities to network with external stakeholders, to connect with potential pilot partners, clients, mentors, other program participants, sponsors and alumni. Being specialized in one tech field, their networking activities provide substantial access to the Talent Pool (STEM). The only limit is the lack of internal events, mentioning that the territorial dispersion of the startups makes such meetings difficult. Moreover, they state that it is easy to facilitate the networking events or connections between the participants to the program, respectively between the alumni and the startups; such connections are often made online or on phone. The program

participants benefit from the exchange of experience and information, yet the issue is that the number of business agreements is not significant.

Table 18. Benchmarking tool results – Accelerator A14

	Accelerator A14/ ENTITY (Evaluation score)	IDEAL CASE (Maximum score)
SERVICE PROVISION	**Contribution to Global score**	**Contribution to Global score**
Program structure	7.33	10
Access to finance	9.00	15
Networking activities	11.25	15
Mentorship program	11.25	15
Gender inclusivity	3.83	5
Performance indicators/metrics	3.50	5
Global score Service provision	46.17	65
INTERNAL CAPACITY	**Contribution to Global score**	**Contribution to Global score**
Employees	8.00	10
Corporate recognition/ Reputation	5.00	5
Interaction and involvement with relevant public stakeholders	5.00	10
Global score Internal capacity	18.00	25
BRAND VISIBILITY	**Contribution to Global score**	**Contribution to Global score**
Awareness building/ branding strategy	2.50	5
Communication & visibility	1.67	5
Global score Brand visibility	4.17	10
Global score	**68.33**	**100**

Same percentage of the associated score (75%) was received by the mentorship program component. The good value is explained by the fact that the Accelerator A14 seems to excel when it comes to the workshops provided (tailored to the industry, and to the startups' development stage, international workshops and activities) and the database of mentors (experienced/renowned mentors, a large database of mentors). Nevertheless, the database of mentors that includes 25 collaborators (out of which 5-6 are international) doesn't allow them to ensure a mentorship matching with mentors specialized on startups. Although they evaluate the actual database of mentors as being rich, they also state that they need 3-4 times more the existing number of mentors; thus, there is a contradiction in the statement regarding the well dimensioned database. Further, for them it is very challenging to find appropriate "good and cooperating" mentors in their headquarter city or it is too expensive to bring them there. In their opinion, the problem is specific to acceleration business in their country in general, and to the tech and deep-tech field in particular, because "it's the lack of ecosystem … today we are probably 2-3 people who are interested". To ensure the mentors involvement, the Accelerator A14 offers as benefits "access to startups, a big exposure, recommendations to bigger programs such as VC)". Another limit of the mentorship program is the lack of Soft-Landing Programs.

Similar good scores were obtained by the program structure (73.3%), gender inclusivity (76.66%) and performance indicators/metrics (70%) components. Regarding the program structure, the strong points are: ▪ the international coverage in 6 countries, although the activity is predominantly in the country of origin – access to international startups, ▪ the targeted sector focus on one tech field – specialization which enhances the field expertise and network, ▪ the recruitment format that allows ongoing access in the acceleration program, hence the startups don't have to postpone for months or a year to enter in the program like in other cases – access to startups and provide support when they need it, noting that "we consider that we shouldn't wait that long and offer mentorship as soon as possible". Nonetheless, they indicate that another reason behind the ongoing format is the existence of a limited number of national startups in their field, which impedes them to create several cohorts. Moreover, they reveal that it is highly challenging to recruit relevant startups, accusing the national ecosystem. However, an important limitation of their program structure is the format of the program itself. The Accelerator A14 provides an older type/format of acceleration program, with a short length of 4 weeks, out of which, 3 weeks have an identical content and format for all startups, and only the last week is personalized. Consequently, one reason behind the difficult startups recruitment can be the program they offer and which may drive the startups in the field to search for competitors with better programs. Although the

varied activity of the business acceleration entity can represent a limitation, it must be emphasized that the other activities are related to the startup environment. By providing trainings, community interest events, international market research, the Accelerator A14 strengthens the network, enhances brand visibility and brings additional financial resources. Another limitation associated with the program structure is the very low percentage of international startups in 2022, which means they struggle to secure international program participants.

In terms of gender inclusivity, the Accelerator A14's strengths are the good representation in the portfolio of startups with women (co)-founders, in 2022 (26-50%), and that all the startups that got investments had a woman as a (co-)founder. Therefore, the startups are accepted into the programs regardless of the owner's gender, noting that it can be an advantage for the team to have women entrepreneurs. Moreover, they emphasize the importance of entrepreneurial skills "we don't care about the gender, but about the entrepreneurial ability, willingness to go the extra mile". It is relevant to underline the significant percent of businesses with women entrepreneurs that received investments due to the Accelerator A14's support, mainly because it is "definitely more hard" for women (co)-founders to receive investments in tech and deep-tech field; in their opinion, one explanation is the fact that more men apply for funding at Venture Capitals and have higher experience. As a limitation, the Accelerator A14 didn't offer programs dedicated to women entrepreneurs or activities adapted to women entrepreneurs such as dedicated mentors, events, financial resources, network etc. They explained the lack of effort to provide adapted support by the "lack of interest (no requests from women entrepreneurs)" and by the fact that "women need no specific assistance"; this shows that the Accelerator A14 is not familiar with the struggles faced in general by women entrepreneurs. The struggle is real and is reflected in the existence of a small number of women entrepreneurs in their national market. They also state that the number is even lower in tech and deep-tech fields, where "it is a rarity to find women in leadership positions in startups in our country". Another argument supporting the specific needs of women entrepreneurs in their market, is related to how women design their businesses and struggle with profitability, as pointed out "female startups … not making significant amounts of money … not profitable". Hence, adequate support is needed to help them overcome such issues.

For the performance indicators/metrics, the survival rate of participating startups is between 50-100%, and, as stated by the Accelerator A14, is considered a very good rate compared to the ecosystem in the local industry. They put the good performance on the thorough recruitment and selection process of the participating startups, and where the owner's experience plays a key role "we rarely support the founder that is less than 10 years

experience". In contrast, the percentage of program participants that have been funded up to now (26-50%), is lower than in the ecosystem, explained by the Accelerator A14's business orientation which is to "build values and build companies, not about seeking funding". They prefer to work with startups that don't need "significant funding". This is also reflected in the investments raised by all their startups up to now and which range between € 1-5 million. The amount seems much smaller when considering that the Accelerator A14 has been active on the market for more than a decade. Consequently, the recruitment and selection process is a weakness, and not a strength, as it eliminates possible program candidates owned by less experienced entrepreneurs and/or in need of significant funding, and who make up the majority of the startups in a market. This recommendation doesn't imply to reduce the highly competitive selection process, where the best startups get selected, but to allow more types of startups to join the evaluation; a less experienced owner doesn't automatically mean a risky or unsuccessful business. So, the struggle in finding relevant startups, may not be related to the existence or absence of startups in the market, but to the fact that they eliminate almost everyone. A strong point of the performance indicators/metrics component is that they have a monitoring system for alumni, gathering information on their progress.

The component with the lowest score, close to average, is access to finance (60%). The strength is represented by the financial grants or investment provided to all program participants in 2022. The startups have reached to funding grant programs, due to their good relationship with such programs; however the situation "it's exceptional … that is not common". They mention that it is usually easy to attract investment for startups because of their networking; however, they didn't have to look for investments lately, because the national landscape has changed and it "is dominated by high ventures, so they are an easier choice for startups". It is important to emphasize that this is only their perspective. As limitation it can be stated that only few startups received access to information about available funding options/assistance to secure funding (the partial number is explained by the fact that some funding programs don't suit all their startups' activities), to financial grants or investments (through a related funding arm) or received opportunities to engage with investors/funders (through big demo day events). As previously mentioned, the limited access to financing/investment specific to their format of acceleration program can be a reason behind their struggle in finding the adequate startups, which may choose alternatives. The most highly challenging aspect indicated by the Accelerator A14 is financial sustainability. Although they receive fees for the services provided, it is very "difficult to stay sustainable". They have no additional resources from the acceleration and other small activities, and mention receiving funds from the government, but with constant delays.

Table 19. Benchmarking tool results Service provision - Accelerator A14

SERVICE PROVISION	Accelerator A14 (Evaluation)	IDEAL CASE (Maximum)
Program structure	Sub-score	Sub-score
Average length of an acceleration program - in 2022	1	3
Accelerator's sector focus	3	3
The activity of the business acceleration entity	1	3
Number of cohorts/programs year – in 2022	3	3
Region's coverage	3	3
Startups' ratio – national vs international – in 2022	1	3
Contribution to the global score – Program structure	7.33	10
Access to finance	Sub-score	Sub-score
Provided financial grants or investments	3	3
Guaranteed financial grants or investments through a related funding arm	1	3
Provided information on available funding options / assistance to secure funding	1	3
Provided opportunities to interact with investors/funders (e.g. pitch nights, demo days)	1	3
Asked for fees and/or equity stake (shares)	1	3
Contribution to the global score – Access to finance	9.00	15
Networking activities	Sub-score	Sub-score
Hosted/invited the accelerated startups to internal networking events (to meet other startups in the Accelerator, Alumni, sponsors, staff, etc.)	3	3
Hosted/invited the accelerated startups to networking events with various external stakeholders	3	3
B2B connections facilitated to increase business agreements between accelerated startups and other stakeholders (potential partners, clients etc.)	3	3
Networking after the acceleration process ended (with Alumni)	3	3
Contribution to the global score - Networking activities	15.00	15
Mentorship program	Sub-score	Sub-score
Workshops adapted to the industry	3	3

Workshops adapted to startups' development stage	3	3
International workshops and other activities	3	3
Soft Landing Programs/Visits (connecting startups with experts to help them get in the market)	0	3
Experienced and/or renowned mentors	3	3
Good database of mentors (many)	3	3
Mentorship matching (startups – appropriate mentors)	0	3
International mentors	0	3
Contribution to the global score – Mentorship program	9.75	15
Gender inclusivity	Sub-score	Sub-score
% of women (co)-founders in the portfolio -in 2022	2	3
% of invested startups with a woman as a (co)-founder – in 2022	3	3
… programs dedicated to women entrepreneurs (exclusive cohort/program)? – in 2022	0	3
… activities adapted to women entrepreneurs (dedicated support: mentors, events, financial resources or network, flexible & adapted schedules for women with specific responsibilities such as family)? - in 2022	0	3
Contribution to the global score – Gender inclusivity	3.83	5
Performance indicators	Sub-score	Sub-score
the average survival rate of participating startups (alive with clients or only alive at the moment of the interview)	3	3
% of portfolio startups that got funded	2	3
amount of investments raised by the startups from portfolio (Euro), up to now	1	3
Contribution to the global score – Performance indicators	3.50	5
Global score Service provision	**46.17 (71.03%)**	**65**

Note: The sub-scores represent answers measured from 0-3, and their contribution to the Global score requires recodification and a more complex computation than sum (see Benchmarking tool)

The internal capacity dimension (72 % of the associated score), overall, appears to indicate a good condition. The employees component scored 8 out of 10 points (80%), the corporate recognition/reputation got 5 out of 5 (100%), whereas the Interaction and involvement with

relevant public stakeholders obtained 5 out of 10 points (50%). Yet, the in-depth analysis reveals several aspects which need improvement.

The employees component received a high score (80%), mainly due to the highly skilled and experienced leadership/management team, the highly skilled and experienced operational team and because the staff's expertise and skill sets match the maturity subject areas or domains. The leadership/management team has expertise in business development, international markets, startups development, whereas one of the early co-founders has expertise in the tech field. The other employees received training in the necessary areas. The biggest limitation is the number of full-time employees which is less than 5 (2 employees, no part-time employees). This emerges from what they assessed as challenge (very problematic), namely finding skilled employees or keeping them for more than 1 year, citing two reasons: 1) the accelerators are "not very well understood businesses" and thus people are reluctant to join in, 2) "people prefer the ventures". Although it is a small-sized team and struggles to find employees, they don't outsource activities.

The corporate recognition/reputation component has a maximum score (100%), because the Accelerator A14 received both national and international rewards and/or recognition.

The interaction and involvement with relevant public stakeholders component (50%) has an average score. The forte for the Accelerator A14 is the existence of strategic partners, participation in public consultations, working groups that are relevant for the ecosystem and high interaction with relevant public stakeholders. The national accelerators (including Accelerator A14) can get support from the government if they come up with a proposal. Additionally, the government will consider the suggestions made by everyone (including Accelerator A14) and ensures that "more than one member of the ecosystem is recommending someone … searching for consensus" and it's not a matter of individual power. Also at the government level, there is a committee that deals with the startups policy and includes universities, some accelerators (including Accelerator A14) and some startups representative. However, as a limitation, the Accelerator A14 is not an important player in the national entrepreneurial ecosystem (based on self-assessment).

Table 20. Benchmarking tool results – Internal capacity – Accelerator A14

INTERNAL CAPACITY	Accelerator A14 (Evaluation)	IDEAL CASE (Maximum)
Employees	Sub-score	Sub-score

Number of full-time employees in Accelerator – in 2022	0	3
Leadership/management team, in Accelerator, in 2022	3	3
Operational team, in Accelerator, in 2022	3	3
Staff's expertise and skill sets match the maturity subject areas or domains	3	3
Contribution to the global score - Employees	8	10
Corporate recognition/Reputation	Sub-score	Sub-score
Received prizes and recognitions – regional and/or national	3	3
Received prizes and recognition – international	3	3
Contribution to the global score - Corporate recognition/Reputation	5	5
Interaction and involvement with relevant public stakeholders	Sub-score	Sub-score
Participation in public consultations, working groups that are relevant for the ecosystem	3	3
High interaction with relevant public stakeholders (government, regional authorities)	3	3
Have strategic partners	3	3
An important player in the national entrepreneurship ecosystem (based on the activity)	0	3
Contribution to the global score - Interaction and involvement with relevant public stakeholders	5	10
Global score Internal capacity	**18.00 (72%)**	**25**

Note: The sub-scores represent answers measured from 0-3, and their contribution to the Global score requires recodification and a more complex computation than sum (see Benchmarking tool)

The *brand* visibility dimension got 41.7% of the ideal score associated, thus, overall it seems to indicate an average situation. In-depth analysis revealed that significant improvement is needed. Both components got less than half of the scores, the most underrepresented being the communication & visibility (33.4%), followed by awareness building/branding strategy (50%). One plus, which also improves the brand visibility is the positive Word-of-Mouth; the Accelerator A14 mentioned that they are recommended by alumni, mentors and collaborators, which helps convince some startups to join them. Although the maximum score for corporate recognition/reputation also helps to some extent the brand visibility, overall, the Accelerator A14 has issues, claiming an average national B2B notoriety. This is explained by

the limited communication actions aimed at its enhancement. Their communication activity in 2022 resumed to: unpaid communication activity using mass-media (3-4 interviews in press) and their own social media channels (3-4 posts), paid communication activity in mass-media (1-2 interviews in press), communication using direct marketing (3-4 e-mails). The information regarding the use of field influencers is contradictory:on one hand, they state that they don't use influencers, and on the other, their renowned founder is often a speaker at conferences, where he promotes the acceleration unit too. The Accelerator A14 didn't use communication in the international press, respectively paid (sponsored) communication activity on social media and Google ads. This is reflected in the small percentage of international program participants.

The Accelerator A14 doesn't have a well-defined communication strategy, but defines some directions to call for startups and to communicate once the programs are completed. They don't allocate a budget in advance for the marketing strategy, and don't have employees responsible for the communication and other marketing aspects in general. The marketing and communication activities are covered by the other employees although they lack expertise; sometimes they collaborate with the marketer of the startups they have in their portfolio and mention that the communication/marketing activity "is not that important". Moreover, the Accelerator doesn't have a dedicated website, but one shared with the business entity that owns it.

Table 21. Benchmarking tool results – Brand visibility - Accelerator A14

BRAND VISIBILITY	Accelerator A14 (Evaluation)	IDEAL CASE (Maximum)
Awareness building/branding strategy	Sub-score	Sub-score
The Accelerator had a general communication strategy to increase notoriety (objectives, campaigns)	1	3
Each cohort/program had a communication campaign (call for startups)	2	3
Each cohort/program had a communication campaign (after the program ended, to share the results)	2	3
Contribution to the global score - Awareness building/branding strategy	2.50	5
Communication & visibility	Sub-score	Sub-score
How well known the Accelerator is among B2B at national level	1	3

Unpaid communication activity using mass-media (e.g. presence with live interviews or press release on offline & online newspapers, TV, radio, YouTube vlogs, podcasts, etc.) - in 2022	2	3
Paid communication activity using mass-media (e.g. to be broadcasted/displayed offline & online newspapers, TV, radio, YouTube vlogs, podcasts, etc.) - in 2022	1	3
Organic communication activity using own channels of Social Media (unpaid posts) - in 2022	2	3
Paid (sponsored) communication activity using own channels of Social Media and/or Google Ads for website - in 2022	0	3
Communication using direct marketing (e.g. newsletters, e-mail announcements, messages) - in 2022	2	3
Communication/ messages in international press - in 2022	0	3
Using influencers (e.g. experts in field, mentors) to share posts or promote the event or call for program – in 2022	0	3
Website accelerator (& SEO)	1	3
Contribution to the global score - Communication & visibility	1.67	5
Global score Brand visibility	**4.17 (41.7%)**	**10**

Note: The sub-scores represent answers measured from 0-3, and their contribution to the Global score requires recodification and a more complex computation than sum (see Benchmarking tool)

As a conclusion, the analysis indicates that overall, the Accelerator A14 seems to be a rather developed accelerator (considering its size), however, the business faces a critical challenge on which its survival depends – the financial sustainability. Other main challenges they face are related to creating a well-dimensioned and field-appropriate mentor database, recruiting skilled employees, scouting for relevant national and international startups and an average brand notoriety.

For most of the challenges, they blame the undeveloped national ecosystem. However, an in-depth perspective reveals that the Accelerator A14 offers an older type/format of acceleration program (short program when the typical is between 3-6 months, predefined activities with constant content, limited focus on financing/investments), which may be why some national and international startups choose to collaborate with their competitors. Consequently, there are issues with the product (provided program) and the fees received for the services provided and that don't ensure their long-term business continuity. In addition, the recruitment and selection process eliminates potential program candidates owned by less experienced entrepreneurs (<10 years of experience) and/or in need of significant financing,

but which make up the majority of the startups in a market. Therefore, the Accelerator 14A must reconsider the program offered, aligning it with tendencies in the domain, and set a pricing system for the services provided that easily ensures their long-term financial sustainability. They also need to change the startups recruitment and selection process to allow less experienced entrepreneurs and/or startups looking for significant funding to join the program, thus increasing the number of possible relevant program participants; however, this does not imply a less competitive selection process. Also related to the relevant startups, but also to the program quality, the Accelerator A14 must reconsider the gender inclusivity aspects and offer at least activities adapted to women entrepreneurs (workshops, events, mentors, network, etc.). Thus, they will encourage and support more women entrepreneurs in the field and increase the number of potential candidates.

Moreover, the Accelerator A14 does not see the communication and marketing actions as a part of a business, but only as less important activities, even though decades of business research show otherwise. A well-defined strategy with dedicated personnel and budget will help overcome several of their challenges – enhancing brand visibility, attracting relevant startups nationally and internationally, expanding the database of suitable mentors, and even attracting skilled employees. To assess the size and the structure of the marketing team, along with the necessary marketing activities tailored to their business and market, they can collaborate with a marketing consulting company.

4 CONCLUSION

The study aimed at assessing through marketing research the gaps & challenges faced by business acceleration entities located in less connected innovation ecosystems. In addition, a holistic benchmarking method for future individual assessment was designed and exemplified for a practical case. The market research and the benchmarking covered three dimensions critical for Accelerators' operations, identified through literature review: ▪ service provision dimension with the sub-dimensions program structure, access to finance, networking activities, mentorship program, gender inclusivity, performance indicators), ▪ internal/operational capacity dimension with the sub-dimensions employees, corporate recognition/reputation, interaction and involvement with relevant public stakeholders; ▪ brand visibility dimension with the sub-dimensions awareness building, communication and visibility.

Both the market research and the benchmarking were performed through a mixed data collection method (quantitative and qualitative), directed at highly active acceleration entities located in EU27.

The research results showed a variety of situations regarding the three dimensions considered for assessment, confirming but also informing some trends indicated in other studies for Accelerators, as well as providing more in-depth insights. The key findings:

Program structure

Most business acceleration entities in the sample do not focus solely on acceleration but engage in auxiliary activities mainly related to the entrepreneurial ecosystem. They run mostly agnostic tech or agnostic mixed (tech and non-tech) Accelerators, which is also true for most new units. A high number of Accelerators were relatively new, launched in the last decade. The headquarters were spread around 21 countries in Europe, but the coverage was mentioned as national, European or even global. However, there was a little international footprint, dominating the national reach; an explanation can be the fact that they were government-backed Accelerators or received public funding as part of a national program with a strategic national focus. Even Accelerators that claimed to target international territories had few international alumni; hence it is not surprising that internationalization is perceived as a challenge and some interviewed units mentioned they needed assistance.

Regarding the format of the program, the vast majority opted for a single cohort or applied an ongoing/"rolling" system. The length of the program varied from 1 week to "as long as it is necessary" but prevailed 3 months, 6 months and 2 months. When it comes to program participants, most of the Accelerators found that it was challenging to scout for relevant startups, mainly due to their restrictive selection process, existence of a small number of startups in the market and difficulty in identifying the startups in the market. Thus, among the types of support needed, the interviewed Accelerators mentioned: EU collaborations to find more promising mature startups, a way to map the startups from the market and link them with Accelerators and stronger partnerships with academia that can provide access to early-stage startups and mentors.

Access to finance

All Accelerators created opportunities for participants to engage with investors/funders, provided information on available funding options or assistance in securing funding. Not all units focus on matching startups with fund providers but do it exceptionally. The indirect funding opportunities were provided through: one-on-one meetings, pitching and matchmaking events, demo days, direct recommendation to investors, channeling funds coming from EU grants or co-matching programs connecting public and private funding. Only around half of the Accelerators provided direct forms of investment, but often selected few startups. This is likely due to various options for direct investments (EU funding mechanism, national grants and other governmental support instruments, VCs, business angels), which in most cases were difficult to access.

For most Accelerators, it is difficult to ensure their financial sustainability (at least average), ranking this challenge as the most important. Only half of the units asked for fees and/or equity shares from all/or some startups, while the rest used only alternative sources to finance their activity. The free-of-charge units usually included Accelerators associated with different public schemes/organizations, or the ones that used other resources to sustain their activity, such as external funding from corporate sponsors or partners.

However, based on the statements, it seemed that the Accelerators operate on two different national ecosystems: an ecosystem where they benefit from government support and easily find partners/sponsors open to collaboration, hence a more educated entrepreneurial ecosystem, or an ecosystem that lacks or has little government support and has difficulty attracting partners/sponsors, hence a less educated entrepreneurial ecosystem.

Networking activities

Most Accelerators focused on building a strong community/network that integrates different types of ecosystem members and to provide the opportunity to interact through events such as: internal events between startups and alumni, sponsors, staff; networking events with various external stakeholders; B2B connections for startups, to secure business agreements with various stakeholders such as potential partners, clients. Yet, not all program participants were given access to such activities, being cited several arguments for the selective approach. In most cases, it wasn't challenging to facilitate such connections, underlining the existence of strong relationships as the main reason.

In addition, most Accelerators have paid special attention to building long-term relationships with their alumni, organizing alumni community meetings, networking events and mentoring sessions between alumni entrepreneurs and startups (thus turning them into mentors), and connecting alumni with potential investors. However, several Accelerators mentioned that it was challenging to maintain the relationships with alumni and engage them in activities such as mentoring. This contrasts the cases where alumni were eager to return and mentor. Once again, it seems to be the difference between the two ecosystems previously identified: the one in where alumni are more educated, see the benefits and understand the importance of their role in building a strong entrepreneurial ecosystem, and the other where alumni are reluctant because they don't realize the benefits of being part of such network or stronger ecosystem.

Mentorship programs

The mentor pool was perceived as a valuable asset. The vast majority of Accelerators had a large database of mentors, who were experienced and/or renowned, and suitable for the startups; most pools also included international mentors, but in a small percentage. About 20% of the Accelerators, had a small pool of mentors, and/or that don't match the program participants. As insights, several interviewed Accelerators mentioned having between 25-40 mentors, while two Accelerators exceed 90. In most cases the mentor databases were diverse, and included experienced entrepreneurs, academia, tech experts, investors and alumni. In most cases, the mentors did not receive special benefits for their support, and only exceptionally have been indicated gains of financial nature. In addition, around 40% of the Accelerators pointed out that it was challenging to create/expand the pool of mentors, both national and international.

Most Accelerators offered workshops tailored to the startups' development stage, to the industry or international workshops and other activities, and a smaller percentage also intermediated Soft Landing Programs/Visits. Most of the interviewed Accelerators revealed that they benefited from specific assistance/resources (e.g. EU program, EEN support, governmental support) and opted for a hybrid system that alternated online with onsite activities.

Regarding networking and mentorship, the interviewed Accelerators mentioned that they need several types of support or initiatives: to increase the database/pool of suitable mentors; to empower the network in the innovation ecosystem; to enhance the collaboration with peers across EU and inter-accelerator exchange of knowledge; to create connections with incubators for knowledge exchange and integration of incubator-accelerator activities; to find more industrial partners.

Performance indicators

The vast majority of Accelerators recorded a survival rate for their program participants (up to now) greater than 51%, while for a quarter it was between 76-100%. Also, most units reported that less than 50% of program participants were funded. The results show that there should be a separation in terms of performance indicators, depending on the stage of development of the startups engaged in the program; early-stage startups were associated with higher risks, an increased need for investment and higher failure rate, regardless of the selection process. In terms of monitoring startups performance, there are Accelerators without a proper well-defined system to track their startups while being accelerated and/or after turning to alumni. Yet, some acknowledged its importance and expressed their intention to develop one. It can be quite a challenge to improve the performance indicators, when Accelerators don't track the startups' evolution and don't seek to understand which needs are not well covered by the program, respectively when the improvement is related to other challenges faced by Accelerators – such as providing funding opportunities for startups, scouting process and quality of startups in the market.

Gender inclusivity

Only half of the Accelerators mentioned that in their portfolio more than 25% startups had women (co-)founders, and also highlighted that women entrepreneurs are generally underrepresented. Women entrepreneurs struggle more than men to secure funding,

although there has been a change due to EU programs that have a women's inclusion dimension. In terms of program structure, the Accelerators did not offer programs tailored to women entrepreneurs, although some units mentioned that they provided few customized activities. While several reasons were noted, the actual issue was that some Accelerators lack knowledge or understanding of the challenges faced and the particular needs of women entrepreneurs. Therefore the challenges related to gender inclusivity are not at micro-level (for different Accelerators), but at macro-level (ecosystem as a whole). Actors throughout the whole ecosystem, at all levels, need to understand the needs and challenges specific to women entrepreneurs. This calls for research among women entrepreneurs to identify and better understand their needs and challenges; and based on the results, to advance an educational program aimed at all actors in the ecosystem. Only then, the focus can shift to the micro-level, and design appropriate acceleration and incubation programs.

Internal capacity

Accelerators had various sized teams mainly ranging between 3-20 full-time members (close distribution for 3-5, 6-10 or 11-20 employees), but also supplemented with part-timers or used outsourcing; few units operated with 1-2 employees or just part-timers. In terms of qualification, predominated the teams with highly experienced and skilled leadership/management and operational staff. Many Accelerators find it challenging to hire suitable skilled and experienced employees, citing the business sector, location.

The activity of more than 60% of Accelerators has received some kind of recognition, at regional/national or even international level. Associated with good reputation, it contributed to enhance brand notoriety, and to attract more and better startups, investors, mentors,, employees.

Accelerators have shown a general concern for the entrepreneurial ecosystem and a willingness to directly engage in its transformation. Almost all have engaged in public initiatives and interacted intensively with relevant national/regional public stakeholders, hoping to improve the entrepreneurial ecosystem. However, in some cases it was pointed out that it was a challenge to influence the ecosystem-related decisions, mainly because they don't have enough power. This confirms the two types of entrepreneurial ecosystems identified, one pro-entrepreneurial development (open to the initiatives of Accelerators and other actors, providing resources and support including legislative) and a stagnant one.

Brand visibility

Most Accelerators implement various marketing-related activities (also linked to communication) to some extent, but some fail to understand its importance and do not perceive it as one of the major business dimensions or functional areas. Several units revealed that they do not have a marketing/communication team/employees, do not design and implement marketing/communication strategies as a part of a well-established marketing plan, and do not set specific budgets in advance such as the communication budget (as part of an annual strategy).

In particular, communication is approached as an auxiliary and less important activity. The Accelerators communicate using a multi-channel multi-media approach, even if not in the context of a well-defined communication strategy. Primarily they used unpaid actions which in many cases lead to low reach, while paid options were considered less often or not at all. A significant number did not communicate in the international media, a situation specific even for some Accelerators that claimed to have international business coverage. The overall picture evidences that some challenges faced by Accelerators can be attributed, to a certain extent, to the lack of communication strategies and/or inefficient usage of communication activities. This can be connected to several challenges reported by Accelerators: the low number and quality of program participants; the difficulties in attracting national and international mentors, investors, partners; difficulties in building and maintaining relationships with alumni; difficulties in attracting skilled employees; limited network that includes other stakeholders; reduced power in relation to public entities. At the same time, a change in approach can transform it into a solution that solves or diminishes several challenges.

Therefore, the biggest challenge related to this dimension is to make the Accelerators acknowledge the importance of marketing (and communication in particular), and to use it accordingly, in a well-defined professional setting.

Additionally, several Accelerators indicated the need for support/initiatives on the legal framework at the national level, more integrated actions by public bodies, and on educating people in the entrepreneurial ecosystem about deep tech time frames, challenges and technologies.

Benchmarking – example analysis

Regarding the benchmarking tool proposed, the example analysis confirmed that the tool allows to identify, measure, and evaluate the current state of *service provision, internal capacity* and *brand visibility* dimensions of the Accelerator, mapping the gaps and the challenges faced. In addition, it provides in-depth insights on the well- and under-developed areas of the activity. Even when used for the ideal situation comparison, due to the multitude of sub-dimensions considered, the Accelerator can identify internal opportunities for improvement and even which can be some future directions of action.

Although the tool is accessible for general use, the recommendation would be to collaborate with a specialist with marketing/management skills and experience in startups acceleration process.

SECTION 2 - A closer look into Gender Equality Acceleration

1 THE STATE OF DIVERSITY & INCLUSION FROM A FEMALE FOUNDER PERSPECTIVE IN THE DEEPTECH ECOSYSTEM

The 2022 edition of Atomico's State of European Tech report presents a comprehensive overview of the tech and innovation ecosystem in Europe. However, the report's findings regarding diversity in the tech industry are concerning (Atomico, 2022). As reported by Sifted, the level of gender diversity in European tech remains woefully inadequate, with funding for female-led teams plummeting from 2% in 2021 to a mere 1% (Nicol-Schwarz, 2022). Even the slight increase in funding for mixed-gender teams, rising from 10% to 12%, is alarmingly low. Furthermore, the report indicates that 40% of Black, African, and Caribbean startup operators, as well as 37% of women, have encountered discrimination in the tech industry.

These statistics clearly demonstrate that the startup ecosystem still has a considerable distance to cover in terms of promoting equity and inclusivity. The report underscores the importance of all startup operators, venture capital firms, and founders continuing to advocate for equal opportunities, even in the face of challenging circumstances(Atomico, 2022).

Based on the significance of the topic, AccelerAction includes an in-depth research as part of the report. The project first conducted a comprehensive qualitative and quantitative research to gain an understanding of the European accelerator landscape as stated in Section 1. This part of the report is referred to as the *main report* in the following section. The survey results of Section 1 indicate that accelerators have made efforts to support female founders. However, the underrepresentation of women in entrepreneurship and acceleration, particularly in the tech and deep tech sectors, is a well-documented issue that continues to persist due to external and individual obstacles. To address this gender gap, accelerators and incubators have a critical role to play in providing, as stated in the report, access to financial resources,

tailored programs, and measures, as well as raising awareness of issues in women entrepreneurship.

To gain a deeper understanding of the challenges and opportunities faced by female founders in this industry, it is essential to gather input directly from them. Female founders bring unique perspectives and insights that can provide a more comprehensive picture of the deeptech ecosystem and identify areas for improvement.

To ensure that this report provides a complete and inclusive analysis, it is equally important to consider the experiences and opinions of female founders. As such, we surveyed female founders of deep tech startups and collected their responses to provide additional insights into the status quo of diversity and inclusion. By incorporating the voices of female founders in the main report, AccelerAction can identify and address gender-specific challenges that may not have been captured through the accelerator survey and interviews. This will help the project work towards creating a more inclusive innovation landscape in Europe.

2 METHODOLOGY

2.1 CONTEXT OF THE REPORT

This section of the report seeks to complement the findings of Section 3.1.1, Service Provision, as outlined on pages 52-55, by providing additional insights into the current state of diversity and inclusion. The survey results obtained from female founders not only shed light on current approaches to support female founders and gender-diverse teams but also offer first-hand suggestions from female founders on how to diversify the deeptech startup ecosystem. By surveying female founders, the report is able to obtain a more subjective voice and hear directly from the source, thereby enhancing the report's overall credibility.

While the methodology of the survey is similar to that of the main study focusing on accelerators, it is not as extensive in scope. The intention of the survey and the manner in which the questions are posed is to encourage candid feedback from female founders and to emphasize the importance of diversity and inclusion as an integral part of the project.

2.2 ASSESSMENT METHODOLOGY FRAMEWORK

The fundamental objective of this study was to conduct a comprehensive survey aimed at evaluating the current state of diversity and inclusion in the startup deeptech ecosystem. Specifically, this survey sought to gather the unique perspectives and insights of female founders, a historically underrepresented group, to better understand the challenges they face and to identify areas where improvements can be made.

The overarching goal of this research is to augment the findings of the main report in order to promote gender equality in the accelerator landscape. By obtaining and analyzing data from female founders, this study endeavors to contribute to a more nuanced understanding of the dynamics of the deeptech startup ecosystem, with a particular emphasis on the critical role played by diversity and inclusion. Ultimately, this research will help to inform strategies and interventions aimed at creating a more just and equitable innovation landscape for all entrepreneurs.

The survey covered two dimensions critical to gain a general understanding of the status quo and accessing hands-on suggestions on improvements:

- Status Quo of gender diversity and inclusion in deeptech: general perspective, regional activities, top 3 challenges, recommendations for improvements
- Diversity in accelerator & startup programs: experience and previous participation, knowledge of women focused accelerators, deciding factors of participation, access to support instruments, lack of support and vital needs, benefits from gender-specific programs

2.2.1 SAMPLING PLAN

For the survey, a sampling plan was developed, structured as follows:

- Population: all active deeptech startups with at least one female (co-)founder located in EU 27
- Sample unit: any active deeptech startups with at least one female (co-)founder
- Sampling method: non-probability judgemental sampling
- Sample size: as this section acts to complement the findings of Section 3.1.1, *Service Provision - Gender inclusion* outlined on pages 52-55, the aimed sample size was set at three to five surveys conducted by female founders of European deeptech startups

2.2.2 DATA COLLECTION METHOD

This part of the report focuses entirely on qualitative research: an email survey with a self-completed questionnaire was sent to female (co-)founders of deeptech startups based in Europe. In addition, the participants received contextual information about the project and the importance of the founder's perspective for a comprehensive analysis. The preparation process ensured a very high response rate as well as meeting the deadline, resulting in a higher sample size than initially expected.

2.2.3 RESEARCH CALENDAR

Table 22. Research calendar

Tasks	Calendar interval
Methodology assessment	October-November 2022
Mapping the startups	December 2022-January 2023
Qualitative data collection	January-February 2023
Data analysis	February 2023

2.3 RESEARCH ANALYSIS

Qualitative content analysis, according to Mayring's method, offers a rigorous approach to address the research question of a scientific paper. The data is systematically analyzed and categorized based on predetermined criteria. The first step is to carefully select the material from which the data is derived, which in this study was the survey responses collected from female founders. The research question serves as a guide for the analysis, helping to establish the direction of the study.

The second step involves determining the goal and direction of the analysis. In this case, the decision was made to focus on the target group of female founders. The Mayring method offers three basic forms of qualitative content analysis, and the summary content analysis approach was chosen. This involved reducing the data to an overview of the essential content in the form of short texts, creating a manageable corpus of linguistic data for analysis.

To conduct a precise analysis, a unit of analysis was defined that referred to a maximum of one answer. Summaries were used to facilitate the analysis. Through this method, the results from the qualitative content analysis, according to Mayring, were compiled and interpreted (Mayring et al., 2019).

As a final step, the analysis was assessed according to established quality criteria: ▪ The research results were transparent and comprehensible, ▪ and the outcomes were consistent and repetitive, thereby supporting the reliability of the findings. ▪ Furthermore, the results were viewed critically, considering potential biases and limitations of the study. This approach ensured a robust and trustworthy analysis that can contribute to a deeper understanding of the experiences and perspectives of female founders in the deeptech ecosystem (Göhner et al., 2020).

2.3.1 QUESTIONNAIRE

PART 1. Profile – Deeptech Startups in Europe

- The questions cover the general profile of the deeptech startups provided by the female (co-)founder..

1.1. Female (Co-)Founder (name of the providers/e-mail)_____

1.2. Startup (name of the entity/website/location)_____

PART 2. State of gender diversity and inclusion

- The questions cover the point of view of the survey participants about the current state of gender diversity and inclusion of the deeptech ecosystem and on the regional level.

2.1. How would you describe the current state of gender diversity and/or gender inclusion in your (home) deeptech ecosystem? _____

2.2. What are the top 3 challenges in advancing gender inclusion that you might list for deeptech startups in your region? _____

2.3. What's one way you would recommend European deeptech ecosystems could increase gender diversity? _____

PART 3. Accelerator & Startup Program

- The questions cover the know-how and experience of the participants with accelerators and the gender-specific support offered.

3.1. Have you ever applied and/or participated in an accelerator program? If yes, which one? _____

3.2. Did the accelerator programs you applied have a gender focus? If yes, was this a deciding factor for you when applying or important to you? ____

3.3. If you participated in an accelerator program, did the accelerator support you during and after participation if you raised a gender-specific problem? If yes, how? If not, what kind of help did you wish for? _____

3.4. What kinds of support (e.g. gender-specific financing, workshops, or policies) do you think would make the most impact in creating a more gender-inclusive ecosystem? _____

3.5. Do you think DeepTech startup would benefit from gender-specific criteria/goals? _____

3 DATA ANALYSIS

3.1 MARKET INSIGHTS

The research aimed to provide additional insights into the status quo of diversity and inclusion of the deeptech ecosystem from a female founder perspective and to help assess the gaps & challenges the accelerator landscape face in terms of equality. A total of 11 questionnaires were validated, representing active deeptech startups with at least one female (co-)founder located in EU 27.

3.1.1 STATE OF DIVERSITY & INCLUSION

Current state of gender diversity and/or gender inclusion in your (home) DeepTech ecosystem.

The responses from the 11 female founders of European deeptech startups reveal a mixed picture of gender diversity and inclusion in their respective ecosystems. While 27% of the founders reported some progress, the majority (54,5%) noted critical challenges and a lack of improvement.

For instance, one founder from Spain noted that gender diversity and inclusion are still a major issue in the Spanish deeptech ecosystem. She highlighted that although there are some initiatives aimed at promoting gender diversity and inclusion, such as women-led incubators and accelerators, they are not enough. She further pointed out that investors still have a bias towards male-led startups, which makes it difficult for female founders to secure funding.

Similarly, a founder from the Netherlands noted that although there is progress in promoting gender diversity and inclusion, there is still a long way to go. She highlighted that women are still underrepresented in STEM fields, which is a major challenge in the deeptech ecosystem. Additionally, she noted that the ecosystem is still dominated by men, which creates a hostile environment for women.

On the other hand, some female founders reported progress in promoting gender diversity and inclusion in the European deeptech ecosystem. For instance, a Swedish founder noted that gender diversity and inclusion are highly valued in the Nordic deeptech ecosystem. She

highlighted that there are several initiatives aimed at promoting gender diversity and inclusion, such as female-focused networking events and mentorship programs.

Similarly, a founder from France noted that gender diversity and inclusion are becoming increasingly important in the French deeptech ecosystem. She highlighted that investors are starting to recognize the value of diverse teams and are actively seeking out female-led startups.

Some of the key themes that emerged from the responses include:

- Low representation of women: Several founders noted that there are still far fewer women than men in deeptech. This is related to the low involvement of women in STEM education and the lack of awareness about opportunities in deeptech startups and ecosystems.

- Lack of diversity: Some founders noted that there are not enough diverse founder teams in deeptech startups. Thus, a vital lack of representation and visibility.

- Progress in some ecosystems: Some founders reported progress in promoting gender diversity and inclusion in their respective ecosystems or at least in some regions. For instance, in France, where deeptech is only present in cosmopolitan cities like Paris, diversity and inclusion are low but are becoming increasingly important. Similarly, in the Nordics, while gender diversity and inclusion in deeptech is low, initiatives such as female-focused networking events and mentorship programs are contributing to progress.

Top 3 challenges in advancing gender inclusion.

The answers provided by the 11 female founders of European deeptech startups highlight a number of challenges in advancing gender inclusion in deeptech ecosystems. One common theme is the lack of female representation in tech, both in terms of founder teams and employees. This lack of representation is linked to a number of factors, including the difficulty in finding funding, the lack of skilled personnel, and the bias of investors and clients.

Other challenges include the difficulty of balancing childcare responsibilities with the demands of a deeptech startup, unconscious bias in social security benefits and investor perceptions, and the lack of understanding on how to support female founders. Several respondents also highlighted the need for greater awareness of the challenges and opportunities of deeptech startups, as well as the need for networking opportunities for female professionals in the field.

In order to address these challenges, the respondents suggested a range of measures, including increasing the awareness of the challenges and possibilities of growth for deeptech startups, fostering networking between existing deeptech companies and female professionals, and recognizing greater value to startups that guarantee equal working conditions. Additionally, some respondents suggested the need for grants and subsidies for women in startups, benchmarking for women employment, and more female role models in the industry.

Overall, the responses suggest that there are significant challenges in advancing gender inclusion in deeptech ecosystems in Europe and that more needs to be done to promote female representation and support female founders. However, the fact that these issues are being discussed and acknowledged is a positive step towards greater gender diversity and inclusion in the field.

Recommendations to increase gender diversity in the European DeepTech ecosystems.

The survey provided a range of answers regarding the current state of gender diversity and inclusion, as well as recommendations for increasing gender diversity in deeptech ecosystems. One common theme among the challenges cited was the lack of female representation in STEM education and the tech industry, which limits the pool of potential female founders and skilled personnel. In addition, unconscious bias among investors and clients, as well as societal expectations around child-rearing and career advancement, were also identified as significant barriers to gender inclusion.

Regarding ways to increase gender diversity, respondents suggested a variety of approaches, including the establishment of specific programs, training, and networks to connect female professionals and promote female-led incubation, VCs, and mentorship partnerships. They also emphasized the importance of role models and the visibility of female founders' success, as well as the need for a system change in schools and STEM education to encourage more women to pursue careers in deeptech.

Overall, the survey results suggest that while progress has been made in advancing gender diversity in deeptech ecosystems, significant challenges and barriers still exist. To increase gender diversity and inclusion, stakeholders must take a multi-faceted approach that addresses the lack of female representation in STEM education and the tech industry, while also providing specific support and opportunities for female founders and professionals. By working together to address these challenges, DeepTech ecosystems can create a more

diverse and inclusive environment that benefits both individuals and the broader tech industry.

3.1.2 ACCELERATOR & STARTUP PROGRAM

Experience with startup programs & participation in accelerators.

The responses to the question about accelerator programs suggest that 70% of the female founders have participated in accelerator programs and more than 2 thirds indicated they participated even in more than one before. Some of the programs mentioned are credible and well know accelerators such as Tech2b, Switch2Product, Cleantech Open, Eggs Collider, Clean Energy Acceleration deeptech Alliance, Greentech Europe, She Loves Tech, EIC accelerator, Newchip, EIT Climacellerator, EIT Supernova, EIT Urban Mobility Investment readiness, founder university, Startup Live, Vienna Business Agency, Innodays, Tenity (Former F10).

Overall, the responses to this question suggest that the majority of female (co-)founders are interested in accelerator programs. Nevertheless, the fact that 30% of survey participants have no prior experience with such programs highlights the urgent need for greater awareness and accessibility of support programs for female founders. Furthermore, the findings suggest that not all accelerator programs are equally effective in supporting and reaching female founders. It is crucial to address these gaps in order to ensure that female founders have equal opportunities to succeed.

Lastly, the founders' previous experience with accelerators underscores the relevance of answers from the following questions ensuring the given responses are in comprehensive understanding of the topic and allowing the project to gain further insights.

Gender-focused programs & deciding factor for participation.

The survey asked about female founders' participation in accelerator programs and whether these programs had a gender focus. 87% respondents indicated that they had participated in programs that were specifically focused on supporting female founders. For 57% of these respondents, the gender focus was an important factor in their decision to apply, as they were interested in connecting with other female founders working in deeptech. Only 2 respondents

noted that while some of the accelerator programs they participated in did have a gender focus, it was not a deciding factor for them.

Overall, the responses suggest that there is a range of experiences with accelerator programs among female founders in the European deeptech startup ecosystem. While some programs have specific initiatives to support gender diversity and inclusion, this does not appear to be universal across all programs. For female founders who are interested in building networks and connecting with other women in the field, gender-focused accelerator programs may be particularly beneficial. The two most mentioned deciding factors besides a gender focus were the level of mentorship and financial support.

Support with gender-specific problems by accelerator programs.

Based on the survey responses, there is a mix of experiences in terms of gender-specific support during and after participation in accelerator programs. Some respondents received support in the form of mentoring, special women programs, networking events for women, and courses. Others did not encounter gender-specific problems or were not offered any support for such issues.

It is worth noting that some respondents did not have gender-specifi c issues, but were aware of biases faced by female founders during fundraising. This highlights the importance of addressing gender diversity and inclusion at all levels of the deeptech startup ecosystem, from accelerator programs to venture capital firms.

Nonetheless, the survey responses suggest that while some accelerator programs are making efforts to support gender diversity and inclusion, there is still room for improvement. Providing tailored support, mentoring, and networking opportunities for female founders can be effective strategies to promote gender diversity and inclusion in the deeptech startup ecosystem.

Examples of support with gender-specific problems by accelerator programs.

The survey aimed to understand the perspective of female founders in the European deeptech startup ecosystem on the topic of diversity and inclusion. One of the questions asked was what kinds of support would make the most impact in creating a more gender-inclusive ecosystem. The answers indicate that various types of support could have a significant

impact, including networking events, courses, mentoring, gender-specific financing, workshops, policies, and awareness-raising.

Several respondents highlighted networking events, courses, and mentoring as essential forms of support. Women-only networking events can provide a space for women to connect, share experiences, and build relationships with other female founders, potential investors, and industry professionals. Courses and training programs can provide women with the skills and knowledge necessary to succeed in deeptech entrepreneurship. Mentoring, on the other hand, can provide personalized guidance and support to female founders, helping them navigate the challenges of entrepreneurship and develop their networks.

Gender-specific financing was also mentioned as a critical form of support, as investments for female founders are often harder to obtain. Respondents suggested that gender-specific financing could help level the playing field and increase the representation of female founders in the deeptech startup ecosystem. Some respondents suggested that gender-specific financing could be supplemented by workshops and training programs aimed at helping female founders understand how to secure funding for their startups.

Policies and awareness-raising were also mentioned as forms of support that could have a significant impact. Policies such as subsidies, grants, and tax benefits could help support female founders financially and reduce the barriers they face when starting a deeptech startup. Respondents also suggested that educating investors and the wider community about the potential for female founders could help increase support and investment in their businesses.

Opinion about the benefits of a more diverse and inclusive deeptech ecosystem.

In this survey, 11 female founders of European deeptech startups were asked about their opinions on whether deeptech startups would benefit from gender-specific criteria/goals. Among the respondents, four answered yes, three answered no, and four were unsure or had mixed opinions.

The respondents who believed that gender-specific criteria/goals would be beneficial argued that promoting gender equality is important in all areas of society, including deeptech startups. They believed that strict goals would be a good way to support women in deeptech startups and to improve diversity within the industry. One respondent emphasized that diversity is important for the development of society, and another argued that diverse teams perform better than homogeneous teams, making diversity a valuable criterion.

On the other hand, those who answered no or were unsure/mixed in their opinions had different reasons for their position. Some respondents believed that gender should be irrelevant in deeptech startups and that criteria/goals should be based on merit and competence alone. Others expressed concern that promoting gender-specific criteria/goals might lead to hostility or resentment towards women and could be counterproductive in the long term.

3.2 DATA REVIEW

As a final step in the analysis, it is essential to assess the results against the criteria outlined in the Mayering Method, as discussed in section 2.3. Specifically, the research results must demonstrate transparency and comprehensibility, consistency and repetition, and undergo critical analysis.

Transparency and Comprehensibility

Transparency and comprehensibility are achieved by adhering to standardized methodological processes, thoroughly documenting the research process, and making collected data accessible to other researchers. In line with the Mayering method, the report meets the criteria for transparency and comprehensibility.

It is imperative to acknowledge that the data analysis presented in this report is not immune to certain limitations arising from resource and framework constraints inherent in the AccelerAction project. Foremost among these limitations was the challenge of accessing female founders operating within the deeptech ecosystem, which limited our ability to reach out to a broader sample of participants. While the sample size ultimately achieved exceeded our original targets, it is essential to underscore that the findings do not necessarily reflect the experiences of startups from all EU 27 member states. Nevertheless, the results obtained remain sufficiently robust to offer valuable insights to support the main report, and the limitations encountered have been conscientiously acknowledged.

Consistency and Repetition

Consistency and repetition are evidenced through the comparison of answers across questions and participants, which reveal similar opinions, suggestions, and motivations. The

presence of repeated answers highlights a clear pattern and demonstrates consistency in the responses. Therefore, the criterion of repetition is met.

Critical Analysis

Critical analysis is necessary to assess the results objectively and within the context of the research question. Each answer is examined individually and in its broader context, acknowledging that participant responses are subjective to a certain extent. The limitations of the research are also considered within the framework of the critical analysis, ensuring that the research results are viewed objectively and thoroughly evaluated.

4 CONCLUSION

This section of the report presents the findings of a survey conducted to complement the insights gathered in Section 3.1.1 on service provision and gender inclusion. The survey aimed to provide additional perspectives on the current state of diversity and inclusion in the deeptech startup ecosystem from female founders' point of view. The report's objective is to obtain a more subjective voice and identify areas where improvements can be made to promote gender equality in the accelerator landscape. The survey covered two critical dimensions: the status quo of gender diversity and inclusion in deeptech and diversity in accelerator and startup programs. The survey's insights will help inform strategies and interventions to create a more equitable innovation landscape for all entrepreneurs.

State of diversity & inclusion

In conclusion, the responses from the 11 female founders of European deeptech startups highlight the ongoing challenges and progress in promoting gender diversity and inclusion in the ecosystem. The results show that some ecosystems are making strides in promoting gender diversity and inclusion, while others are still lagging behind. The founders stated that the lack of representation of women and diverse teams is a major challenge, which is related to the low involvement of women in STEM education and the lack of awareness about opportunities in deeptech startups and startup ecosystems. However, it is encouraging to see that a number of female founders are making progress and that there are successful initiatives in place to promote gender diversity and inclusion. The findings from this study can serve as a starting point for future research and policy interventions aimed at promoting gender diversity and inclusion in the European deeptech ecosystem.

Top 3 challenges

The responses demonstrate the significant challenges facing gender inclusion in the industry. The lack of female representation in deeptech startups and ecosystems is linked to various factors such as funding difficulties, the lack of skilled personnel, and bias of investors and clients. Respondents also pointed out the difficulties of balancing childcare with the demands of a deeptech startup and unconscious bias in social security benefits and investor perceptions. However, these challenges can be addressed by increasing awareness of the

possibilities of deeptech startups, fostering networking opportunities between female professionals and existing companies, and recognising greater value for startups that guarantee equal working conditions. While there is still a long way to go, the fact that these challenges are being recognised and discussed is a positive step towards achieving greater gender diversity and inclusion in the field of deeptech. Ultimately, promoting gender diversity and inclusion in deeptech ecosystems is not only a matter of fairness, but also of unlocking the full potential of the industry.

Recommendations to accelerators

The survey results highlight the need for continued efforts to increase gender diversity and inclusion in European deeptech ecosystems. While the challenges cited by the female founders are significant, their recommendations for increasing gender diversity provide valuable insights into ways to promote change. By addressing these challenges, deeptech ecosystems can benefit from the diverse perspectives and experiences of women, leading to improved innovation and problem-solving. And eventually, a more inclusive and diverse deeptech industry will benefit both individuals and society as a whole.

Previous participation in accelerators

The responses from the survey indicate that there is a mixed level of participation in accelerator programs. While some founders have participated in multiple programs, others have not participated in any. This variation in participation highlights a potential lack of awareness and accessibility of accelerator programs to female founders. Additionally, it appears that some programs may be more effective than others in reaching and supporting female founders. Therefore, there is an opportunity for accelerator programs to increase their efforts in reaching and supporting female founders, while also increasing awareness and accessibility to ensure that all founders have access to the resources and support they need to succeed. By doing so, accelerator programs can help promote greater diversity and inclusion in the deeptech ecosystem, benefiting not only female founders but the tech industry as a whole.

Gender-focused programs

Further, the survey highlights the importance of gender-focused accelerator programs in supporting female founders in the deeptech ecosystem, while also acknowledging that the level of mentorship, financial support, and other factors may also play a crucial role. The survey results suggest that there is a need for more gender-focused accelerator programs that support female founders, but also emphasise the need for a multi-faceted approach to increase gender diversity and inclusion in the deeptech ecosystem. Ultimately, so the participating founders believe, increasing the participation and success of female founders in accelerator programs will not only benefit individual entrepreneurs but also contribute to building a more diverse and innovative deeptech industry.

Offered support

The survey responses indicate that gender-specific support during and after participation in accelerator programs is not universally available in the European deeptech startup ecosystem. While some female founders have benefited from mentoring, special women programs, networking events for women, and courses, others have not encountered any gender-specific problems or were not offered any support for such issues. It is crucial to address biases faced by female founders during fundraising and promote gender diversity and inclusion at all levels of the deeptech startup ecosystem. By providing tailored support, mentoring, and networking opportunities for female founders, accelerator programs and venture capital firms can play a vital role in promoting gender diversity and inclusion. Overall, the survey highlights the need for continued efforts to promote gender diversity and inclusion in the deeptech startup ecosystem.

Examples

The responses to the survey highlight the use of various forms of support in creating a more gender-inclusive deeptech startup ecosystem in Europe. Networking events, courses, mentoring, gender-specific financing, workshops, policies, and awareness-raising were all suggested as effective strategies for promoting gender diversity and inclusion. By implementing these forms of support, the deeptech startup ecosystem can create a more level playing field for female founders, increase their representation, and encourage more investment in their businesses.

Benefits of diversity

Based on the responses, there is a range of opinions among female founders regarding the potential benefits of gender-specific criteria/goals in deeptech startups. While some respondents believed that such criteria/goals could help promote gender equality and diversity within the industry, others expressed concerns about potential negative consequences. It is clear that there is a need for further discussion and exploration of this issue to determine the most effective ways to promote diversity and inclusion within deeptech startups. Ultimately, creating a more inclusive and diverse industry will benefit not only women but also society as a whole, as diverse perspectives and experiences can lead to more innovative and effective solutions to complex problems.

Benchmarking

In conclusion, the qualitative content analysis according to Mayring is a useful tool to answer research questions in a structured and transparent way. By focusing on the target group of female founders, the analysis provides valuable insights into the current state of diversity and inclusion in the startup deeptech ecosystem. The criteria of transparency and comprehensibility, consistency and repetition, and critical analysis have been applied to ensure the quality and validity of the research results.

The findings of the qualitative content analysis, along with the data from the survey, have contributed to a comprehensive understanding of the challenges and opportunities for female founders and gender-diverse founder teams in the deeptech startup ecosystem. The results can be used to develop effective strategies and initiatives to promote diversity and inclusion in the accelerator landscape.

Overall, the research has demonstrated the importance of considering the perspectives and experiences of underrepresented groups in shaping inclusive policies and practices in the deeptech startup ecosystem. By acknowledging and addressing the barriers and biases that hinder the participation and success of female founders and other marginalized groups, a more equitable and thriving innovation ecosystem for all is possible.

Moving forward, it is essential to continue to conduct rigorous and comprehensive research to inform evidence-based policies and practices that promote diversity, equity, and inclusion in the deeptech startup ecosystem.

Best Practices for Female Founders

Considering the statements collected from the survey with female founders the project now looks at best practices and key success factors.

Participating in a startup accelerator program that has a focus on diversity and inclusion and offers direct support to female founders can be an advantageous decision for aspiring entrepreneurs. Such programs provide female founders with a unique opportunity to gain valuable knowledge, resources, and support to help them overcome the challenges associated with starting and scaling a business. Additionally, female founders can benefit from the opportunity to connect with other female entrepreneurs who share similar experiences and challenges. Networking events and mentoring opportunities can provide female founders with a community of support, valuable connections, and access to industry experts who can offer guidance on various aspects of their businesses. Furthermore, programs that consider session hours that work for mothers can help female founders balance the demands of starting a business while also caring for their families. Overall, female founders should consider participating in a startup accelerator program that offers direct support to women and promotes diversity and inclusion, as it can be a critical stepping stone to success in the business world.

In addition to participating in startup accelerator programs that offer support to female founders and promote diversity and inclusion, there are several other success factors for female founders and gender-diverse founding teams of deeptech startups in Europe.

Firstly, having a clear understanding of the market and the problem that the deeptech startup is addressing is crucial. Conducting thorough market research and engaging with potential customers can help female founders and gender-diverse teams validate their ideas and refine their business models.

Secondly, having a diverse and complementary team with a range of skills and experiences is important for success. Female founders and gender-diverse teams can bring unique perspectives and approaches to problem-solving, which can lead to more innovative solutions and better business outcomes.

Thirdly, having access to funding and support networks is essential for deeptech startups. Female founders and gender-diverse teams can benefit from seeking out investors and organizations that prioritize diversity and inclusion and offer funding and mentorship opportunities.

Finally, having a growth mindset and a willingness to learn and adapt is key to success in the highly competitive and rapidly evolving deeptech industry. Female founders and gender-diverse teams who are committed to continuous learning, collaboration, and experimentation are more likely to succeed in the long run.

One of the most important efforts female founders and gender-diverse founder teams have to make to succeed, is to raise awareness of diverstiy and inclusion in the European startup ecosystem. Founders can take several steps to do so:

- Speak up and share their experiences: Female founders and gender-diverse teams can use their platforms and networks to speak out about the importance of diversity and inclusion in the startup ecosystem. They can share their experiences, challenges, and successes to inspire others and highlight the need for greater diversity in the industry.

- Attend and participate in events: Female founders and gender-diverse teams can attend and participate in events and conferences focused on diversity and inclusion in the startup ecosystem. They can network with other founders, investors, and industry experts and share their insights and perspectives.

- Mentor and support other founders: Female founders and gender-diverse teams can mentor and support other founders who are underrepresented in the industry. They can offer guidance, resources, and connections to help these founders succeed.

- Advocate for change: Female founders and gender-diverse teams can advocate for change in the startup ecosystem by calling for more diversity and inclusion initiatives, policies, and funding opportunities. They can collaborate with other stakeholders in the industry to drive change.

- Start or join organizations: Female founders and gender-diverse teams can start or join organizations that promote diversity and inclusion in the startup ecosystem. They can use these platforms to raise awareness, drive change, and support underrepresented founders.

Overall, raising awareness of diversity and inclusion in the European startup ecosystem, especially in deeptech, requires a collective effort from all stakeholders. Female founders and gender-diverse teams can play a crucial role in driving this change by using their platforms and networks to advocate for greater diversity and inclusion.

Engagement with Female Founders

As part of the AccelerAction Project, the initiative features a networking opportunity known as Roundtables, aimed at engaging key players within the European deeptech ecosystem, including startup operators such as accelerators and founders. The project partners will actively pursue the establishment of relationships with female (co-)founders, maintain connections throughout the project, and build a diverse community. To this end, female entrepreneurs will be invited to the Roundtables and provided with a platform to share their experiences, concerns, and ideas. The project partners will prioritize engagement with female founders who participated in the survey by defining them as the core peer group for the upcoming Roundtables. The core peer group acts as role models showcasing the entrepreneurship possibilities. This approach will foster a supportive and inclusive environment that celebrates diversity while facilitating meaningful connections and collaboration among participants.

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