



INNOVATION KITCHEN

Horizon 2020 SME Instrument impact report
2018 Edition

EUROPEAN COMMISSION

Executive Agency for Small and Medium-sized Enterprises

EASME

Unit A.2. Horizon 2020 SME Instrument

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Innovation kitchen

HORIZON 2020 SME INSTRUMENT IMPACT REPORT

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Executive Agency for Small and Medium-sized Enterprises

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Horizon 2020 SME Instrument

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Welcome to Europe's Innovation Kitchen

With 8 companies floating on the stock market, 18 acquisitions and a total of €1.3 billion of extra private investment leveraged, the SME Instrument has established itself as an essential player on the European innovation scene. Since its start in 2014, the SME Instrument has invested in a unique selection of 3 200 small and medium-sized enterprises (SMEs) to get their breakthrough innovations faster on the market. With a network of 750 international business coaches and a growing community of global business and finance partners from the corporate and VC world, the SME Instrument gives the right business support and coaching to get companies ready to scale up and go global. Thanks to its focus on “smart money”, the SME Instrument bridges the critical investment gap in early stage innovation and makes market-creating innovation easier in Europe.

In 2017 SME Instrument-funded companies accounted for 10% of all tech IPOs in Europe and the follow up equity investments into companies funded by the SME Instrument doubled within one year only. Each €1 invested by the SME Instrument generated €1.6 of private investment and the companies funded under Phase 2 of the programme have experienced a 118% increase in turnover and a 158% increase in employment, only two years down the line.

Looking ahead, in 2018 the SME Instrument becomes a central pillar of the European Innovation Council (EIC) pilot that focuses even more on market-creating innovation. The SME Instrument brings forward a new evaluation process involving a Jury of investment experts responsible for selecting the most innovative small businesses for funding.

This report offers first hand insights into growth trends and profiles of the companies funded under the SME Instrument. The report presents cumulative data from 2014 to end of 2017.



“The biggest problem in Europe is the depth of the early stage financial markets. Europe has nothing to fear from the US innovation capacity, what is missing is the financial market that goes with it. Until we get there SME Instrument is absolutely necessary to make things happen”.

Javier Echarri, CEO at European Business Innovation Network

1. A recipe for success

The SME Instrument provides business innovation support to SMEs in the 28 European Union Member States and Horizon 2020 associated countries¹. It selects the best companies with the most innovative ideas, a real chance of disrupting the market and a very high growth potential.

The programme is delivered in Phases. **Phase 1** offers a lump-sum grant of €50,000 to carry out a concept and feasibility assessment. **Phase 2** invests between €0.5 and €2.5 million² in innovation activities such as demonstration, testing, prototyping, pilot lines, scale-up studies and market replication. **In addition to funding, SMEs receive tailor-made business innovation coaching³ and further business acceleration services.** These services, initially described as Phase 3, aim to amplify the economic impact of the funding by building SMEs' strategic capacity, helping them finding new customers and partnerships (other SMEs, large enterprises, investors, public procurers) and participating in international trade fairs. The programme is implemented by the Executive Agency for Small and Medium-sized Enterprises (EASME).

The success of the programme is directly linked to the quality of the selection procedure. This chapter presents the main features of the programme and the selection procedure that make it a recipe for success.

SME Instrument becomes part of the European Innovation Council (EIC) Pilot

In 2018 the European Commission launched a new initiative within Horizon 2020 to strengthen breakthrough innovation and boost high-growth companies. The EIC pilot brings together four active schemes: the SME Instrument, Fast-Track to Innovation, Future and Emerging Technologies (FET Open) and EIC Prizes.

The main changes for the SME Instrument under the EIC pilot are as follows:

- Fully bottom-up approach: no more predefined topics
- Quality threshold for Phase 2 proposals raised to 13
- Introduction of jury interviews for Phase 2 project proposals

1.1. Competitive funding

With around €3 billion in funding over 2014-2020, the SME Instrument aims to accelerate the growth of funded SMEs at a crucial stage of their development – from the early stages to market introduction. Since 2014, the budget has been constantly increasing (See **Figure 1**).

Large budget

From a total budget of €3 billion, €1.3 billion were committed from 2014 to the end of 2017

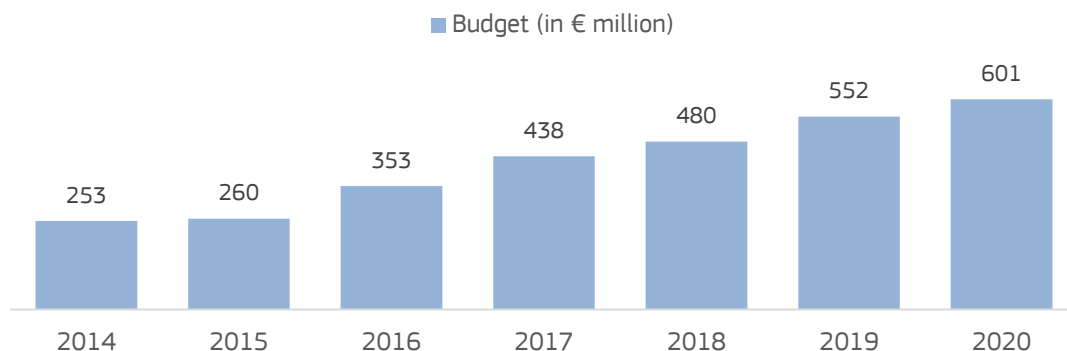
¹ Horizon 2020 Associated countries with at least one SME funded under the SME Instrument: Faroe Islands, Iceland, Israel, Norway, Serbia, Switzerland, Turkey, Ukraine

² The grant is up to €5 million in health-related topics

³ 3 days for a Phase 1 project and 12 days for a Phase 2 project

The SME Instrument funding is provided in the form of an equity-free, non-dilutive grant. Phase 1 €50,000 feasibility funding is a lump sum – where no expense proofs are required from the companies. Phase 2 is a flexibly managed grant with a high pre-financing rate (up to 45%).

Figure 1: SME instrument annual budget (in € million)



Source: EASME

During 2014 - 2017 around 3200 SMEs received funding under the SME Instrument and a total of €1,318 million was invested in their success (see

Highly popular
Around 47,000 applications in 4 years

Table 1).

Table 1: SME instrument key figures 2014-2017

- 29 cut-off dates
- 46,772 applications (Phase 1 & 2) received in total
- €1,318 million allocated to 3,208 individual SMEs⁴ participating in 3,209 projects in total
 - €124 million to 2,480 Phase 1 projects
 - €1194 million to 729 Phase 2 projects
- An average of €1.6 million per Phase 2 project
- 8.0% of Phase 1 applications were selected for funding
- 4.8% of Phase 2 applications were selected for funding
- 95% of Phase 1 and 84% of Phase 2 applications were submitted by single companies (instead of consortia)
- 15% of selected projects are coordinated by women

Source: EASME

⁴ Same company receiving Phase 1 and Phase 2 is counted just once

The SME Instrument is highly competitive – after four years, the overall success rate is 8.0% for Phase 1 and 4.8% for Phase 2.

Highly competitive

The success rate is 8.0% for Phase 1 and 4.8% for Phase 2

These rates are similar to, albeit slightly higher than, those of private acceleration programmes. According to the Global Accelerator Network only an average of 2% of applicants are accepted to their members' acceleration programmes⁵.

1.2. Business Innovation Coaching

Business coaching is an important feature of the SME Instrument that distinguishes it from other SME funding schemes. The intervention logic behind the SME Instruments is to offer SMEs "smart money" – as such, it offers not only funding but also accompaniment on their growth path. Companies in Phase 1 are entitled to three days of coaching while those in Phase 2 can receive up to twelve days.

1.2.1. What is Business Innovation Coaching and how does it work?

Business Innovation Coaching aims to empower SMEs to move towards the successful commercialisation of their innovation. Coaching increases the chances for small businesses of surviving and growing. It not only helps entrepreneurs to reach markets, but also guides them on issues like strategy, organisation, management, financing and resource development. Coaching is not consulting; it does not aim solely to answer SMEs' questions but more to empower them to find the solutions themselves.

The main actors of coaching under the SME Instrument are the Key Account Managers (KAMs) of the Enterprise Europe Network⁶ and the business coaches themselves. The coaching experience starts with a KAM from the SME's region visiting the company to analyse its needs. The KAM registers these needs in a database managed by the European Commission's Executive Agency for SMEs (EASME). These needs can, for example, include 'marketing activities in Germany', 'improving leadership', 'developing a distribution strategy', etc. The database is

Some quotes from SMEs about their coaching:

David López, Xerolutions:

"We had an amazing experience through the coaching sessions. Julián brought up questions that we never thought of. It made us much stronger and ready for further action".

Isabelle Kunst, Xephor Solutions:

"Thomas let us discover that pricing and market segmentation was missing in our company; now we have a clear strategy, and it works! We know what to do and how to do it".

Timothy Kehoe, Iris Advanced Engineering:

"Eoin is an inspirational leader and we are very happy that we chose him as a coach. As he has many years of experience in the field, he understands the business situations and our challenges first hand. He is patient and encouraging like a mentor. So all in all, a very valuable experience for us, especially in the area of sales and scaling up the business commercially".

⁵ <http://gan.co/the-network>

⁶ <http://een.ec.europa.eu/content/support-packages-innovative-smes>

equipped with a matching algorithm that finds the best match of candidate coaches. The company can then select the coach that suits them the best.

1.2.2. Coaching Community Development

By the end of 2017, there were more than 750 active coaches participating in the programme. They come from various backgrounds; many have successfully retired from their own businesses and have comprehensive coaching experience, often in large companies. Their average age is around 50, and 18% are women. In general, coaches are positive about the SME Instrument scheme for its exceptional clientele and the inspiring diversity of coaching issues.

The SME Instrument aims to build a real coaching community, a common coaching culture and a set of shared practices to provide funded SMEs with the best possible service.

SME Instrument coaches



Florence Ghiron

"As an aerospace engineer I decided to get an MBA in 2000. Then I launched and managed the regional incubator Wallonia Space Logistics to create 15 companies. Since 2003, I am

the CEO of Capital High Tech, supporting innovation management, business development and growth of SMEs in space, aeronautics and defence. I help those 'techie' companies to achieve a realistic marketing approach."

Dorota Jaworska

"After my long experience with HRM and staff development in international companies, it was only natural to expand my coaching



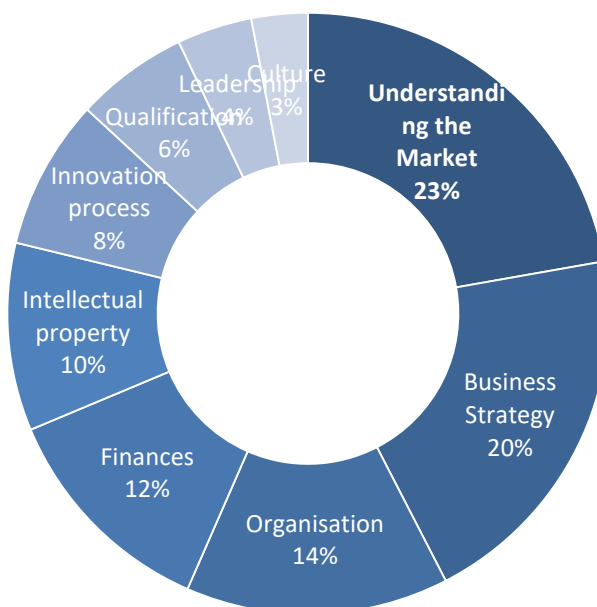
skills. I got certified as organisational development coach by the International Coaching Federation and also became an Associate Certified Coach. I love to bring organisation and balance with these growing SMEs in your programme."

1.2.3. Coaching helps SMEs reach the market

A start-up will not face the same challenges and or have the same needs as an established company. This is why the first step in the Business Innovation Coaching is to understand the SME's context and needs, as part of the needs analysis performed by KAMs.

According to the needs analyses, the main strategic priorities for the SMEs are to find new customers (31%) and distribution channels (26%)⁷. They can reach this by activating their internal resources such as strategy, organisation, market understanding, human resources development, innovation processes, intellectual property, finances, leadership and culture. Among these internal resources, the challenge that is mentioned the most for SMEs with 23% is **"understanding the market"** (see Figure 2).

Figure 2: SMEs' challenges tackled by coaching



Source: EASME

1.2.4. Impact of Business Innovation Coaching

Feedback provided by SMEs on the coaching activities is very positive. 88% agree that coaching had a positive impact on their business strategy⁸. It improved their approach to dealing with the company's

88% of SMEs agree that coaching has had a positive impact on their business strategy, for instance by helping them find a better response to challenges or speeding up their projects

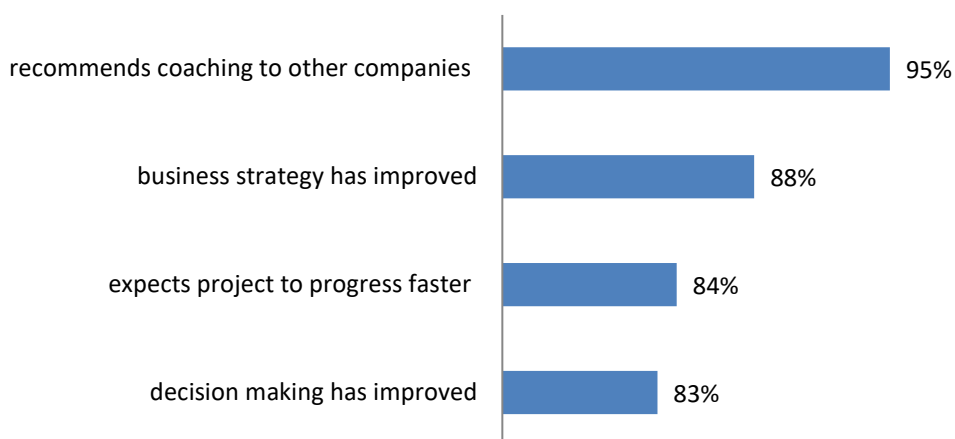
⁷ Based on 2900 coaching cases

⁸ Based on 1200 evaluations from SMEs

challenges and speeded up the progress of their business innovation project. Only around 4% of SMEs consider that coaching activities had little or no impact on their activity. Moreover, 95% of SMEs would recommend business innovation coaching to other companies (see

Figure 3).

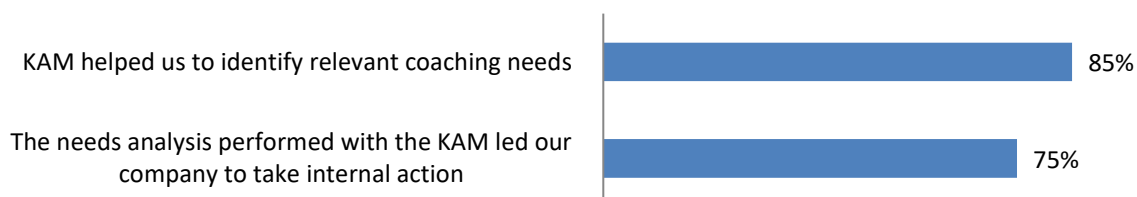
Figure 3: Impact of coaching on SMEs (% of responses “agree” and “strongly agree”)



Source: EASME

Moreover, participating SMEs had positive impressions about KAMs' performance. The majority of the SMEs (85%) consider that KAMs made a positive contribution, allowing the SMEs to identify the relevant business needs. The needs analysis performed together with the KAM led to internal actions. Only 5% of companies disagree with this statement (see Figure 4)

Figure 4: Impact of the KAM's activities on SMEs (% of responses “agree” and “strongly agree”)



Source: EASME



Sector
Phase 2
The Netherlands

Energy
2.500.000€

<https://www.ampyxpower.com/>

Transitioned from startup to scaleup thanks to coaching



Pim Breukelman, Commercial Director Ampyx Power:

Renewable energy company Ampyx got €2.5 million from the SME Instrument to scale-up their disruptive airborne wind energy technology. With this change the company needed support to manage the transition from a small company to a scale-up and their quick growing staff. With the Enterprise Europe Network Ampyx found a specialised coach who helped them successfully move from 10 to 50 people and ultimately raise €8.6 million in private funding.

"The leadership coaching we have received from the SME Instrument proved to be a very valuable tool in scaling up from 10 to 50 employees. The coaching sessions enabled us to apply best practices for scaling-up and allowed us to get away from the day-to-day business and view things from another perspective."

An expert evaluation commissioned to assess the impact of the SME Instrument programme on the market creating power of companies demonstrated that coaching is a very distinctive feature and key strength of the programme⁹. It allowed companies to develop proper IP strategy and market intelligence, and as a result improve their strategies and have higher success rates in their target markets¹⁰. The evaluation exercise also showed that the business coaching efforts played a crucial role in transforming the companies' business model. Some of the technological and market developments pursued by the participating companies implied fundamental changes including key adjustments in the company business model. It led to a structural modification of the initial

Coaching is a distinctive feature of the SME Instrument programme according to independent experts. It has critical role in improving companies' strategy, including market intelligence, business model and IPR.

⁹ Padilla P. et al., Is the SME Instrument delivering growth and market creation? Assessment of the performance of the first finalised Phase 2 projects, p.85

¹⁰ Idem, p. 79

company revenue generation model (e.g. from B2C to B2B, from commission-based to subscription) as well as to other relevant changes in the building blocks of the company¹¹.

1.3. Business Acceleration Services (Phase 3)

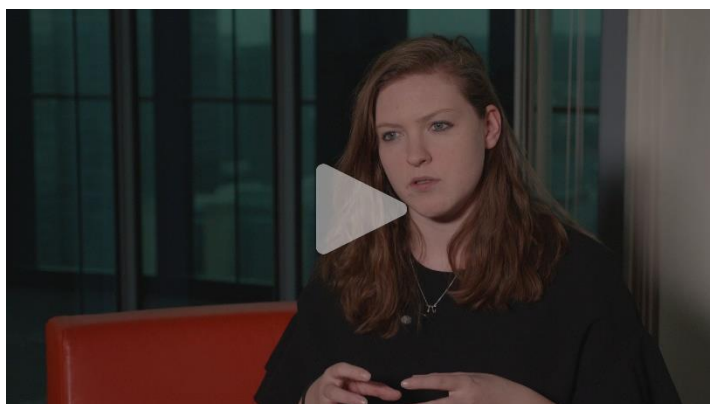
1.3.1. What are Business Acceleration Services?

The SME Instrument's particularity lies in fostering exchanges within the international peer community and providing access to international expertise, finance and partnerships. In addition to the unique coaching opportunity and the substantial equity-free grant, all portfolio companies get unlimited access to a range of Business Acceleration Services. The ultimate goal is to accelerate the growth of funded companies by facilitating their access to private investment, new business partners, distributors, suppliers and clients as well as to their own peers.

Experience so far has shown that funded companies appreciate these opportunities to exchange between peers and many SMEs wish to engage more in peer-led learning opportunities. The ambition of the programme in the long run is to build up a vibrant **SME Instrument Community** that will be a platform for trustful peer learning and partnership building, as a way of understanding and gaining markets.

Business Acceleration Services and the Community are available to all SME Instrument companies, both in Phase 1 and Phase 2. Contrary to popular belief, the services are not consecutive to the funding, but are accessible as from the very start of the project and beyond the project duration – as long as it brings value. This gives them a life-long opportunity to meet new finance and business partners and peers.

The specificity of the services is that they are based on particular needs of the innovative companies wishing to grow internationally. The following chapter presents the needs of the companies and the support offered by the acceleration services to help companies meet these needs.



“There are many challenges in the European technology ecosystem: a lack of community, a lack of funding ready to bear the risk, a lack of support to cross the valley of death. In this context, the SME Instrument is not only providing funding but also bringing together a large community.”

Gemma Milne, Journalist, Co-Founder of Science: Disrupt

¹¹ Idem, p. 80

1.3.2. How are companies' needs analysed?

In order to identify the needs of a company and come up with a bespoke Business Acceleration Service offer, the EASME team uses different data sources such as portfolio segmentation by sector, age, size and country of origin (see chapter 2.2). It also uses information gathered through the needs analysis performed by KAMs involved in the coach selection process (see chapter 1.2), including company life cycle stage, target market and indication of partnerships sought. This last one is an important element in the design of the relevant Business Acceleration Services. The top three most wanted partnerships are partnerships with customers (38%), followed by partnerships with distributors (23%) and investors (10%).

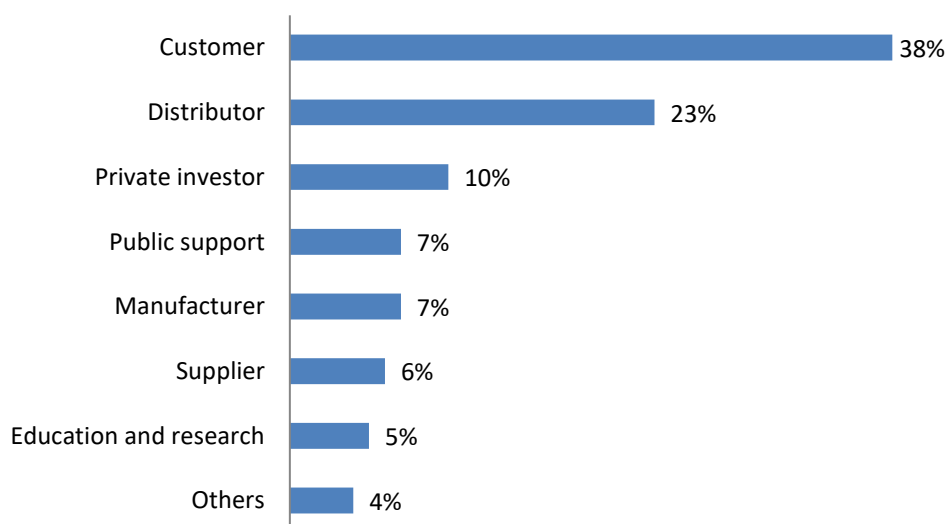
Customers and distributors are the most wanted potential partners.

Interestingly, partnerships with investors are four times more popular among micro-sized companies (up to nine employees) than among medium-sized companies (above 50 employees).

The importance of customers and distributors as most wanted partners reflects a long-term business development strategy. Distributors often play a key role in reaching out to customers both old and new. A significant and high-quality customer base is the sine qua non precondition for attracting investors. Without distributors, it is difficult to reach new customers. Without potential customers, it is much harder to find investors.

Nevertheless, it is important to bear in mind that these figures reflect the situation at the beginning of the project, when companies, especially in Phase 2, receive an important amount of funding. This gives them the necessary peace of mind and time to build a sustainable long-term strategy.

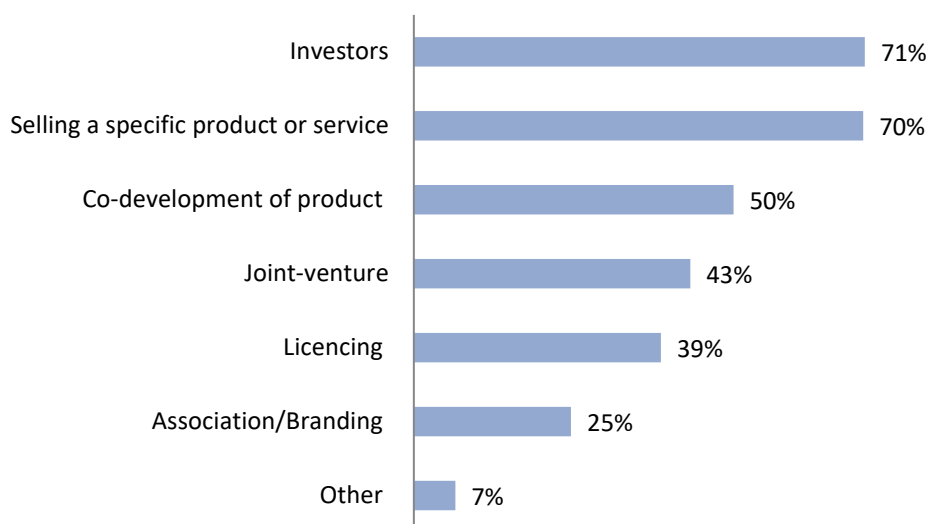
Figure 5: Needs of SME Instrument companies in terms of partnerships



Source: Case tracker. Coaching needs analysis, EASME

Complementary information comes from the application forms and selection processes for each single Business Acceleration Service the SME Instrument programme offers. For example, data from the 275 applications to trade fairs received in 2017 indicate that the same number of companies was interested in meeting investors as those interesting in selling a specific product (both 70%).

Figure 6: Strategic partnerships sought by applicants to Business Acceleration Services



Source: Applications to Business Acceleration Services, EASME

This information enables the SME Instrument team to calibrate the offer of Business Acceleration Services. Qualitative interactions with companies also support the quantitative data analysis. An on-line communication platform for the SME Instrument companies in the near future will increase exchanges. The objective is to remain agile in the design of the Business Acceleration Services and stay open to further and regular improvement of the service offer.

1.3.3. Accelerating Growth - Service offer

In 2015 and 2016, different options were tested for Business Acceleration Services and feedback was collected from the SMEs. In 2017 the full range of services kicked-off with the help of two external contractors (one starting in February 2017 and the other in September 2017). Different event formats were developed based on the needs analyses of the participating companies. Since then, 19 events with 250 participants in total have been organised. These figures are expected to quadruple in 2018. The event formats developed based on companies' needs are:

Matching with Finance Partners

These events follow an investor pitching event format with a sectoral focus. Following an announcement for applications, a jury of investors carefully selects up to 15 companies, who get to pitch and network with international investors specialised in their field. Using this format, the aim is to ensure the highest possibility for a successful deal. Moreover, selected SMEs receive a preparatory pitching training beforehand, and the best-rated pitch receives a price during the event.

In October 2017, together with the Merck Start-up Accelerator, 12 SME Instrument funded companies in the health sector pitched their ideas to 13 investors. 75% of the satisfaction survey respondents recommended or highly recommended this event.

Matching with Business Partners

Corporate matching events focus on connecting SMEs to large companies in order to establish commercialization partnerships, licensing deals, or other types of joint ventures. Selected large corporates are among the top 200 most innovative companies in Europe in terms of € spent on R&D activities. They are also among the largest companies in Europe in terms of annual turnover. There is a clear overlap between the target markets of the SME Instrument and the sectors where the top 200 most innovative business partners in Europe are operating.

The SMEs get a unique opportunity to access potential lead clients at the international level, a feature that no other funding programme can offer. There is a match made before the event between the mutual interests of both SMEs and Corporates, thus increasing the likelihood of high-quality connections.

The first corporate matching event took place at ABB in Sweden in November 2017, where 13 SMEs presented their technologies to various decision-makers from different technology and business units within ABB. At the time of writing, 40% of the SMEs are involved in follow-up business discussions with ABB decision-makers. All satisfaction-survey respondents recommend or highly recommend attending this event.

In the future, more Corporate Days will be organised. Please see the infographics listing confirmed corporate partners for 2018.

Figure 7 Corporate partners of the SME Instrument



"When we organised the Airbus Corporate Day with the SME Instrument business acceleration services, initially we wanted to meet 15 companies, but so many attracted our attention that in the end, we ended up inviting twice more! Many are ideal candidates for investment, and we very much look forward to cooperating with them in the future."

Fabian von Gleich, AIRBUS Head of Strategy & Development Site Hamburg

Matching with Peers - Academy

The Academy service focuses on building skills and competencies of SME Instrument companies within their business life cycle, as well as preparing them for investors and corporate events or trade fairs. Once again, the topics for the workshops are identified through the needs analysis. Carefully selected trainers stimulate an impactful exchange among funded companies and build up resources and expertise using various user-driven physical and virtual learning workshops. The approach is based on peer2peer learning, and ultimately will empower SMEs to face the challenges on their growth path effectively.

Participating companies can bring along their business coach to the workshops. The presence of their coach means that the companies are able to apply what they learn immediately. Moreover, it strengthens the coaching experience and has an additional impact on the common goal of business development.



Branding Academy session, November 2017

Seven academy workshops took place last year. Four workshops took place in Brussels, where 44 SMEs focussed on developing their capabilities in terms of branding, attracting investors, partnering with corporates, and developing adequate market segmentation and distribution strategies. Three live e-learning sessions were organised to prepare selected SMEs for pitching their technologies/businesses at corporate and investor events. All satisfaction-survey respondents recommend or highly recommend participating in these services.

In 2018, this service will be expanded and scaled up to other cities and with topics such as value proposition design, business model creation and development, recruitment of people and teams, and use of non-executive directors, mentors and consultants in scaling up.

Participation to European and Overseas Trade Fairs

Attending well-known trade fairs and events gives SMEs a unique opportunity to find new business partners, potential investors and clients, and thereby scale up and conquer new markets. Normally, for an SME it is hard to get through the crowd and attract attention at such big events. Being a part of the SME Instrument delegation at a trade fair is a significant boost to the visibility of the company.

Figure 8 Business Acceleration Services works since 2014 with following trade fairs (and more)



In 2017, the Business Acceleration Services brought a selection of top SME Instrument companies to Medica in Düsseldorf and SmartCityExpo in Barcelona. They could attend specific brokerage and pitching events to increase their visibility and provide them with networking opportunities. Eighty-seven SMEs participated at these events and attended in total 583 meetings. On average, 85% of the satisfaction survey-respondents recommended or highly recommended attending these events with the support of the Business Acceleration Services.



SME Instrument at Smart City Expo, November 2017

The Business Acceleration Services also offer special services at major trade fairs outside Europe (Overseas Trade Fairs participation programme - OTF). Usually, the access to these events is quite

costly for SMEs, and linguistic or cultural barriers as well as a lack of detailed knowledge about new geographical markets and competitors prevent small companies from attending such events. The SME Instrument helps the companies overcome this obstacle by offering access to and visibility at selected overseas trade fairs. The offer consists of the following:

- organising the participation of SME Instrument companies to 15 international Trade Fairs in 11 countries outside the EU;
- guiding the companies through the preparation period before these trade fairs and business meetings overseas;
- promoting the companies on the international scene and targeting partners in identified markets.



"Lagos international trade fair is THE reference for West Africa so when we learnt about the SME Instrument offering us the possibility to join the European pavilion we didn't hesitate. Now we have a product ready for the Nigerian market, good contacts and a hook to potential projects – all you need for a fast start on a new market".

Javier Bustos, Managing director of GFM

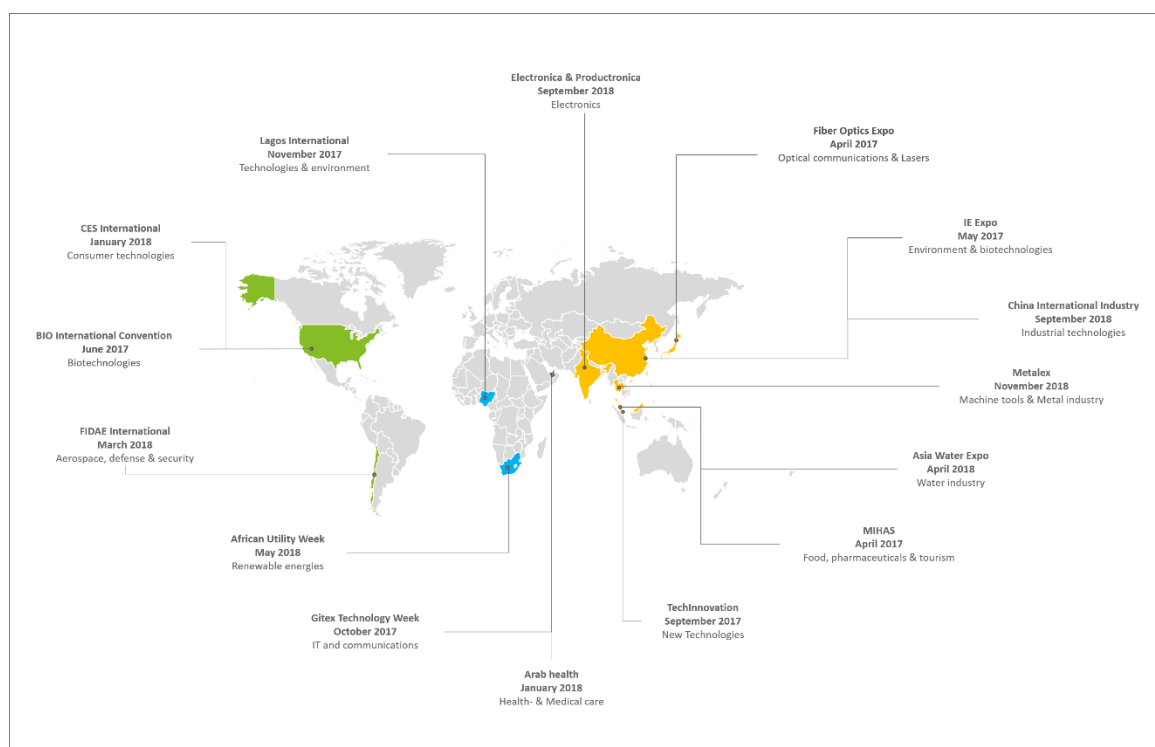
EASME started offering these services in February 2017. During the first year of the Overseas Trade Fairs programme, 146 SME Instrument companies participated and held more than 1400 business meetings with selected counterparts at 11 major trade fairs around the world. The satisfaction of the SMEs participating in the OTF programme is very high, with more than 90% of SMEs recommending the participation and willing to participate again. The impact of the fairs in the business figures of the participating SMEs is already tangible, as in the case of AvantiCell Science, with significant results in less than 12 months after the informal agreements reached at the fairs take shape.



"Participation in the SME Instrument Overseas Trade Fair programme was a great experience for AvantiCell. Preparation for the event was exceptionally well coordinated, the pavilion gave excellent visibility for our cell technology and the meetings organised were relevant and productive. As a direct result of contacts made by OTF representatives, two business meetings quickly turned in actual business, one being a product sale, the other a service contract. A third negotiation translated into a further service contract within 2 months and on-going discussions give prospect of new income totalling €400.000 within 18 months from the day of the trade fair."

Colin Wilde, AvantiCell Science

Figure 9: Access to international events through Overseas Trade fairs Programme



Online Community and Supporting IT infrastructure

The SME Instrument programme expects to fund around 7000 companies by 2020. These companies may face similar obstacles or go through similar development processes in their business life cycle. In order to connect these SMEs to exchange, create knowledge and engage in business discussions, the SME Instrument is launching an online community platform. This platform will be ready around mid-2018. This online community will increase the impact of the business acceleration services by simply connecting companies, and providing a platform that will also allow for better tailoring of future services to the companies' needs.

As the majority of services are still rather new, the information on their impact is limited. However, a recent independent study shows that the Business Acceleration Services are a recognised key feature of the SME Instrument, and a source of its European added-value. They provide companies with the much-needed access to international networks of investors and business partners, a feature that no other public programme offers to a comparable extent¹² to small or micro companies in innovation.

¹² Padilla P. et al.

1.4. Procedures adapted to market

1.4.1. Easy application, quick reply

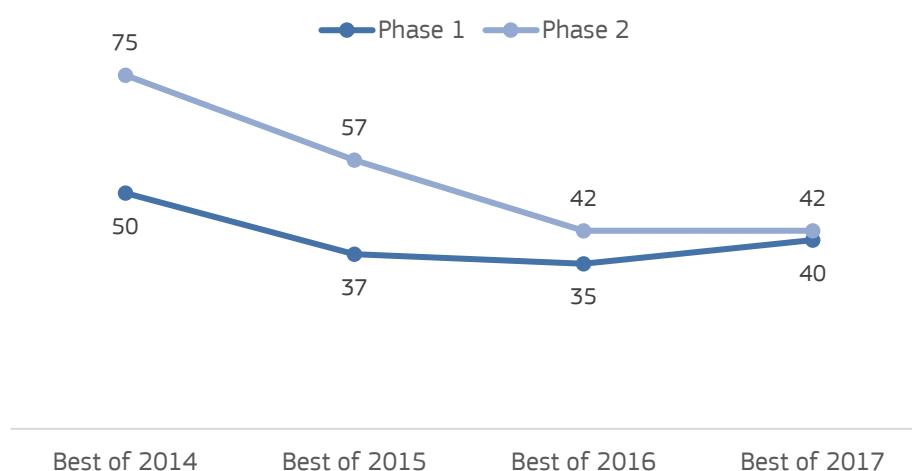
As small companies have a pressing need for quick investments, the design of the SME Instrument programme strived to optimise efforts and shorten the gap between the time of the application and access to the funding.

SMEs apply to the programme through an open call for proposals. They can submit their applications at any time and till the end of 2017 the application process was divided in 13 different thematic areas-topics (the topics were replaced with fully bottom up approach as of 1st of January 2018 after launching European Innovation Council Pilot see chapter 1.1). The submitted applications are collected and evaluated eight times per year, at the so-called cut-off dates.

Applications are short (10 pages for Phase 1, 30 pages for Phase 2) and reflect the requirements for business plans or pitch decks commonly used by investors, banks or other business partners.

Efficiently evaluating the large number of applications is a challenging task. Since the beginning of the programme, the 'Time-to-Inform' (the time between the cut-off date and the announcement of the results) has significantly improved for both Phases. In 2017, the shortest time to inform applicants was 40 days for Phase 1 and 42 days for Phase 2 (see Figure 10).

Figure 10: SME Instrument Time-to-Inform – number of days between the cut-off date and the announcement of the results



Source: EASME

Ongoing open call

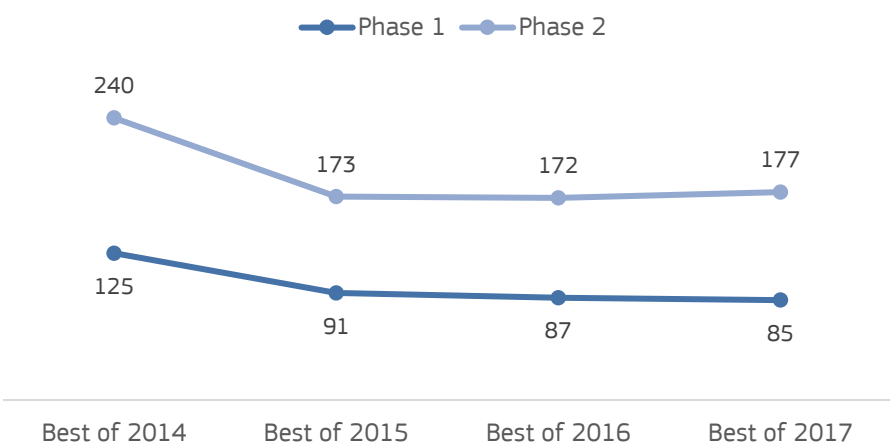
4 deadlines per year for each Phase

Easy & Fast

10-30 page application and results in about 1 month

Likewise, the Time-to-Grant (the time between the cut-off date and the signature of the last Grant Agreement) has decreased significantly. The target was set to a maximum of three months for Phase 1 and six months for Phase 2. This target has been achieved. Currently, both Time-to-Inform and Time-to-Grant are below the legal timeframe requirements.

Figure 11: SME Instrument Time-to-Grant (90% of proposals)¹³ – number of days between the cut-off date and the signature of the last grant agreement



Source: EASME

NOVA INNOVATION
Nova Innovation Ltd

<http://www.novainnovation.com>

Sector
Phase 1,2
United Kingdom

Renewable energy
2.250.266 €

Commercialised the world's first grid-connected tidal energy array



Nova Innovation designs, builds, installs and operates tidal energy projects. In August 2016 the company announced the deployment of the world's first fully-operational, grid-connected offshore tidal array in Shetland. This has granted growing recognition to the company as one of the world's leading tidal energy technology companies. In the autumn 2016, Nova Innovation

¹³ The remaining 10% are either security projects requiring a different granting procedure or projects requiring ethical screening.

Simon Forrest, CEO

“One of the big benefits of the SME Instrument is that it’s relatively light touch on the bureaucracy compared to some of the other funding programmes. This allows SMEs to compete, because generally we do not have a lot of administrative support. Having a slim down, focused scheme is exactly what we want for delivery”.

received an SME Instrument grant of €2.25 million to develop a commercial demonstrator of Nova’s innovative direct drive tidal turbine technology. The project is a milestone in the long-term commercialisation of tidal energy as a source of predictable renewable power.

The SME Instrument timeline performance is similar to and in some cases better than other public and private investment programmes. For example, the US Small Business Innovation Research program (SBIR) reports that it uses an average of 195 days to process the applications between the cut-off date and the start of a Phase 1 award¹⁴. Under the SME Instrument, this process takes approximately 129 days.

The SMEs have highly appreciated the fast access to funding. In addition, the simplified application process, the possibility to apply without partners and the freedom to determine the scope of the proposal are all elements that have made the programme a popular innovation support tool in Europe.

Across the board

Single SMEs or consortia active in industries across the board can apply

1.4.2. Phase 1 – Phase 2 cycle

Although the programme is organised in different phases to cover all the stages of the innovation cycle, companies can apply directly to Phase 2. However, it is highly recommended for SMEs to start with Phase 1, as figures show that the process will help them mature their business concept and increase their chances of success in Phase 2.

Companies that have completed Phase 1 are twice as likely to be selected in Phase 2

Indeed, in addition to gaining experience from the application process, during the implementation of Phase 1, companies have the opportunity to get business innovation coaching that helps them develop their business plan (see chapter 1.2). At the end of the Phase 1 project, SMEs must have sharpened the commercial focus of their innovation and improved their market readiness.

This learning process increases both a company’s chances in Phase 2 and its likelihood of raising private funds. A typical example is “Algama”, a successful French Phase 1 company in the FoodTech sector that raised €3.5 million in private funding from Horizon Ventures. As explains the co-founder Mr Gaëtan Gohin, the process of preparing the Phase 2 application (where they failed) was a critical learning exercise that helped them structure their file for investors.

¹⁴ SBIR/STTR Annual Report FY2013 https://www.sbir.gov/sites/default/files/annual_reports/FY13_SBIR_STTR_AR_Final.pdf

Statistics confirm that applications that come from completed Phase 1 projects perform better. From previous Phase 1 awardees applying to Phase 2, 66% scored above the threshold for projects to be candidates for funding, if resources allow. In the end, their success rate was 6.8%. On the other hand, among applicants that submitted directly to Phase 2, 37% scored above the threshold and 4.1% got funded ([See Table 2](#)).

Table 2: Phase 2 applications: Direct applications vs Completed Phase 1 applications

	Evaluated	Above threshold	Selected	Success Rate
Direct applications to Phase 2	11,089	4136 (37%)	457	4.1%
Applications with completed Phase 1 project	3,979	2,633 (66%)	272	6.8%
Total	15,068	6,769	729	4.8%

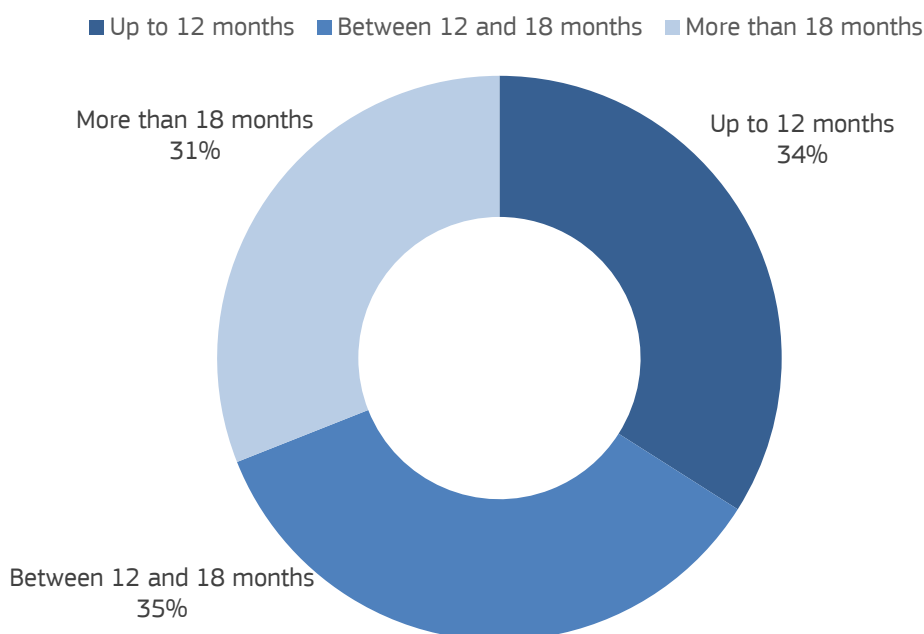
Source: EASME

Not all Phase 1 companies apply to Phase 2. Overall, around 53% of the companies that completed Phase 1 subsequently applied to Phase 2. This can be explained by the fact that one third of the Phase 1 SMEs are in a very early seed stage (see also chapter 2.2). They are still in the concept phase and need to explore and assess further the commercial potential of their innovation. Consequently, they have a very small chance of being successful in Phase 2 directly after Phase 1.

Apart from the direct benefit of access to funding, participation and engagement in the SME Instrument have a powerful impact on the companies' learning process

Going through Phase 1 before Phase 2 does not mean that it takes longer to reach Phase 2. Only 31% of companies spent more than 18 months to complete Phase 1 and to be selected for Phase 2. The rest managed to complete the cycle in less than 18 months and 34% in less than one year ([see Figure 12](#)).

Figure 12: Phase 1 - Phase 2 Life Cycle - time between successful Phase 1 and Phase 2 cut-off dates



Source: EASME

To conclude, apart from the direct financial value (access to funding), participating and engaging in the SME Instrument has a powerful impact on the companies' learning process and speeds up their success.

1.4.3. New comers to the programme

Over the last two years, around 50% of proposals in Phase-1 and around 60% of proposals in Phase-2 were resubmissions, the remaining being proposals submitted for the first time. The SME Instrument allows companies to resubmit their applications for funding and get the same treatment as first submissions. Each time, the resubmitted applications are evaluated by a different combination of four expert evaluators, ensuring impartial assessment.

The vast majority of resubmissions (around 75% of all resubmissions) are 1st or 2nd resubmissions (First submission + 1 or 2 resubmissions) which mean that after the 2nd unsuccessful resubmission many companies stop applying.

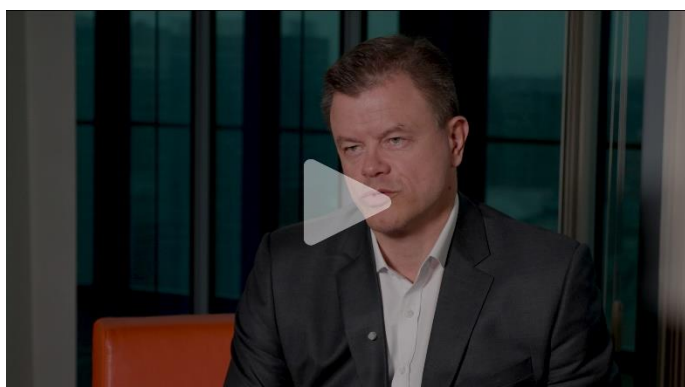
The success rate of the resubmissions is higher than first submissions as applicant SMEs learn from the process and can resubmit improved proposals based on the feedback received at the end of the selection procedure. In Phase 1, resubmitted applications have almost 50% more chances to get selected, while in Phase 2 chances for resubmitted applications are slightly higher (around 5%).

1.5. Market driven selection

Companies applying for the SME Instrument are assessed exclusively on their business and innovation merit. The award criteria focus on the commercialisation perspective, excellence in innovation and the capacity of the implementing team. These criteria are similar to the ones used by private investors.

In 2017, a pool of 1,506 highly skilled evaluators was set up, with 76% of experts from the private sector and 41% women

Companies have to demonstrate that there is a **market for their innovation and potential customers willing to pay** for it. Their knowledge of the market conditions, including the total **potential market size and growth-rate**, their understanding of **competitors** and their sales projections, is thoroughly tested. The innovation they are presenting needs to have the potential **to scale-up** the company. The applicants must prove this potential with a clear commercialisation plan and a knowledge protection strategy, including an analysis of the "freedom to operate". The applicant should show that its idea is a **high-risk and high-potential** innovation that stands out from competition and outperforms existing solutions. Finally, evaluators assess the capacity of the company's team to effectively commercialise and scale up the business.



"I started to work as evaluator of SME instrument proposals already in 2014 and I had a privilege to observe how the proposals developed overtime and I think they have significantly improved."

Marko Seppä, Venture Capital Corporation

Each year, a pool of about 1,500 evaluators including experts from countries all around Europe and beyond, including the US, Canada and Brazil, is set up. The selection is a result of a careful screening process that aims to create a balanced pool of experts in terms of knowledge, geographical diversity and gender. With a high level of skills and an excellent understanding of the market in terms of business development and commercialisation, innovation exploitation and management, venture capital and risk-finance, the experts draw on their experience and knowledge to select the best applications.

A group of four independent experts of different nationalities and profiles in the topic concerned evaluates each application. They work remotely, fully independently from each other, through a rigorous and well-structured process that ensures the selection of the most meritorious applications. The procedure is designed to provide a funding decision within a very short period (see section 1.4.1).

SME Instrument Experts



Gonzalo Tradacete Gallart
(ES)
Co-founder & CEO
Faraday Venture Partners



Carole VanCaillie (FR)
Indra, IT solutions



Michal Uss (PL)
PSE SA

1.6. Quality of the evaluation process

Ensuring the quality of the evaluation process is essential in order to select proposals with the highest market-creating potential for funding and access to business acceleration services. With more than 47 thousand proposals received, ensuring and improving the quality of the evaluation process has always been a core objective of the SME Instrument since its inception in 2014.

The quality of the evaluation process is ensured through various procedures, measures and checks covering the entire evaluation cycle:

- **Recruitment** – The Agency recruits new experts every year in order to renew and/or enlarge the pool of experts participating to the evaluation of the SME Instrument. In 2017, more than 350 new experts joined the pool. The recruitment is done through specialised recruitment campaigns and careful screening of the European Commission experts' database (EMI) in order to select experts with the right profile, taking into account factors such as education, professional experience, and gender to ensure a balanced pool.
- **Training & guidelines** – Once recruited, the experts receive regular trainings and have access to all the training materials. Webinars and experts meetings in European capitals are also organised in order to train the experts and exchange best practices. In 2017, 5 webinars have been organised and expert meetings were held in 12 European cities.
- **Monitoring during the evaluation** – At that stage, the measures include the identification of potential conflicts of interest and the quality of the evaluation report (quality of comments, consistency with scores attributed).
- **Post-evaluation feedback** – In order to ensure continuous improvement of evaluation quality, experts receive feedback.

All these actions contribute to the replicability, robustness and homogeneity of the evaluation process. Indeed, the distribution of evaluation scores between various expert categories is very similar.

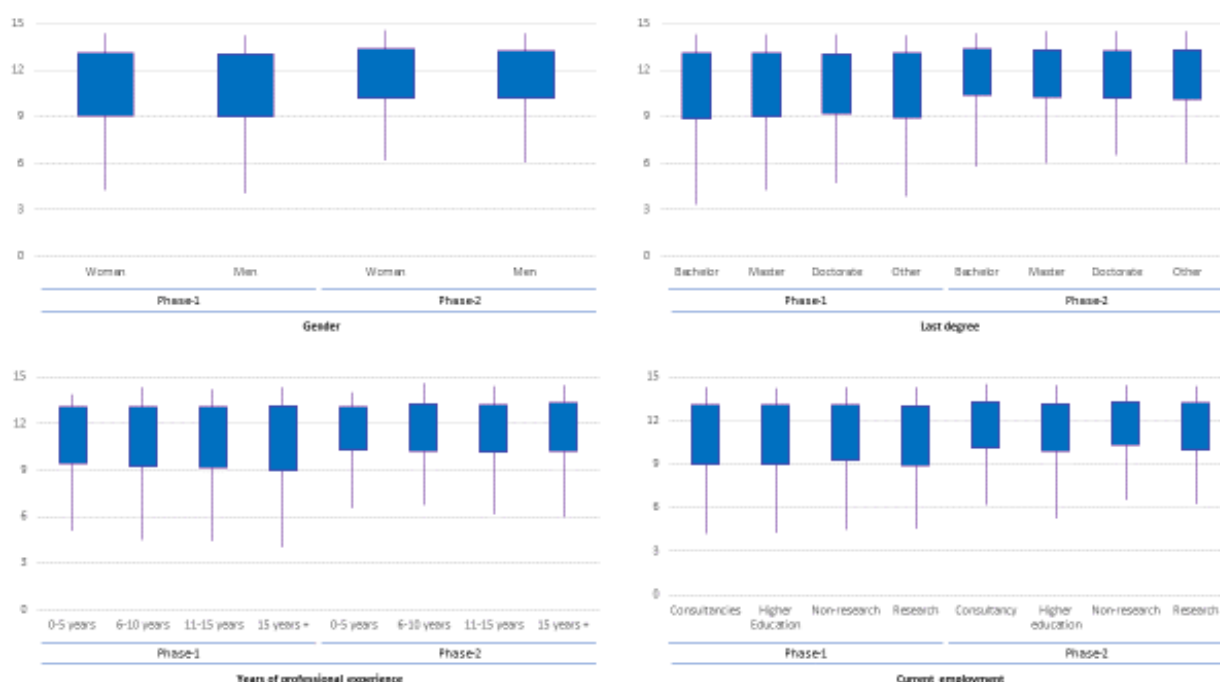
Figure 13 details the distribution of evaluation scores according to gender, highest academic degree obtained, years of professional experience and current occupation for Phase 1 and Phase 2 proposals evaluated in 2016 and 2017. The variations in distribution are limited, with a maximum average variation of 0.08 for gender (Phase 1), 0.25 for academic degree (Phase 1), 0.21 for professional experience (Phase 1) and 0.35 for current professional occupation (Phase 2).

Since every proposal is evaluated by a combination of four evaluators from various categories (i.e. profiles, gender), the limited variation in scoring distribution will be further harmonised at the Evaluation Summary Report level, producing the final, combined score.

Figure 14 outlines the distribution of evaluation scores by topic for both Phase 1 and Phase 2 evaluations in 2016 and 2017, highlighting scoring trends between thematic experts. The maximum average variation between the various topics is around 0.98 between topic 3 (biotechnology) and topic 12 (new business models) in Phase 1. This variation does not affect the number of proposals financed per topic since the budget is distributed between the different topics.

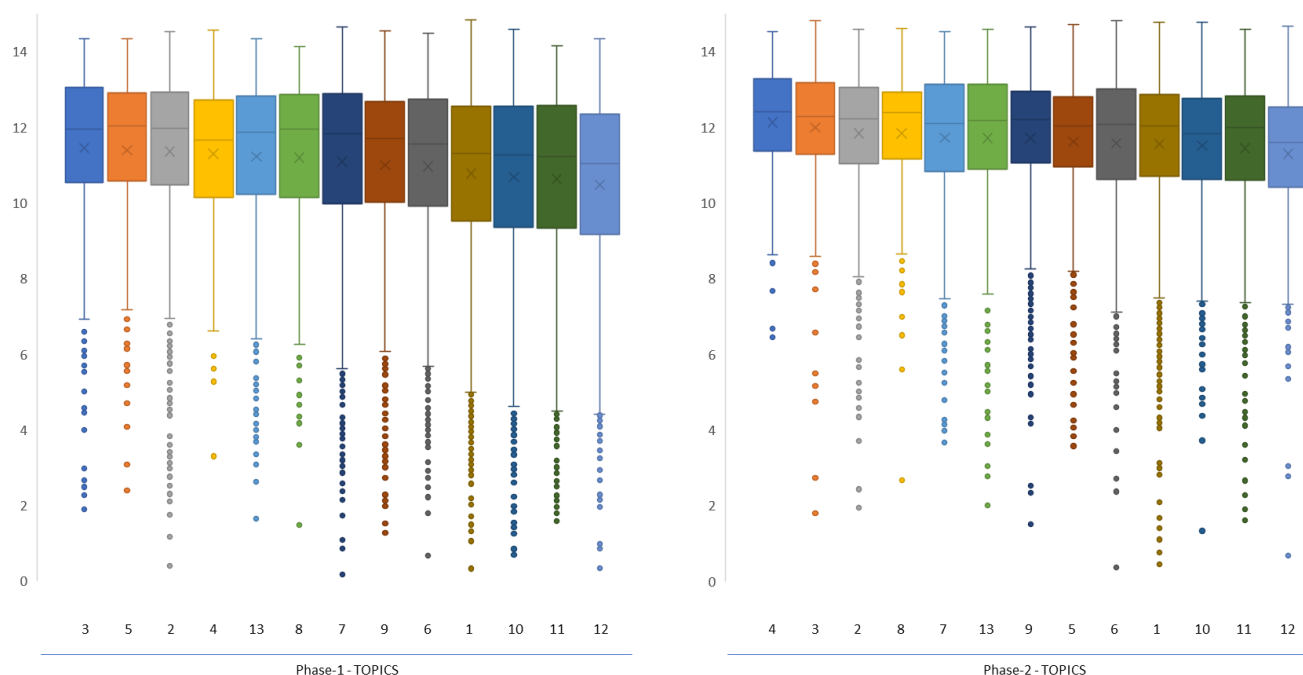
In the context of the EIC pilot and the transition to a fully bottom-up evaluation process, the budget is no longer distributed by topic. Nevertheless, keywords have been introduced to capture the cross-sectoral nature of the projects as well as the various expertise areas of the evaluators. This optimizes the allocation of proposals to evaluators and alleviates the limited variations in scoring distribution based on topics as observed in cut-offs up until the end of 2017.

Figure 13 Distribution of evaluation scores by expert type for Phase 1 and Phase 2 proposals in 2016-2017



Source: EASME

Figure 14 Distribution of evaluation scores by topic for Phase 1 and Phase 2 proposals in 2016-2017



Topic definitions:

- 1 - Open Disruptive Innovation Scheme
- 2 - Accelerating the uptake of nanotechnologies advanced materials or advanced manufacturing and processing technologies by SMEs
- 3 - Dedicated support to biotechnology SMEs closing the gap from lab to market
- 4 - Engaging SMEs in space research and development Specific Challenge: To engage small and medium enterprises in space
- 5 - Supporting innovative SMEs in the healthcare biotechnology sector
- 6 - Accelerating market introduction of ICT solutions for Health, Well-Being and Ageing Well
- 7 - Stimulating the innovation potential of SMEs for sustainable and competitive agriculture, forestry, agri-food and bio-based sectors
- 8 - Supporting SMEs efforts for the development - deployment and market replication of innovative solutions for blue growth
- 9 - Stimulating the innovation potential of SMEs for a low carbon and efficient energy system
- 10 - Small business innovation research for Transport and Smart Cities Mobility
- 11 - Boosting the potential of small businesses in the areas of climate action, environment, resource efficiency and raw materials
- 12 - New business models for inclusive, innovative and reflective societies
- 13 - Engaging SMEs in security research and development

Source: EASME

2. Who are the SME Instrument Innovators?

The SME Instrument attracts small companies of all sizes, ages, profiles and sectors coming from 28 European Union Member States and many Horizon 2020 associated countries, including Faroe Islands, Iceland, Israel, Norway, Serbia, Turkey, Ukraine and

51% of all SMEs participating in the SME Instrument are from Spain, Italy, the UK and Germany, while SMEs from Iceland, Switzerland, Ireland, Austria, and Denmark are the most effective in applying for the programme

Switzerland. It has attracted both young, market-challenging start-ups aiming for fast scale-up and family businesses that have existed for many years, where the new generation of owners rely on innovation to remain competitive. Service-oriented companies come to the SME Instrument to launch their first product on the market. Finally, university spin-offs use the SME Instrument, especially Phase 1, to test the market feasibility of their technologies.

Stories like this and many more exist within the SME Instrument companies. This chapter aims to present data-backed characteristics of the funded SMEs such as country of origin, size, age, life cycle stage, industry sectors, revenue models and main targeted clients.

2.1. Location of companies and regional hubs

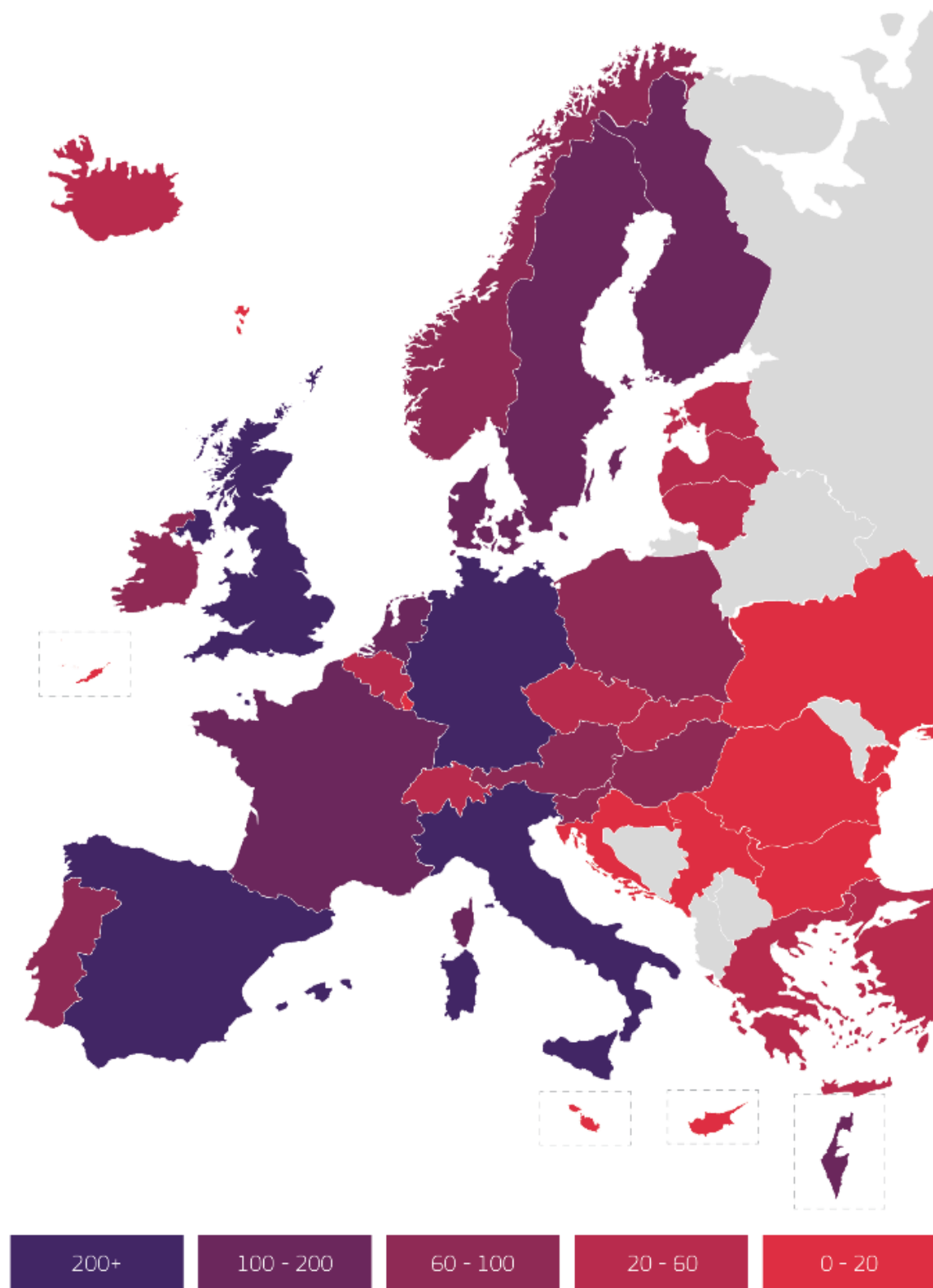
The 3208¹⁵ companies funded under the SME Instrument come from all EU-28 countries and several H2020 Associated Countries¹⁶.

SMEs from Spain and Italy account for one third of both applicants and funded companies. Together with the UK and Germany, these four countries represent half (51%) of all funded SMEs (see **Figure 15**).

¹⁵ Unique counting of companies, e.g. those that passed through both Phase 1 and Phase 2 are counted just once.

¹⁶ Horizon 2020 Associated countries with at least one SME funded under the SME Instrument: Faroe Islands, Iceland, Israel, Norway, Serbia, Turkey, Ukraine, Switzerland

Figure 15 Funded SMEs per country



Source: EASME

Do you want to know more about the companies funded under the SME Instrument?

Visit the [SME Instrument Data Hub](https://sme.easme-web.eu)!

An interactive map and visualization tool show all the SMEs selected for funding under the SME Instrument. You can search for companies on the map using keywords, country, region, phase, topic, budget and start date. You can also create dynamic graphics based on your own criteria.

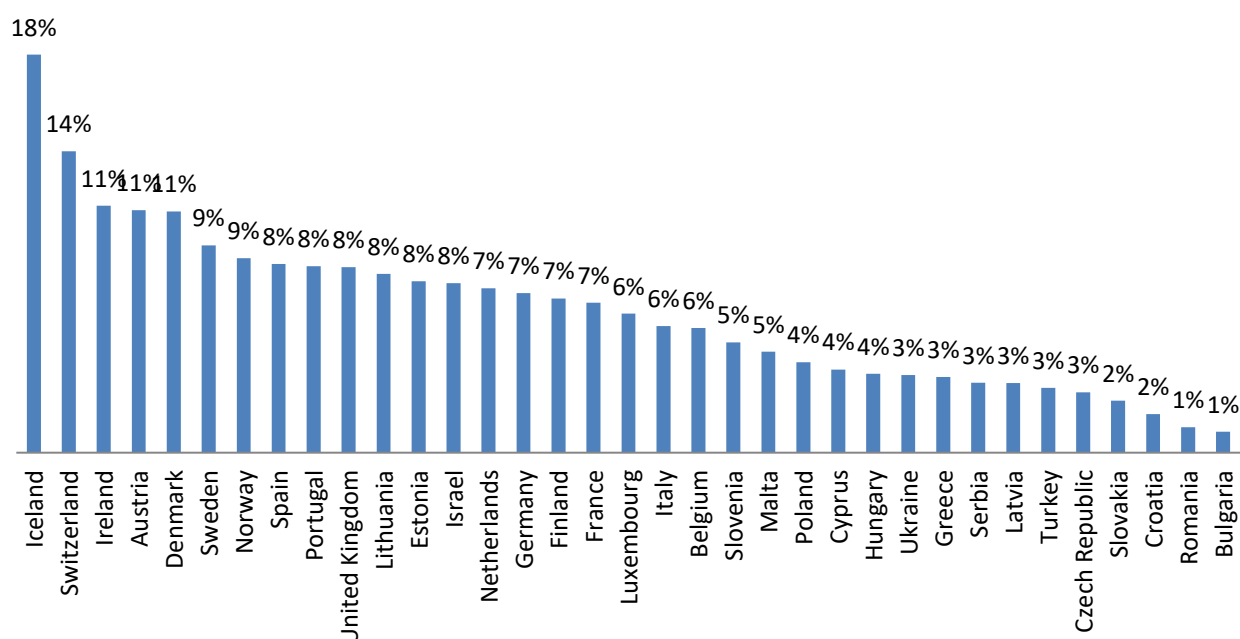
Try it out on:

<https://sme.easme-web.eu>

However, countries which are the most effective in applying to the SME Instrument, with the highest success rates, are Iceland (18%), Switzerland (14%), Ireland (11%), Austria (11%) and Denmark (11%), (see **Figure 16**). For example, Ireland uses the SME Instrument strategically in order to leverage European funds to support the success and growth of local companies.

Irish SME support organisations encourage only the most innovative SMEs to apply for the SME Instrument, give them advice on the selection process, and propose other solutions to the companies with less mature innovations. Similarly, in Sweden, the whole ecosystem advises companies about the SME Instrument. As a result, many innovative companies know about the SME Instrument and apply for funding with success.

Figure 16 SME Instrument success rates per country



Source: EASME

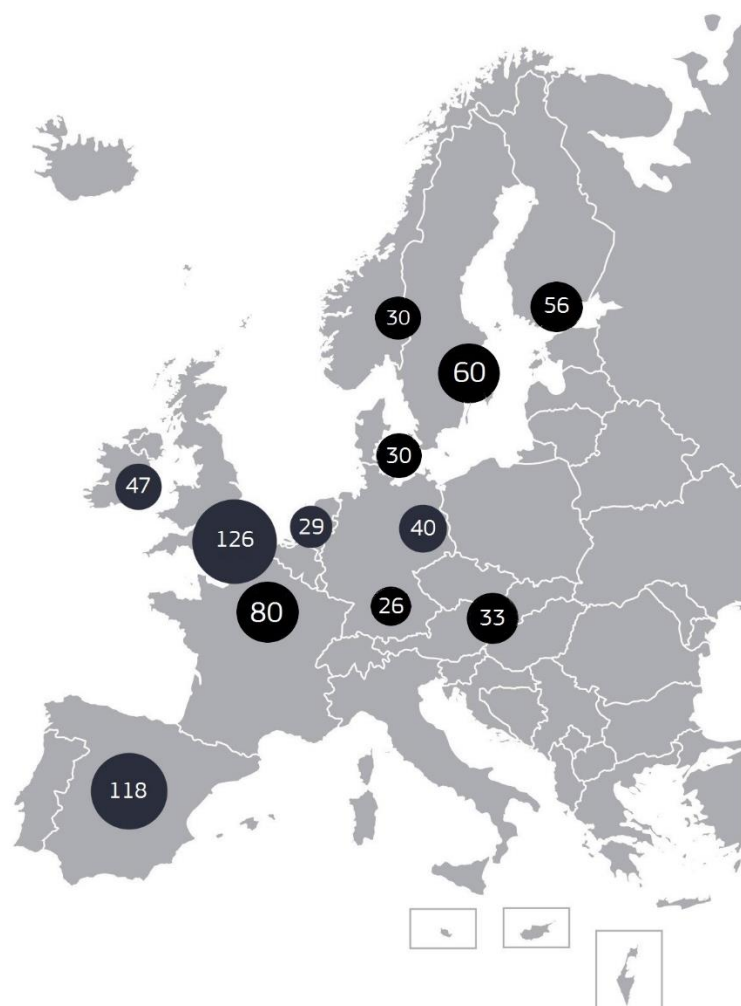
The SME Instrument's geographical distribution matches the main innovation hubs in Europe as listed by Startup Hubs Europe¹⁷, including

SME Instrument geographical distribution matches main innovation hubs in Europe

London, Berlin, Dublin, Paris, Vienna, Amsterdam, Stockholm,

Helsinki, Oslo, Munich, Madrid and Copenhagen. These ecosystems offer a generous pool of enablers to innovative companies such as accelerators, incubators and co-working spaces, investors and highly skilled individuals, but also friendly tax regimes and requirements for setting up a business. These characteristics attract innovators. Starting a company in one of the hubs is a strategic decision, and this is why entrepreneurs from all over Europe set up their companies in London or Berlin – the largest hubs by far¹⁸.

Figure 17 Number of SME Instrument-funded companies in 12 European innovation hubs according to startuphubs.eu



Source: EASME

¹⁷ <http://www.startuphubs.eu/>

¹⁸ According to Startuphubs.eu London and Berlin have the highest investment offer in Europe, respectively €12.7 Bn and €4 Bn.

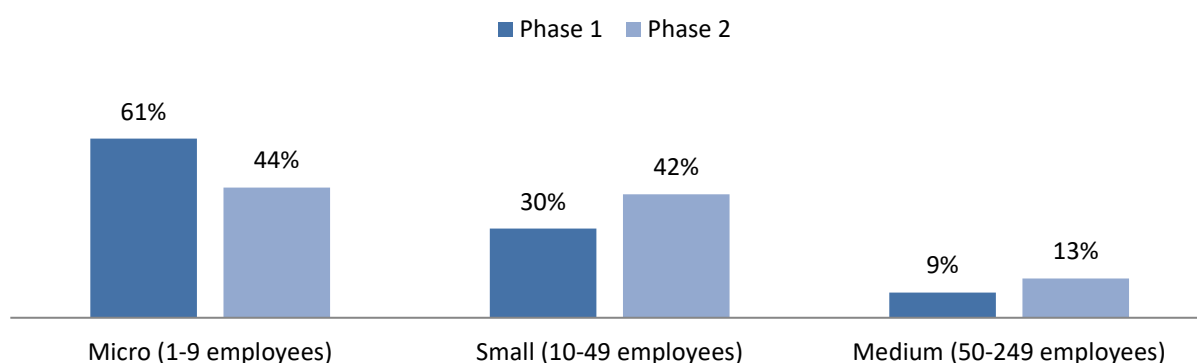
2.2. Stage of development

Most SMEs participating in the SME Instrument are both small and young. A little over half (57%) are micro companies with less than 10 employees. This is a more pronounced trend in Phase 1, where 61% of all participants are micro companies (see

Each year the SME Instrument attracts more and more micro companies (with less than 10 employees); they represent 57% of all funded companies

Figure 18).

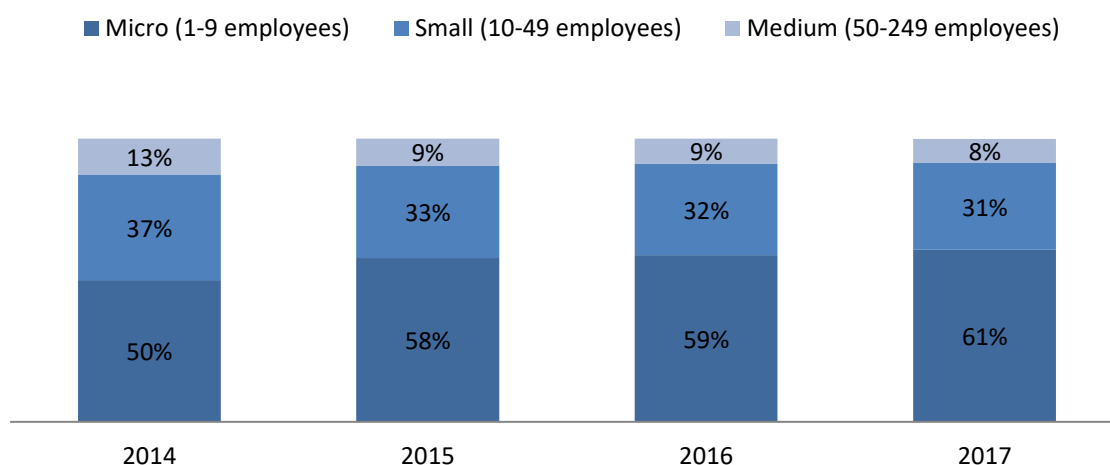
Figure 18 Size of SMEs by Phase



Source: EASME

The number of micro companies selected both in Phase 1 and Phase 2 has increased over time from 415 in 2014 to more than 500 in 2017. Medium-sized companies (more than 50 employees) account for around 8% of all funded SMEs (see Figure 19).

Figure 19 Size of SMEs by year of application



Source: EASME



<http://www.novihum.de>

Sector
Phase 2
Germany

Environment
2.427.600 €

Scaled-up and hired 20 people to produce fertile soil



Virginia Corless, Chief Growth Officer

"The SME Instrument really steps in at a critical moment between seed funding and the next stage of investment that is available once you've proven that you have a commercial technology. That in-between-space is really difficult and it's really valuable that there are public funds there to help companies make that jump. "

Novihum is a carbon-rich soil conditioning technology that improves soil fertility for 10 years, significantly increasing crop yields while reducing water use and pollution. After fifteen years of research at the Technical University of Dresden, the company was set up around the technology with the aim to scale up the research into a commercial product. Novihum were awarded an SME Instrument grant over €2 million that they used to develop a pilot production plant in Dortmund, which can produce 1 000 tonnes of Novihum a year. This created 20 jobs in the process while plans are already in motion to develop a full production plant that could produce 30 000 tonnes of Novihum a year and sell to clients all around the world, ensuring even further job creation. Overall, the funding has helped Novihum Technologies accelerate their market entry by at least a year.

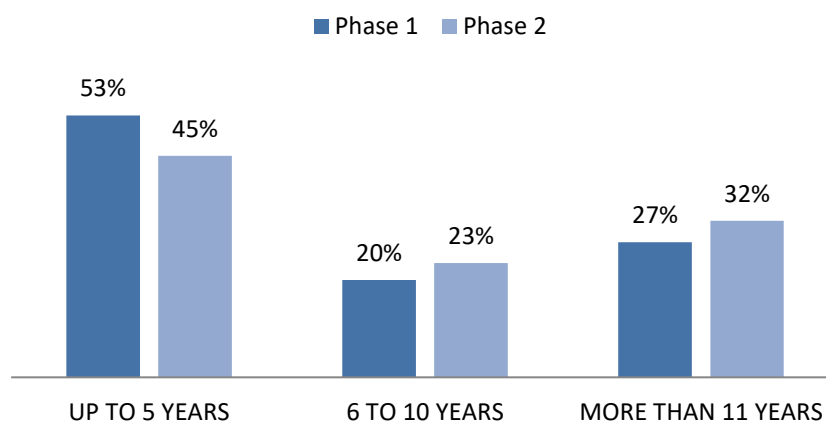
The SME Instrument attracts a significant number of start-ups. According to the EU State-aid Regulation for R&D¹⁹, start-ups are unlisted small enterprises up to five years following their

registration. They were not formed through a merger, and they do not have distributed profits yet. Following this definition, half of the SME Instrument companies are start-ups. This proportion is slightly lower among Phase 2 companies (45%) (see Figure 20).

Each year SME Instrument attracts more and more start-ups (up to 5 years of age) which overall represent 50% of all SMEs

¹⁹ Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty Text with EEA relevance

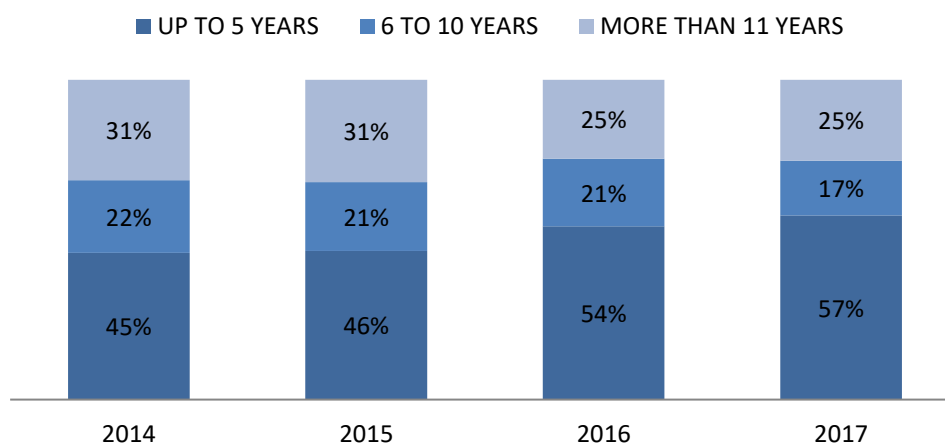
Figure 20 Age of SMEs by Phase



Source: EASME

The share of funded start-ups has increased, especially in 2017, reaching 57% compared to 45% in 2014 (see Figure 21).

Figure 21 Age of SMEs at application



Source: EASME

The coaching methodology used in the SME Instrument identifies 6 life cycle stages of companies (more about the SME Instrument coaching in chapter 1.2.):

20% of SMEs are at the upscaling stage, already conquering new markets

Pre-industrialised stages:

- **Seed stage** companies have a concept and are looking for their first clients and a first round of financing.

- **Project-to-project** companies already have several clients and are developing their project directly with each individual customer.
- **Upscaling** companies are thinking of how to segment potential client groups, how to adapt their product to these groups, and how to organise supply chain, production and distribution to reach economies of scale.

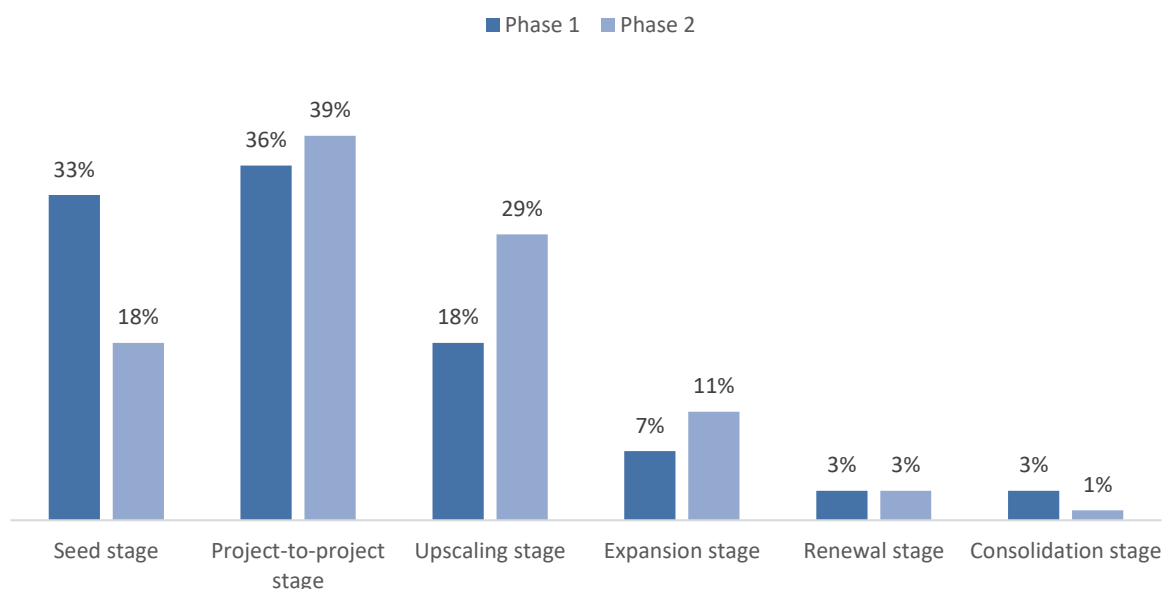
Industrialised stages:

- **Expansion** companies are conquering new markets and growing internationally. They start delegating management and control; they engage in HR development and new partnerships.
- **Renewal** companies look for new business models, think about diversifying their products, services, or their organisation, finding new sources of ideas, new distribution channels, new partnerships and 'change management'.
- **Consolidation** companies increase productivity and efficiency toward cost leadership. They need to optimise and outsource, merge, or consider renewal.

The majority of SME Instrument companies are in the project-to-project stage (33%). The highest share of very early stage companies is in Phase 1, which also explains why some Phase 1 SMEs are not ready to go to Phase 2. Finally, 20% of them, mainly Phase 2 companies, are in the upscaling stage, where they are organising their company to reach a larger number of clients, conquer new markets and gain an important part of the market share ([see](#)

[Figure 22](#)).

Figure 22 SMEs Life Cycle Stage



Source: EASME

2.3. Industries, Revenue Models, Customers and Users

Up until the end of 2017, the SME Instrument application process was organised according to 13 predefined topics, but the programme funds businesses that operate in more than 30 different industries.

Most of the funded companies are active in medical/healthcare, cleantech and energy industries

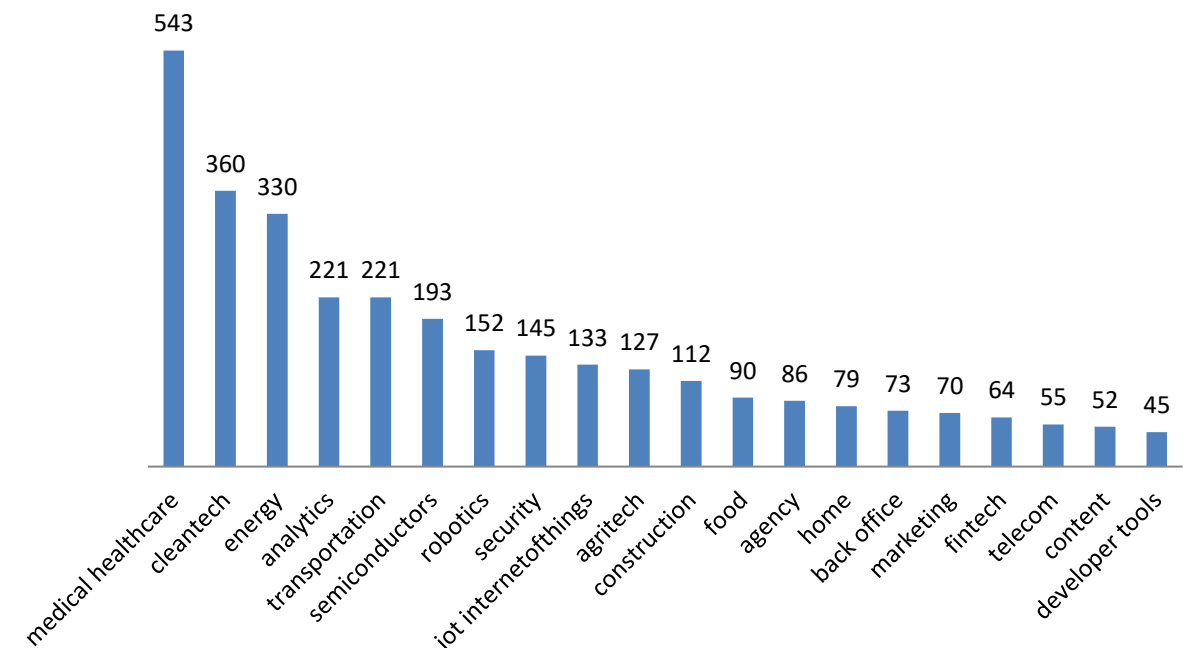
The analysis uses a categorisation of industries and revenue models used by Tech.eu, European technology journal, which has also been widely adopted in the tech industry and the venture capital world. This categorisation indicates the market in which a given company operates. It is useful to bear in mind that an SME can be active on more than one market.

The top 3 industry sectors in which SME Instrument companies are active are medical and healthcare (543 SMEs), cleantech (360 SMEs) and energy (330 SMEs) sectors (see Figure 23)²⁰. This result is correlated with the fact that a large budget is available for companies in the 3 topics corresponding to these industries, and consequently more companies are funded in these topics. The ICT topic (Open and Disruptive Innovation), which holds the second highest budget in the SME Instrument, is also the most open and transversal one, meaning that it is spread among many of these industries, notably analytics, semiconductors, robotics, security etc.

As of 2018, following the creation of the European Innovation Council pilot, the SME Instrument became a fully bottom-up scheme, without predefined topics. This might shift the distribution of sectors within the SME Instrument portfolio (see info about European Innovation Council pilot in section 1.1)

²⁰ One SME can be tagged under 2 or 3 industries, in the analysis it is counted for each of the industries it is tagged for.

Figure 23 Distribution by industry of SME Instrument companies (Top 20 Industries)



Source: EASME, Dealroom

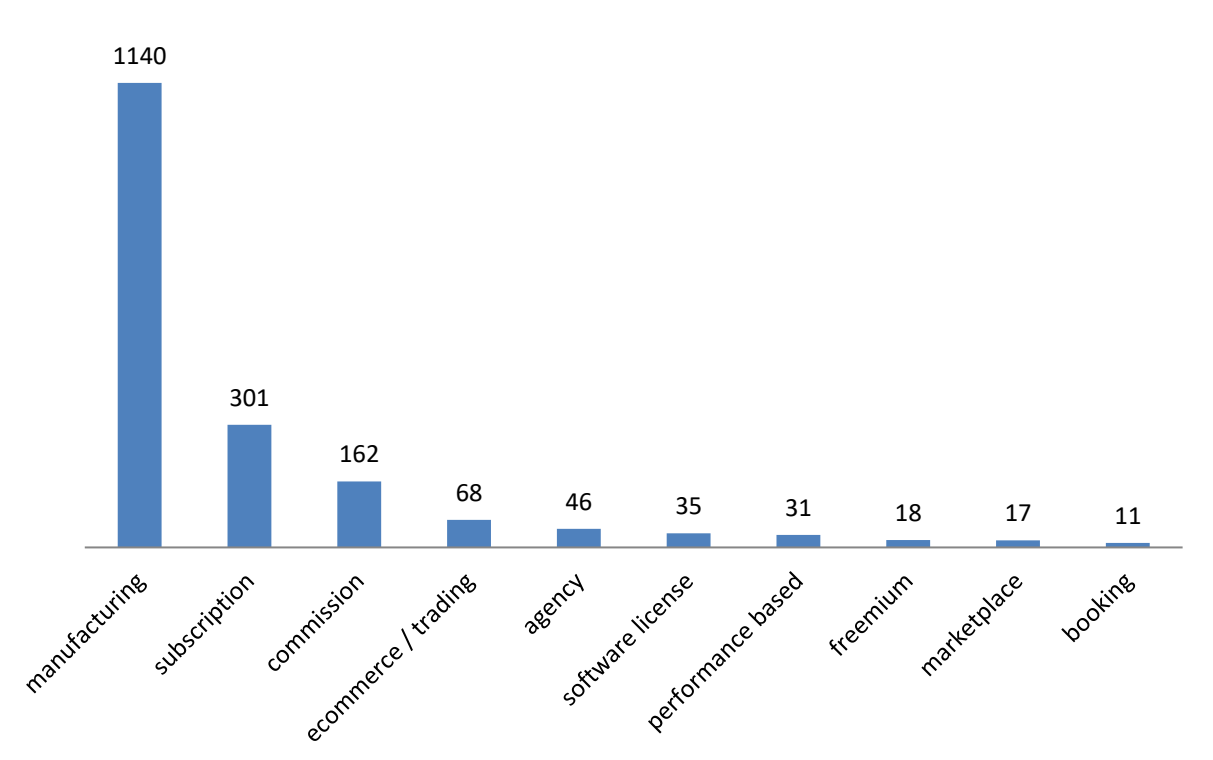
Definitions for some of the industries:

Analytics	Companies that provide data analysis, statistical insights, predictive trends
Back office	Middle or back office company functions: HR, payrolls, accounting
Home	Includes everything home related, from flower deliveries to furniture and home security, home electronics, and connected home
Content	Media, news, photos, videos, social networks
Collaboration	Anything businesses can use to work together more efficiently, for example documents signing or messaging
Agency	Companies that provide a service but do not build any tech product, for example consultancy companies

The next part of the analysis outlines the distribution of companies according to their revenue model (see Figure 24). As for the industries, a company can have more than one revenue model. Manufacturing is the top revenue model chosen by the majority of SME Instrument companies (1140). It is followed by Subscription (301), Commission (162), Ecommerce/Trading (68), Agency (46) and Software Licence (35).

Manufacturing is the most common revenue model for SME Instrument companies

Figure 24 Distribution by revenue model of SME Instrument companies (Top 10 Revenue Models)



Source: EASME, Dealroom

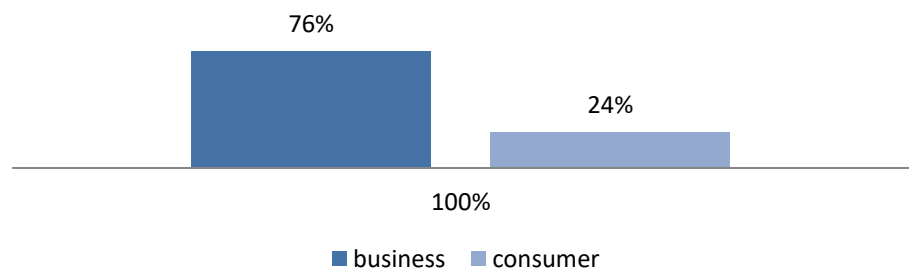
Revenue Model definition:	
Manufacturing	Sale of produced goods
Subscription	Recurring payment: monthly, yearly
Commission	Business charges a fee for a transaction that it facilitates between two parties
Marketplace	Where offer and demand meet, but plays a big role in securing the exchange (for example takes care of the payment)
Freemium	Offering a product or service free of charge while charging a premium for advanced features
Agency	Companies that provide a service but do not build any tech product, e.g. consultancy companies
Ecommerce/trading	This revenue model is the implementation of any of the other revenue models online

When it comes to customers, a large majority (76%) of SME Instrument companies address B2B users with their product or service. One fourth concentrate on B2C (see

76% of SME Instrument companies address B2B users

Figure 25).

Figure 25 SME Instrument companies' preferred clients

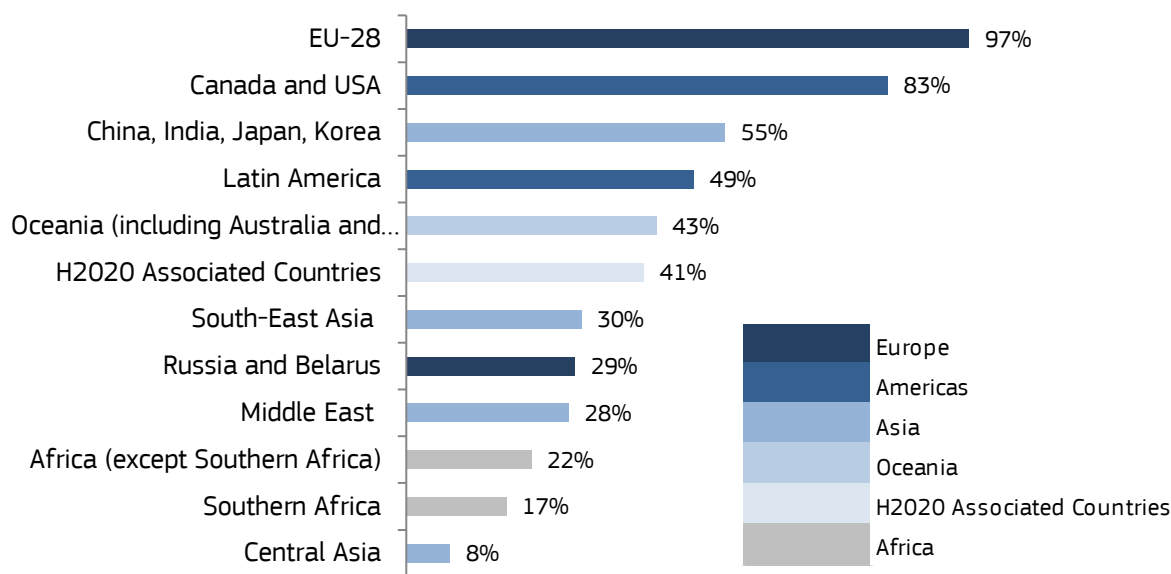


Source: EASME, Dealroom

2.4. Geographic target markets

In order to be selected for funding, companies applying for the SME Instrument must have the ambition to grow beyond national borders on a European, if not global, scale. Funded SMEs were surveyed to collect information about their preferred geographical target markets. According to the 93 responding companies surveyed in January 2017, the most popular destinations are EU-28 countries (97%) and Northern America (mostly the USA and Canada) (83%). About half of the companies consider doing business in China, India, Japan and Korea (55%), Latin America (49%), Oceania including Australia and New Zealand (43%) and the Horizon 2020 associated countries (41%). Around a quarter of respondents, envisage entering the African market (see Figure 26).

Figure 26 Geographic target markets of SME Instrument companies

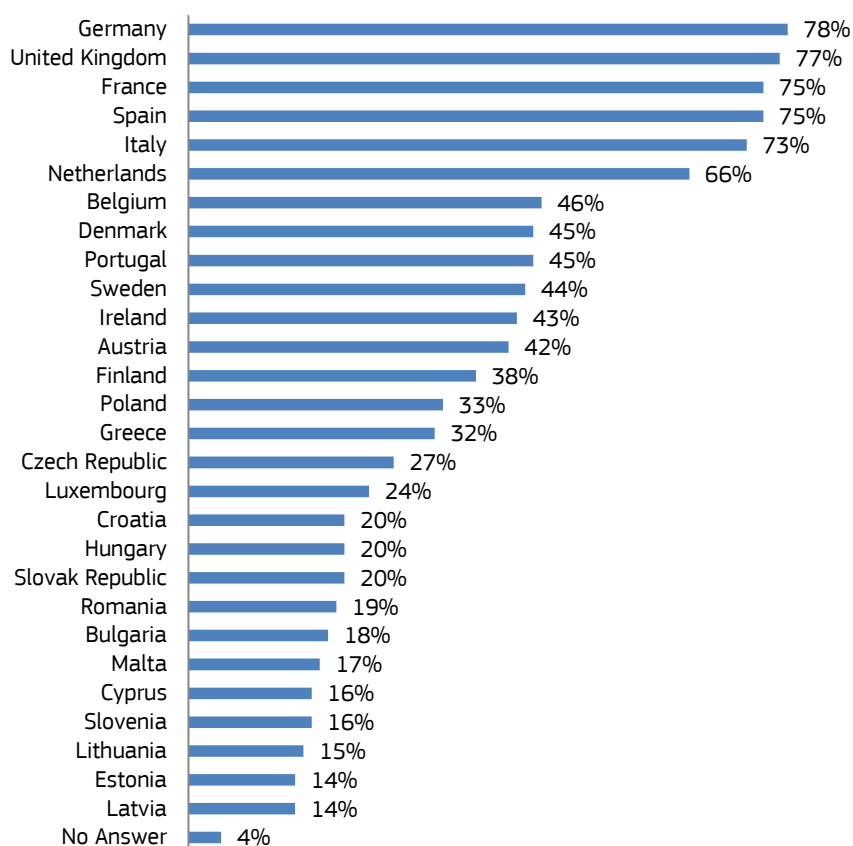


Source: EASME

Latin America	Mexico and Central America (Belize, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panama, Mexico); South America (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela), Caribbean Islands
Oceania	Australia, New Zealand, Pacific countries
H2020 Associated Countries	Iceland, Norway, Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Montenegro, Serbia, Turkey, Israel, Moldova, Switzerland, Faroe Islands, Ukraine, Tunisia, Georgia, Armenia;
South-East Asia	Singapore, Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Viet Nam, Philippines, Thailand;
Central Asia	Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan
Middle East	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates, Iran, Iraq and Yemen
Southern Africa	Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe;
Africa (except Southern Africa):	Northern Africa (Algeria, Egypt, Libya, Morocco, Sudan, Tunisia, Lebanon and Western Sahara), Western Africa (Benin, Burkina Faso, the island nation of Cape Verde, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Mali, Mauritania, Niger, Nigeria, the island of Saint Helena, Senegal, Sierra Leone, São Tomé and Príncipe and Togo), Indian Ocean (Comoros, Mauritius and Seychelles, Réunion and Mayotte), Central Africa (Burundi, the Central African Republic, Chad, the Democratic Republic of the Congo, Rwanda, Angola, Cameroon, the Central African Republic, Equatorial Guinea, Gabon, São Tomé and Príncipe), Horn of Africa (Djibouti, Eritrea, Ethiopia and Somalia).

Among the EU-28 countries, Germany (78%) and United Kingdom (77%) were the most attractive destinations, closely followed by France, Spain and Italy. Almost half of the interviewees gravitate towards Northern Europe and Portugal. Around one fifth mentioned Eastern European and the Baltic countries as business destinations (see Figure 27).

Figure 27 SME Instrument most targeted markets in EU28



Source: EASME

3. Performance of SME Instrument portfolio companies

The main objective of the SME Instrument is to support growth of innovative companies in Europe. It contributes to this aim by supporting companies in the final development and putting innovative solutions on the market. It provides funding where private investors do not dare to step in. It helps companies to reorient their strategy towards scaling up through coaching. It also connects them with international networks of partners, investors and possible lead clients. This support is a de-risking factor for further private investors as the SME Instrument helps companies to validate their solutions on the market. Further Series A, B and C investments are often needed to fully scale-up the businesses.



“The SME Instrument is de-risking technology that can be game changing and by that it enables the company to attract also private money that will stimulate their growth.”

Kristin Aamodt, Statoil Technology Invest

To measure the success of the SME Instrument, EASME monitors the portfolio in terms of:

- Private equity investments acquired after entering SME Instrument programme (soft blended finance)
- Initial Public Offerings (IPOs) and acquisitions
- Leverage effect of further private funding (equity, debt, IPO, M&A) per each euro invested by the SME Instrument
- Actual growth of supported companies in terms of turnover, employment and assets
- Change in liquidity and profitability
- Valuations

These results will not happen in the same time span. The private equity investments are expected to come first, even before the first revenues. The growth potential needs more time to be realised fully. While we can start measuring the five indicators now, as SME Instrument companies are a very heterogeneous group at different stages of their life cycle (see chapter 2.2), the full results will only become visible in several years' time.

The data about private investment has been collected in collaboration with Dealroom²¹, a Dutch company using big data technologies to scan the Internet and other sources in search for publicly available data about innovative companies. It monitors the progress of private companies by tracking indicators of innovation and growth, such as investments (both venture funding and to a lesser extent government grants), exits (IPO, merger & acquisition), accelerator support etc. The reliability of the information has been confirmed through verifications. It covers 85% of all transactions, given that some investment rounds are not disclosed. **Therefore, the following**

²¹ <https://dealroom.co/>

analysis provides an estimated overview of the situation, and the actual numbers are likely to be higher overall.

In January 2018, Dealroom collected data about funding gathered by the SME Instrument portfolio companies after the SME Instrument funding decision until the end of 2017. In total, 2921 companies (2135 Phase 1 and 786 Phase 2) were scanned and mapped.

An analysis of the growth of companies used two different methodologies and two sources of information. The macroeconomic analysis was made by DG RTD based on the Orbis database of companies managed by Bureau Van Dyck. The microeconomic version was performed by EASME using data provided by companies themselves through project reporting.

These two sources of information were complemented with data gathered by EASME project officers who are in contact with SME Instrument companies.

3.1. Leverage of private funding – soft blending power of the SME Instrument

One of the intended results of the SME Instrument is that it will reduce the perception of risk by potential investors and lenders, leading to a greater propensity to invest or to offer lower interest rates and less onerous requirements for collateral. This effect is called “soft blending”; it is a grant that later attracts private funding.

SME Instrument is a soft blending tool:

Only 4 years after the start of SME Instrument, each 1€ invested generated already €1.6 of further investments

A significant indicator of the programme's blending power is the leverage effect, which is the amount of private funding leveraged per €1 of SME Instrument funding invested in the companies.

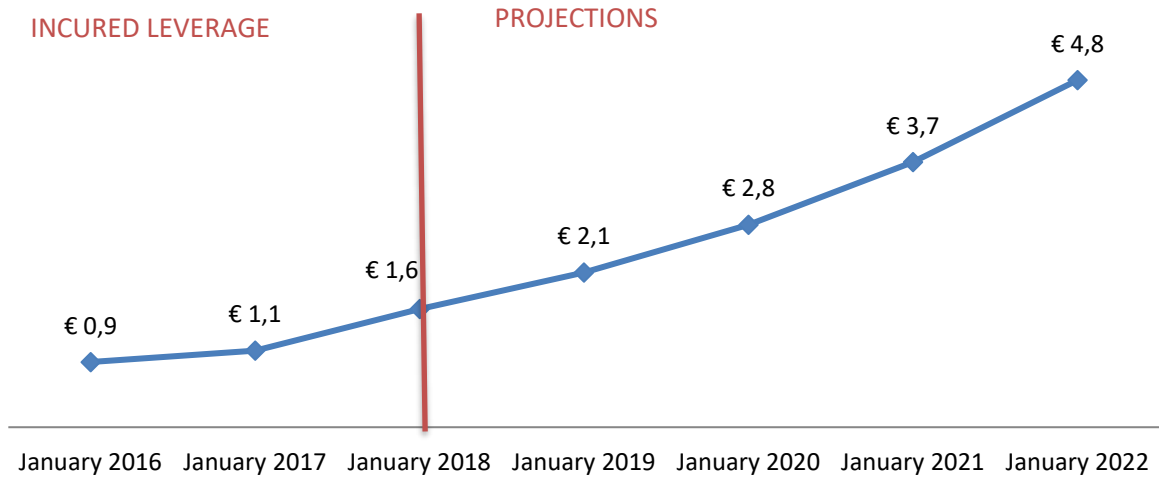
From the beginning of the programme until the end of 2017, SME Instrument funded companies have collected **€1.35bn of private follow-on funding**. €966 million (71%) came from equity investments and the remaining amount from debt funding, IPOs and acquisitions. At the same time, a total of €830 million was paid to the companies from the SME Instrument budget²². **Therefore, only 4 years after the start of the SME Instrument, each €1 invested by the EU generated €1.6 of private investment.**

This amount has increased over time as the leverage effect started to reveal its full potential. Over 2 years, it has increased from €0.9 to €1.6. Moreover, projections show that it should reach €4.8 at the end of 2021, 7.5 years after the start of the programme ([see Figure 28](#)). As a matter of

²² The actual payments to the SME Instrument companies amount to €830 million, whereas the total EC contribution indicated in the grant agreements is €1.3 bn committed up until the end of 2017.

comparison, the fund of funds run by Bpifrance, which is a financial instrument, had a leverage effect of 1:5²³.

Figure 28 Private funding leveraged per €1 invested by SME Instrument



Source: Dealroom and EASME

The high and increasing leverage effect confirms that the SME Instrument plays a positive role in helping the companies attract further investors. The companies themselves confirm that the SME Instrument has accelerated their growth and attracted new clients and investments (see the story of Skeleton technologies below).



<http://www.skeleontech.com>



Sector Energy/Nanotechnology
Phase 1,2 2,488,763 €
Estonia

Scaled up its production of graphene-based energy storage devices

Skeleton Technologies produces graphene-based ultracapacitors – extremely powerful energy storage devices used in hybrid trucks, cars and buses, wind turbines, power grids, and even satellites. Skeleton Technologies participated in two collaborative research actions under FP7 – the EU’s previous Research and Innovation funding programme. In 2014, under the current funding programme, the company

²³ BpiFrance’s Activity Report 2017 <http://www.bpifrance.com/Bpifrance-Fresh-News/Bpifrance-s-Activity-Report-2017>

Taavi Madiberk, CEO:

"The SMEI has had a major impact on our business. We received 2.5. M financing but on top of that, we have managed to unlock 42 m of financing from VC, private equity and EIB. The SMEI allowed us to focus on our core technology, which is graphene, so that we managed to take this technology even further and sign contracts with new customers ranging from Sumitomo to European Space Agency".

got SME Instrument Phase 1 funding that allowed it to make a feasibility study for the production technology of ultracapacitors. A subsequent €2.5 million Phase 2 funding enabled the development of the technology at industrial scale. In 2017 Skeleton Technologies received a €15 million quasi-equity loan from the European Investment Bank and opened a new manufacturing facility in Germany.

3.2. Private equity investments attracted

The amount of private equity investments raised by the companies after receiving SME Instrument funding is an important indicator that can perform as a proxy for expected growth and market validation of the innovation's potential.

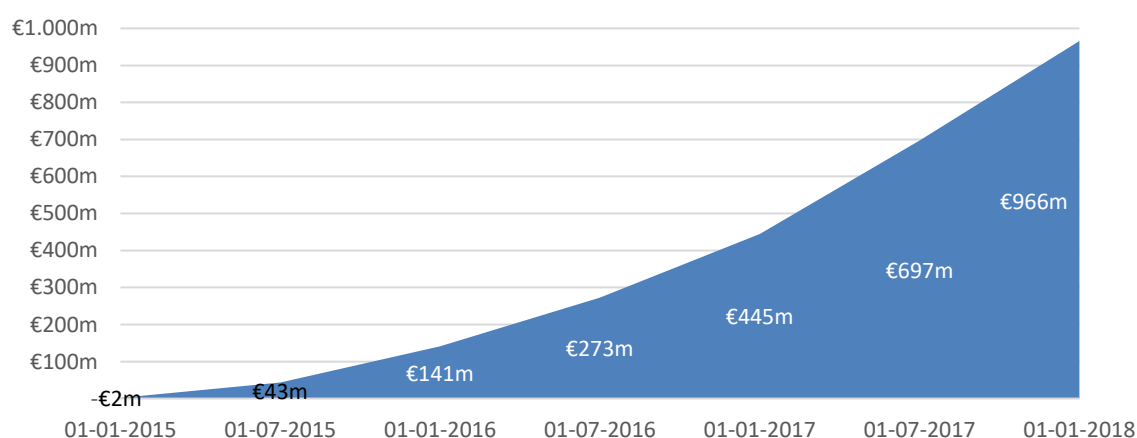
At the end of 2016, further private equity investments gathered by SME Instrument companies amounted to €445 million, a record at the time.

The amount of private equity investments gathered by SME Instrument companies doubled within a year

During 2017, this amount

doubled, bringing the total to €966 million since the beginning of the programme, with 154 companies receiving further investments. As a matter of comparison, follow up investment of Techstars funded companies reached \$4.5 billion after 12 years of programme existence²⁴.

Figure 29 Private equity acquired by SME Instrument companies



²⁴ <https://www.techstars.com/startup-accelerator/>

Source: Dealroom

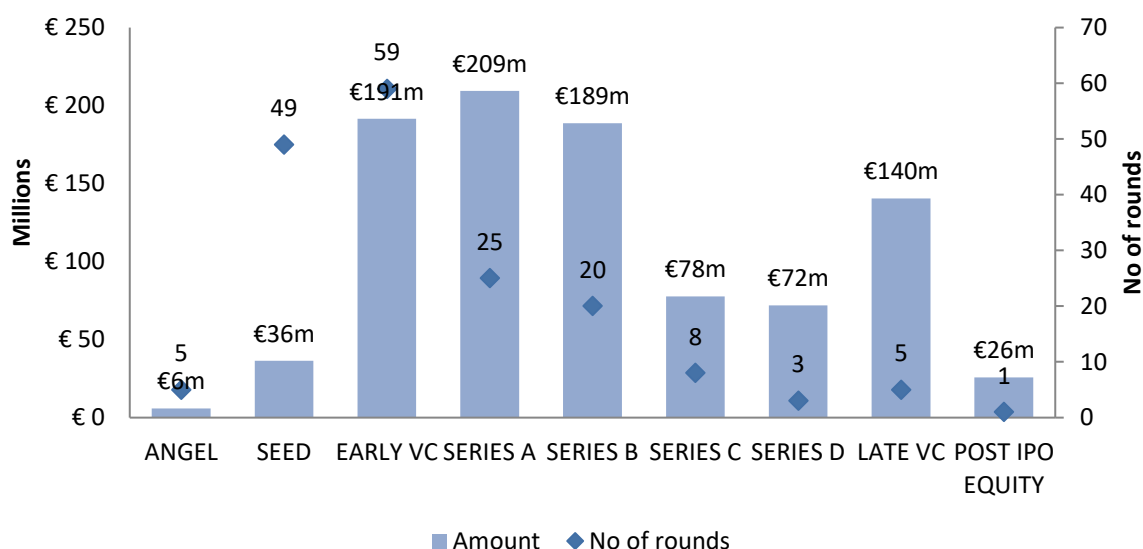
Out of 2921 mapped companies, 154 companies received further investments. 95 were selected for funding under Phase 1 and 59 under Phase 2. The latter group represents 10% of all Phase 2 companies selected before the end of 2017 and 15% of all Phase 2 companies that went at least 1 year into the programme. This ratio is similar to the one used by Venture Capital firms where 2 out of 10 investments bring sufficient results to pay for the failure of 8 others.

SME Instrument bridges the gap between seed and early VC funding and helps companies get started on the capital market

The average funding per company is €6.2 million.

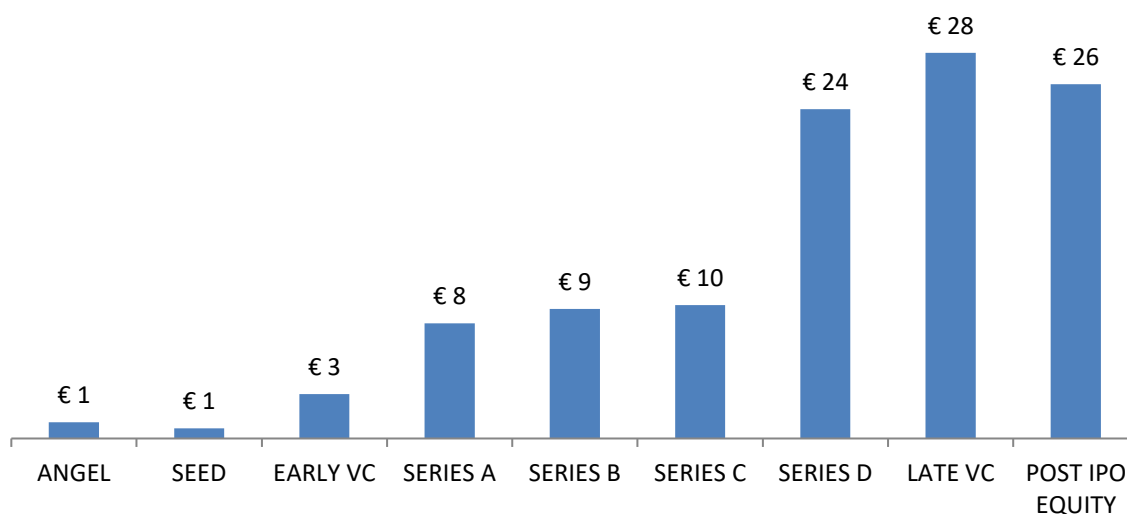
The funding was collected in 193 rounds that were mainly Early VC funding, both in terms of number of rounds and total amount. The average for this type of round was €3 million (see Figure 30 and Figure 31 below). It shows that the SME Instrument grant can bridge the gap between the seed funding and early VC funding and help companies to get started on the capital market.

Figure 30 Types of post SME Instrument rounds



Source: Dealroom

Figure 31 Average amount per round type of post SME Instrument funding



Source: Dealroom

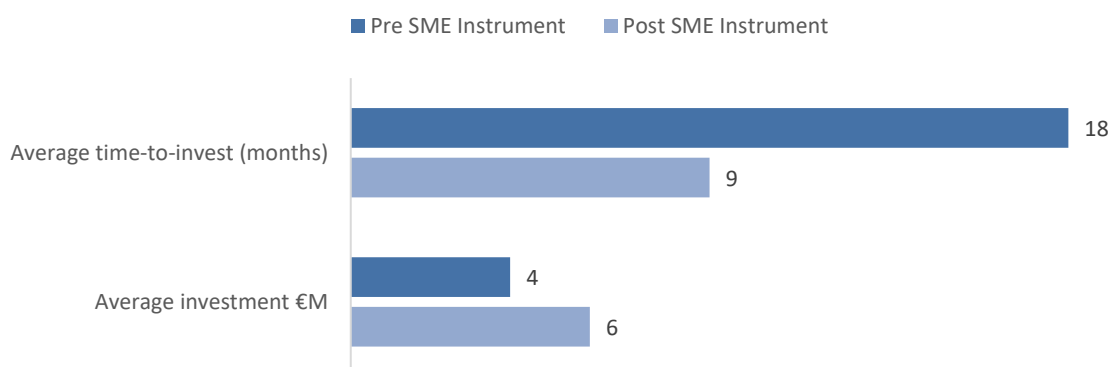
The comparison of investment patterns before and after the grant shows that companies raised higher rounds after the SME Instrument funding: on average €6 million compared with €4 million before the grant (See Figure 32).

After the SME Instrument funding companies raise higher investment rounds (€6M) than before (€4M)

Additionally, companies got new investments much faster after obtaining support from the SME Instrument. Before the grant, companies needed an average of 18 months to obtain the next round of investments, while after the grant this way reduced to 9 months. This shows that the SME Instrument speeds up time to investment 2 times.

The SME Instrument speeds up time-to-investment:
Before obtaining SME Instrument funding, companies needed on average 18 months to get the next investment compared to only 9 months after the grant.

Figure 32 Average amount of investment and time-to-invest pre- and post-SME Instrument



Source: Dealroom

Companies that so far has attracted the highest private investments after SME Instrument are Kiosked and Arralis with €50 million each. Ada Health has received the highest single round of post-SME Instrument funding so far with €40 million of Series A from Berlin- and London-based investors. According to the State of European tech Report, this was among the top 10 largest investments in Europe in 2017 ²⁵.

Table 3 Top 10 Phase 2 SMEs attracting private investment after the SME Instrument funding

Company Name	Country	Industry	Total investment after SMEI funding (M€)
Kiosked	Finland	Marketing	51
Arralis	Ireland	Aviation	50
Ada Health	Germany	AI, Healthcare	40
Ultrahaptics	United Kingdom	Analytics/Developer tools	32
Sol Voltaics	Sweden	Nanotechnology	31
AlphaSense	Finland	Fintech, Analytics	30
Infarm	Germany	Food	27
Swap.com	Finland	Directory, Fashion	23
PragmatIC	United Kingdom	IoT Semiconductors	22
Acast	Sweden	Media	18

Source: Dealroom

²⁵ <https://2017.stateofeuropeantech.com/>



Sector
Phase 2
Germany

Artificial
intelligence
2.408.313 €

<https://ada.com/>

Raised €40 million using artificial intelligence for personalised care



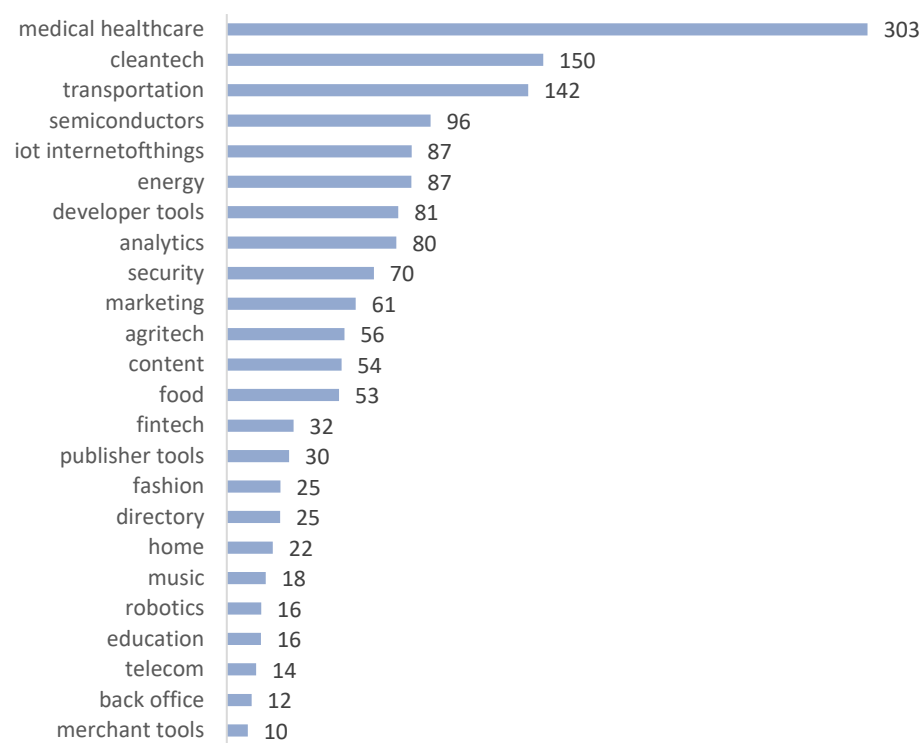
Daniel Nathrath, CEO

"Getting approved for the SME Instrument has been very positive for our development because, at the time, we had been working on our technology for quite a while, and getting this type of validation from the EU was a real plus for us. It has both reassured our shareholders and been positive in our conversations with prospective investors."

Ada Health offers new levels of personalised care and treatment with a mobile application that combines artificial intelligence (AI) and doctors' insights. Ada Health received an SME Instrument grant in 2015 and announced in October 2017 its first institutional funding round worth €40 million led by Access Industries, Len Blavatnik's global investment group. June Fund, the global technology investor whose backers include Google's Chief Business Officer Philipp Schindler, joined the round, as well as Berlin-based Cumberland VC and William Tunstall-Pedoe, the AI entrepreneur behind Amazon Alexa. The SME Instrument enabled Ada to add on key operational and R&D resources, contributing to Ada's overall company expansion to 100 employees across Berlin, Munich and London.

In terms of sectors, companies in the medical/healthcare industry attracted by far the highest amount of investments after the SME Instrument grant with €303 million invested overall. They are followed by cleantech with €150 million and transportation with €142 million. This result is in line with the general distribution of sectors among SME Instrument companies with the medical/healthcare industry followed by cleantech and energy constituting the top 3 sectors represented (see Figure 33).

Figure 33 Post SME Instrument Investments by industry sector (€M)



Source: Dealroom

3.3. Who invests in SME Instrument companies?

Investors prefer in general to invest locally. According to the State of European Tech Report, two-thirds of investments in Europe in 2017 were within the same country. Out of all investment rounds received by companies after SME Instrument funding, 23% were cross-border. As a matter of comparison, only 13% of investments in Dealroom were cross-border. The Business Acceleration Services that are available to SME Instrument companies help expose them to international investors and enhance their international expansion in general.

23% of investments in SME Instrument companies came from another country compared to 13% in Dealroom

The majority of investments in the funded companies came from Western and Northern Europe (75%). They were injected essentially in the same two regions (see Table 4). 15% of investments came from the US and 4% from China. As a matter of comparison, according to State of European Tech Report, Chinese investments represented 9.5% of all investments in Europe in 2017. The SME Instrument companies attract investors predominantly from Europe.

Table 4 SME Instrument private equity investments: matrix of investment sources and destinations

To↓	From→						Total
	Northern Europe	Western Europe	Southern Europe	Eastern Europe	United States	China	
Northern Europe	23%	4%	0%	0%	1%	2%	30%
Western Europe	9%	36%	0%	1%	14%	0%	59%
Southern Europe	0%	2%	2%	0%	0%	0%	5%
Eastern Europe	1%	2%	0%	2%	0%	2%	6%
Total	32%	43%	3%	3%	15%	4%	100%

Source: Dealroom

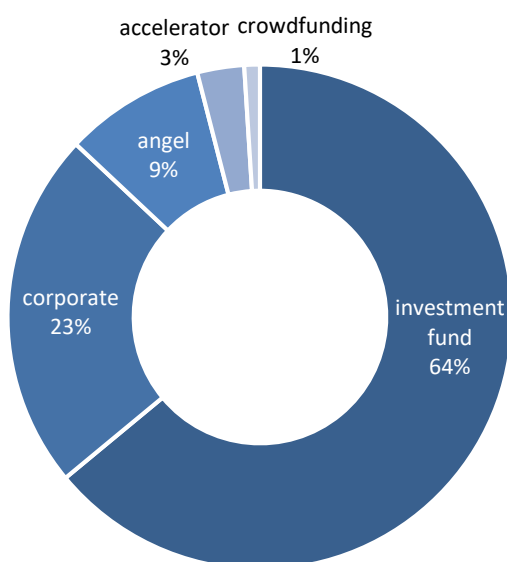
An increasing number of corporate investors turned to SME Instrument companies in 2017. We see an increase in investments from this group from 13% at the end of 2016 to 23% at the end of 2017. This reflects the overall trend in Europe, where investments coming from corporate investors increased over time to represent 25% of all investments in 2017²⁶. Nonetheless, Professional Investment funds remain the largest group investing in SME instrument companies, accounting for 64% of all investments. Angel funding, on the other hand, represents 9% (see Figure 34).

Crowdfunding accounts for only 1% of all investments made in SME Instrument-funded companies. This is not surprising as only around 5% of companies (Phase 1) look for further funding through

²⁶ State of European Tech 2017

crowdfunding²⁷. The most popular crowdfunding platforms are CrowdCube, Ourcrowd, Seedrs and The Crowd Angel. As far as we know, the most successful crowdfunding campaign was carried out by Hybrid Air Vehicles Limited and facilitated by CrowdCube. The company collected €2.6 million in total.

Figure 34 Type of Investors supporting SME Instrument companies (% of total investments)



Source: Dealroom

The following **Table 5** presents the top investors in companies selected under the SME Instrument. The top 3 investors are the Swedish Industrifonden with €103.9 million invested in SME Instrument-funded companies, the US and Mexico based Investo with €62 million and the UK-based Woodford Investment Management €35 million.

Table 5 Top Investors into SME Instrument companies

Top 5 investors	Type	Description	Amount invested (M€)
Industrifonden (SE)	investment fund	Founded in 1979. Nordic evergreen venture capital firm with \$500 million in assets, focusing on technology and life science. Until 2014 provided 1,000 companies with more than SEK 15 billion (€1.6 billion). Verticals: IT, Telecom, Internet/Media, Electronics, Life Sciences, Industry, Energy and Environmental Technology (Cleantech). Type of investment: Seed, Early Stage Venture and Later Stage Venture Investments.	103.9
Investo	investment fund	Founded in 2012, Investo is based in San Francisco and Mexico City. It is a seed capital firm that invests both financial and intellectual capital in technology startups. The firm offers founders 24/7 access to advice and helps scale businesses, as well as provide key talent that may be needed.	62.0

²⁷ According to Phase 1 final reports

		Verticals: Technology startups Type of Investment: Seed, Venture Capital	
Woodford Investment Management	investment fund	Private equity firm based in Oxford, UK. It is focusing on long term investments in companies with sustainable growth prospects. Typically invests \$ 20M - 50M per deal - in late growth, mature companies Type of Investment: Early Stage Venture, Private Equity	35.1
Lifeline Ventures Oy	investment fund	Founded in 2009. Venture capital firm. Targets investments between €0.5 million and €1 million. Verticals: Games, Social Games, Mobile Type of investment: Seed, Early Stage Venture.	33.3
Caixa Capital	corporate venture fund	Founded in 2004. Institutional investor providing equity (37 companies in the portfolio) and convertible loans (78 companies) to innovative companies in their early stages. Manages a capital of €154 million and invests mainly in Spanish companies. Verticals: Healthcare, Industrial Technology, Biotechnology, Software, E-Commerce, Cleantech. Type of investment: Invest in the Seed Phase and support SMEs during the Series A and B rounds.	29.5

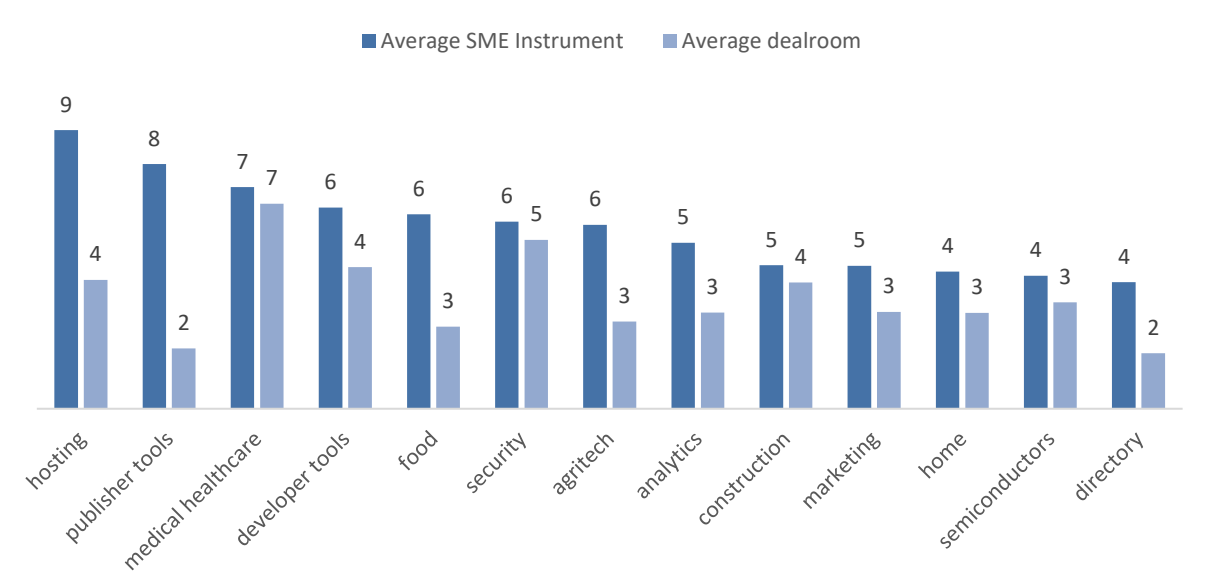
Source: Crunchbase & Dealroom

3.4. Where are the best performing SME Instrument companies?

The SME Instrument is supporting market-creating SMEs, often working in niche areas. The aim of this chapter is to analyse which industries and revenue models within the SME Instrument portfolio are the most prominent. It also aims to determine where the biggest assets of the programme are. In this chapter, the analysis concentrates on the total amount of private investments acquired by the companies before and after the grant.

A comparison between the average investment received by SME Instrument-funded companies and the average of the industry as recorded by Dealroom was carried out to identify the benchmark of the performance of SME Instrument-funded companies in terms of investment gathered. **Figure 35** shows the top performing industries – industry sectors in which funded companies raised higher investments rounds than the average. SME Instrument-funded companies in Hosting, Publisher tools, Medical Healthcare, Developer tools, Food, Security, Agritech, Analytics, Construction, Marketing, Home, Semiconductors and Directory outperform their industry average.

Figure 35 Top industries where SME Instrument-funded companies perform better in terms of investments than the industry average (€M)

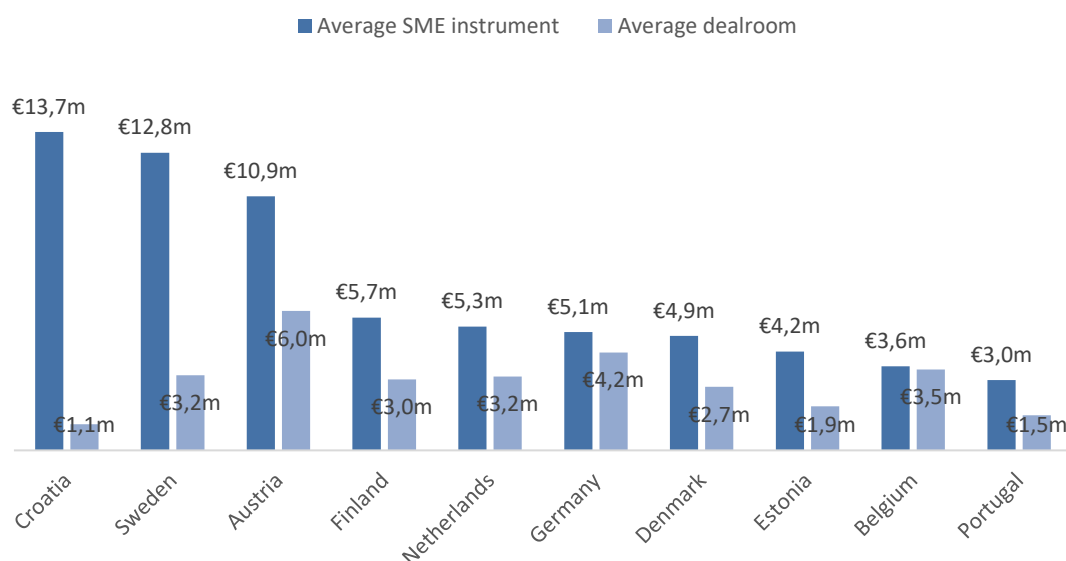


Source: Dealroom

The comparison between the average investments gathered by companies funded under the SME Instrument and their country average (Dealroom data) show that in certain countries SME Instrument-funded companies exceed what their compatriots usually raise in terms of private investment. This is the case especially in the Netherlands, Germany, Croatia, Sweden, Denmark, Estonia, Finland, Belgium, Austria and Portugal (see [Figure 36](#)). This shows that in these countries the SME Instrument attracts particularly well performing SMEs.

SME Instrument attracts particularly well performing SMEs in Croatia, Sweden, Austria, Finland, the Netherlands and Germany where they receive on average higher funding than their compatriots.

Figure 36 Top 10 countries where SME Instrument-funded companies perform better in terms of investment than the country average (€M)



Source: Dealroom

3.5. IPOs and acquisitions

In equity-based investment, acquisition and IPOs are possible exits for investors. The SME Instrument is equity free investment, but IPOs and acquisitions are nonetheless closely monitored as a proxy for growth and market validation in funded companies.

Stock exchanges are exclusive clubs - their reputation rests on the companies they trade. As such, the stock exchange will not allow just any company to be traded on its exchange. Only companies with a solid history and top-notch management are considered. Therefore, being listed on a stock exchange is more than an injection of cash in the company; it is a quality stamp. As main markets on major stock exchanges are reserved for more established companies, there are other markets targeted towards small and growing companies, for example Nasdaq's First North Europe²⁸. Using a less extensive rulebook than the main market, First North gives companies more space to focus on their business and development while benefitting from the advantages of being a listed company. Unlike

SME Instrument backed IPOs accounted for almost 10% of all European tech IPOs in 2017 (according to State of European Tech Report)

So far SME Instrument has registered 8 IPOs and 18 acquisitions

companies on the regulated main market, every company on First North has a Certified Adviser to ensure that companies comply with all requirements and rules. Many large and established

²⁸ http://www.nasdaqomxnordic.com/about_us/firstnorth

companies begin their journey on First North, creating growth and gaining experience before moving on to a regulated main market.

So far, eight SME Instrument-funded companies have done their Initial Public Offerings (IPOs), and five of these were in 2017. This means that the SME Instrument accounts for 8.5% of all European tech IPOs in 2017²⁹. All these IPOs happened in Sweden, mainly with Nasdaq's First North Europe based in Stockholm. All except for one concern Swedish companies (see Table 6) – the geographical proximity with Nasdaq First North played a decisive role. This is the result only four years after the start of the SME Instrument programme and IPOs are expected to multiply in the years to come. As a point of comparison, according to Crunchbase³⁰, High Tech Gründerfond, Germany's most active and leading seed stage investor created in 2005 has invested in 461 companies and has so far had two IPO exits.

Table 6 SME Instrument backed IPOs

Company name	Country	Industry	Date
Senzagen	SE	Health/Cosmetics	Sept. 17
Klappir	IS	Clean tech	Sept. 17
Bonesupport	SE	HealthCare	June 17
Mantex	SE	Biomass /bio energy	May 17
Biovica	SE	Healthcare	March 17
Finepart	SE	Production technologies	Dec. 16
Svenska aerogel	SE	Manufacturing/ clean tech	Dec. 16
Immunovia	SE	Medical Equipment & Devices	Dec. 15

Source: Dealroom & EASME

²⁹ According to [State of European Tech Report](#), there were 38 IPOs in Europe in 2017 in the technology area, biotech without ICT component excluded. 3 of the SME Instrument backed IPOs in 2017 fall under this definition that correspond to 8% of all tech IPOs in Europe.

³⁰ <https://www.crunchbase.com/organization/high-tech-gruenderfonds#/entity>



Sector
Phase 2
Sweden

Health
technologies
2.421.800 €

<http://www.senzagen.com>

Floats on the stock market with its allergy test that uses an alternative to animal testing



Anki Malmberg, CEO

"SME Instrument played a tremendous role for SenzaGen. It helped us place SenzaGen on Nasdaq First North and gave us a lot of credibility as a company. We would never have been able to develop our product with the same speed without the help of the EU. The SME Instrument is very important for small companies to get to the market, create jobs and launch new products."

SenzaGen is developing the first in vitro test that can detect air-borne chemicals that cause respiratory allergies, by using a unique gene technology. Their product GARDair™ is also the first cell-based alternative to animal testing for the respiratory tract. In 2016 SenzaGen received an SME Instrument grant to develop the test and subsequently signed a deal with a global pharmaceutical company for GARDair™ to commercialise it. In September 2017 the company became one of the eight companies funded by the SME Instrument to float on Nasdaq First North.

Eighteen companies funded by the SME Instrument have been acquired. Large European companies were responsible for 70% of these acquisitions. This corresponds to a general trend in Europe as 70% of acquirers of European tech companies are based in Europe³¹. Acquisition does not necessarily mean that the SME ceases to exist. For the French company Payplug, for example, being acquired was an important step in its development. The acquirer was Natixis, a French banking group. Natixis invested €7 million in equity in Payplug and became a majority shareholder. Payplug remains an independent and autonomous company with no human resources or accounting integration. There were no changes regarding the innovation plan. Moreover, the IP and the licences stays under Payplug. The acquirer Natixis is fully committed to accelerating the development of Payplug, and introduction of their on-line payment solution to the international market.

³¹ <https://2017.stateofeuropeantech.com/chapter/success-stories-exits/article/europe-track-another-75-exit-value-2017/>

Table 7 SME Instrument backed acquisitions

Company name	Country	Industry	Acquirer	Date
Luxcel	IE	Medical, healthcare	Agilent (US)	Dec. 17
Electricity Distribution Services Ltd (EDS)	UK	Energy	James Ficher (UK)	Nov. 17
Icar	ES	Security	Mitek Systems (US)	Oct. 17
Digicash payment	LU	Fintech	Payconiq (NL)	Aug. 17
Comnovo	DE	Hardware	Linde Material Handling (DE)	July 17
PIDSO	AT	ICT	Riedel Communications (DE)	July 17
Carriots	SE	IOT	Altair (US)	June 17
Hydro International	IE	Wastewater	BHSL (IE)	June 17
Finesse Medical Ltd	IE	Biomaterial/medical	Avery Dennison (US)	May 17
PayPlug	FR	Fintech	Natixis (FR)	April 17
Amminex	DK	Transportation	Faurecia (FR)	March 17
GiGiGo	ES	Software	Digital Dimension/ECONOCOM (FR)	Feb. 17
ARCAM	SE	Manufacturing	GE (US)	Dec. 16
Sividon Diagnostics	DE	Manufacturing/ Health Care	Myriad (CH)	May 16
Fianium	UK	Laser	NKT photonics (DK)	March 16
Funbricks (Chimigraf)	ES	Food	Kao (international, Japan)	Jan. 16
Multiposting	FR	HR	SAP (DE)	Oct. 15
Ubeeqo / Carbox	FR	Transportation	Europcar (FR)	Jan. 15

Source: EASME



Tue Johannesson, CTO

"The SME Instrument is important for companies like ours to be able to grow in an efficient way, mature technology and expand on a global market. The SME Instrument was important for us in both proving the ability of our innovation to reach future emission targets as well as having a global company such as Faurecia becoming a majority shareholder."

Sector
Phase 1,2
Denmark

Air pollution
1.896.902 €

Got acquired by a big player for its technology that curbs air pollution from cars

Amminex' ASDS technology offers a beyond state-of-the-art solution that virtually eliminates harmful NOx emissions from exhaust of diesel engines. The technology works under real-world driving conditions, in particular in the context of slow, urban driving. The medium-sized company received an SME Instrument Phase 2 grant in 2015 to develop the system for light-duty vehicles and diesel passenger cars. The technology has already been installed in Copenhagen and Seoul and the Mayor of London recently announced that over half of the city's fleet of double-deckers would carry this retrofit technology. In 2016 Amminex Emissions Technology was acquired by Faurecia (91.5 %) and Nordea-fonden (8.5 %). Since it received the grant, the company has grown to around 55 employees. In addition, in 2018 Amminex received a Horizon Prize for clean air.

3.6. Does the SME Instrument help companies grow?

The real growth of funded companies can be measured in change in turnover rates and the number of staff. Two analyses were performed using different source of information:

20 months after receiving the SME Instrument funding, Phase 2 companies grow on average by 118% in terms of turnover and 158% in terms of employment

1/ Self-declared data about employment and jobs taken from periodic and final reports of Phase 2 companies

2/ Financial information on Phase 2 companies from the Orbis database³², compiling different sources of official information, including national registries

For the first analysis, data about company financials are collected via the official project reports of Phase 2 companies. Out of around 400 companies that reached at least the first reporting period in January 2018, information was available for **246 companies**, all between one and maximum three

³² <https://orbis.bvdinfo.com/version-2018410/home.serv?product=OrbisNeo>

years into their project, many already finalised. This information is still very preliminary, but it gives an idea of the programme's impact, which will be fully revealed in the coming years. The reported data were compared with information provided at the start of the project.

Out of these 246 Phase 2 companies, 169 have recorded an increase in turnover while 77 recorded a decrease or no changes since the start of the project. On average, the studied population grew by 118% over the period of 20 months. The net total turnover creation was €197 million.

In terms of employment, 194 companies have recorded an increase while 52 recorded a decrease or no changes since the start of the project. On average, the companies grew by 158% over a period of 20 months. The net employment creation was 4795 new jobs.

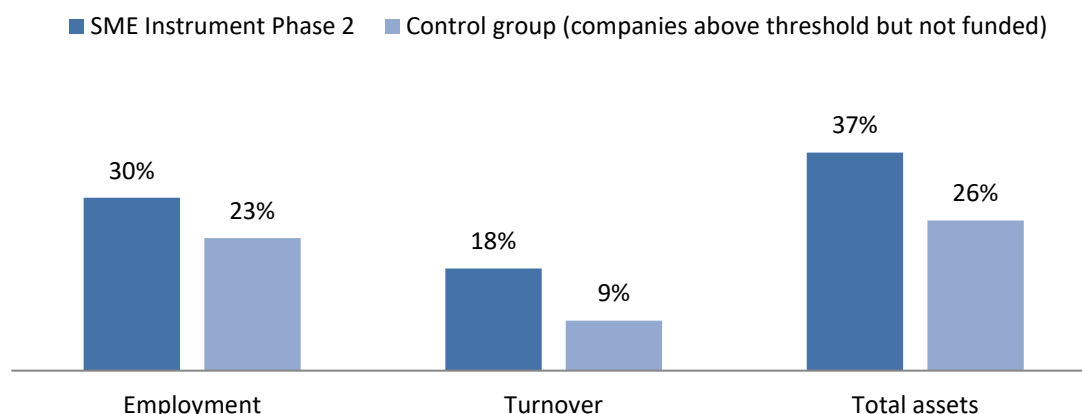
The second analysis took a different, macroeconomic approach, observing a change in total turnover, employment and assets of Phase 2 funded companies between 2013 (before the start of the programme) and 2016 (the latest year with most complete data in Orbis). The results were compared with a control group composed of SMEs that unsuccessfully applied for Phase 2, ended above the quality threshold, but have not received this or any other Horizon 2020 grant. The analysis was performed by DG RTD based on figures on jobs, turnover and assets retrieved from the commercial database Orbis.

SME Instrument companies grew between 7 and 12 percentage points more than a control group

In order to observe the effects of the grant, companies that already finalised Phase 2 projects were analysed. Depending on the parameter, data on between 86 to 130 companies out of 201 was available in Orbis. The control group included 1,778 companies and data was available for between 545 and 878 companies.

The results shows that total employment rates in SME Instrument companies that finalised Phase 2 grew by 30%, total turnover by 18% and total assets by 37%. In all three parameters, they grew more than the control group, the difference ranging from 7 to 12 percentage points ([see Figure 37](#))

Figure 37 Growth of finalised Phase 2 companies compared with the control group



Source: DG RTD, Orbis

inform

<http://www.infarm.de>

Sector
Phase 2
Germany

Urban farming
1.931.885 €

Grew to 100 employees and raised €20 million thanks to its vertically farmed plants



Martin Weber, COO

"The European Commission allowed us to build a culture around our vision, which is bringing farming back to cities. Our company has grown to over 100 people. Back when we started our project with the SME Instrument, we were only 12 people!"

INFARM gives urban communities the freedom to make a local, organic choice, no matter the season. The idea is to cut the supply chain to the minimum by building in-store farming close to the point of sale. The plants come with a whole ecosystem and detailed plan that controls light, temperature, pH, and nutrients to ensure the maximum natural expression of each plant. Infarm received €2 million from the SME Instrument in 2016 for its innovation and used it as an advantage to pitch private investors and clients. As a result, the start-up raised €20 million in a series A round and sealed a deal with two big German retailers.

An interesting subpopulation is the fast growing companies. According to the Commission implementing regulation (EU) No. 439/2014, a high growing company is an

enterprise with at least 10 employees at the beginning of its growth and an average annualised growth of number of employees greater than 10% per annum over a three-year period. Following

31% of Phase 2 companies are high growth companies

this definition, 31% of Phase 2 companies (data was available for 143 companies) are high growing companies.

One of these companies is Starcounter, which received both Phase 1 and Phase 2 funding. This Swedish company with 45 employees, which is building an artificial intelligence platform for enterprise software, saw its turnover increased by 521% over 3 years. Moreover, it obtained €3.3 M of follow up investments and ranked 399 in Deloitte Fast Technology 500 EMEA ranking³³ 2017.

Rankings of fast growing enterprises like Deloitte Fast Technology 500 EMEA ranking³⁴ and the Financial Times 1000 Europe's Fastest Growing Companies³⁵ are a good source of information about the next gazelles. These rankings spot the fastest growing technology companies in different geographical areas.

In Deloitte's 2017 ranking, companies were selected based on the percentage of fiscal-year revenue growth from 2013 to 2016. The average growth for individual companies was of 1,377 percent ranging from 220 percent to 107,117 percent.

Seven SME Instrument companies appear in this 2017 edition, as opposed to eight in the 2016 edition. Only one company listed in 2016 still appeared in the ranking in 2017: Rimac Automobili from Croatia, second year in a row it also holds the highest position among SME Instrument funded companies with 1059% growth recorded in 2017 edition (see Table 8).

Table 8 SME Instrument-funded companies in the Deloitte Technology Fast 500 EMEA 2017

Deloitte ranking	Company name	Country	Sector	Total growth rate over 2013-2016
101	Rimac Automobili	Croatia	Hardware	1059%
119	ALG Attestation legale	France	Software	955%
238	Starcounter AB	Sweden	Software	521%
384	Take the wind	Portugal	Software	306%
398	Ampacimon	Belgium	Clean Technology	293%
450	Optomed Oy	Finland	Life Sciences	248%
499	MC2 technologies	France	Hardware	221%

The Financial Times' 2018 ranking lists the 1,000 companies in Europe that have achieved the highest percentage growth in revenues between 2013 and 2016. The methodological details are slightly different from the Deloitte ranking; therefore, the final list is also different.

Seven SME Instrument companies were listed in the Financial Times ranking. Virtus from the United Kingdom, which is the highest rated out of the seven, registered an average annual growth of

³³ <https://www2.deloitte.com/global/en/pages/technology-media-and-telecommunications/articles/technology-fast-500-emea.html>

³⁴ <https://www2.deloitte.com/global/en/pages/technology-media-and-telecommunications/articles/technology-fast-500-emea.html>

³⁵ <https://ig.ft.com/ft-1000/>

163.5% over 2013-2016 and was ranked in the 61st position (see Table 9). Optomed, Rimac Automobili and Ampacimon are listed in both the Deloitte and Financial Times rankings. Adservio is second year in the row on the Financial Times ranking.

Table 9 SME Instrument companies in the Financial Times 1000 Europe's Fastest Growing Companies Ranking 2017

FT Ranking	SME Name	Country	Sector	Annual Revenue growth 2013-16
61	Virtus	United_Kingdom	Technology	163.5%
67	Seistag	Spain	Management Consulting	157.6%
144	Rimac Automobili	Croatia	Automobiles	112.1%
555	Ampacimon	Belgium	Industrial Goods	57.8%
602	Adservio	France	Support Services	53.8%
665	Optomed	Finland	Technology	49.9%
722	Hightex	Germany	Technology	46.6%

3.7. Liquidity and profitability

Another aspect of the financial analysis that helps in the assessment of the performance of the portfolio is the liquidity and profitability of the companies. This information is available through the Orbis database.

As a company's ability to create value for shareholders is fundamentally determined by its ability to generate positive cash flows, liquidity measured through cash flow is an important signal

56% of Phase 2 funded companies increased or passed to a positive cash flow over the period of three years

for investors. Positive cash flow indicates that a company's liquid assets are increasing, enabling it to settle debts, reinvest in its business, return money to shareholders, pay expenses and provide a buffer against future financial challenges.

Over the period of three years (year before application, year of application, year after application) 56% (73 out of 131 for which data was available) of the companies funder under the SME Instrument Phase 2 started

47% of Phase 2 funded companies increased or became profitable over the period of three years

generating positive cash flow or increased their existing positive cash flow. The Median increase in cash flow was of 101%.

Profit is also an important measure of the success of the company. Banks, suppliers and other lenders are more likely to provide financing to a business that can demonstrate that it makes a profit (or is very likely to do so in the near future), and that it can pay debts on time.

Profit is also an important financial source for a business. The moment a product is sold for more than its production cost, a profit is earned. This can then be reinvested.

Over the period of three years, (year before application, year of application, year after application) 47% (71 out of 151 for which data was available) of companies funded by the SME Instrument Phase 2 increased their profitability or became profitable.

3.8. Valuations

Another metric used to estimate the value or the price of a company is valuation. Valuing an innovative company or startup is intrinsically different from valuing an established company. Because of the high level of risk and often little or no revenue, traditional quantitative valuation methods are of little use. Startup valuations are often based on qualitative attributes. However, whenever a company received already an equity investment, an estimation of its valuation becomes possible. Dealroom uses the last recorded public valuation (for publicly traded companies) or a x4-x6 multiplication of the last VC round amount (assuming that a VC investment usually represents between 15%-25% of equity) to present valuations. The combined valuation of SME Instrument companies for which data is available is between €5.7 and €8 billion and this after 4 years from creation of the programme. For comparison, Techstars companies have a combined valuation of \$12.5 billion 12 years after the programme creation.

Table 10 presents the Top 10 SME Instrument funded companies in terms of their valuation. The Swedish company Arcam is at a top position with a €609 million valuation. It was a listed company that was subsequently unlisted as it was acquired by General Electric.

Table 10 Top 10 valuations in the SME instrument portfolio

Company	Valuation (€m)	HQ	Industry
Arcam	€609m	Sweden	3d printing/healthcare
Arralis	€200 - 300m	Ireland	Security, Transportation
Arsanis	€165 - 248m	Austria	Medical Healthcare
Ada Health	€160 - 240m	Germany	Medical Healthcare
Bonesupport	€135 - 202m	Sweden	Medical Healthcare
Rimac Automobili	€120 - 180m	Croatia	Cleantech, Transportation
AlphaSense	€120 - 180m	United States	Fintech, Analytics
EQS Group	€107 - 107m	Portugal	Agency
EIMindA	€102 - 153m	Israel	Medical Healthcare, Analytics
Amminex	€100 - 100m	Denmark	Cleantech
INFARM	€91 - 136m	Germany	Food, Agritech

Source: Dealroom

4. The Innovation power of the SME Instrument

The SME Instrument is a very open scheme. It was created to target all types of innovative SMEs showing a strong ambition to develop, grow and internationalise as well as all

97% of innovations supported by the SME Instrument are new to the market

types of innovation, including service, non-technological and social innovations³⁶. The excellence in innovation is one of the evaluation criteria and each SME Instrument project is an innovation. From Phase 2 final reporting, we know that 52% of companies are working solely on a new product (good or service) and 26% on a new product, a new process and a new method on the same time. 97% of the innovations supported by the SME Instrument are new to the market (71% are new to the market and to the company).

This chapter aims to analyse how the SME Instrument supports different types of innovation with a focus on market-creating innovations, and how it empowers companies to be more innovative. Different types of evidence were used in the analysis, including experts' assessment, portfolio mapping, and IP quality and valuation analysis.

4.1. Market creating innovations in the SME Instrument portfolio

Breakthrough, market-creating innovations are described as 'radically new, breakthrough products, services, processes or business models that open up new markets with the potential for rapid growth at European (and global) levels'.³⁷ Breakthrough, market-creating innovation differs from incremental innovation (an improvement of existing products for existing markets). The two forms can complement each other: a combination of incremental steps adding up to a big leap forward (like the smart phone).

At the end of 2017, an independent expert study³⁸ evaluated first finalised Phase 2 projects (70) to assess whether the SME Instrument achieved the expected impact, including growth of supported companies and introduction of innovations with the potential to create new markets. It also aimed to understand the nature of the SME Instrument's contribution to this success. The first element of the research assignment was to categorize the projects according to their market/commercial success.

The key to this exercise is the positioning of the finalised Phase 2 projects in function of the market creation seen through the innovation-based commercial

60% of the companies exiting Phase 2 demonstrate market-creating innovation with commercial success (according to expert evaluation)

³⁶ REGULATION (EU) No 1291/2013 establishing Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020).

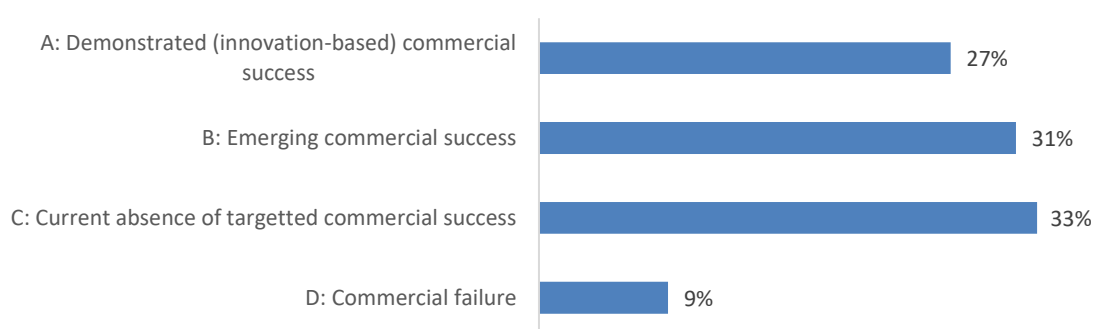
³⁷ The Horizon 2020 Work Programme 2018-2020, EIC part.

³⁸ Padilla P. et al., Is the SME-instrument delivering growth and market creation? Assessment of the performance of the first finalized phase II projects. Final report https://ec.europa.eu/easme/sites/easme-site/files/sme-i_assessment_report_final.pdf

success. Therefore, the emphasis was placed on the commercialization of new products, services, solutions, etc. but also the mobilization of additional investments.

The results are very positive (see Figure 38), as almost 60% of assessed companies reached commercialisation and 27% demonstrated an outstanding innovation-based commercial success. The report concludes that the SME Instrument delivers growth and market creation – all thanks to its flexible grant scheme, its exclusive acceleration support and its unique design that offers small grants to innovative companies at an early stage of development.

Figure 38 Clustering of finalized Phase 2 projects according to market/commercial success



A: Demonstrated (innovation-based) commercial success	Companies that passed the commercialization stage and have encountered some clear success in terms of raising additional funds from other investors (venture capital, acquisitions, IPOs etc.) and/or in terms of spread (which can also be understood as both market deployment and/or internationalization) of their market outreach.
B: Emerging commercial success	Companies that passed the commercialization stage but do not show (yet) outstanding market results. This is seen as a positive situation for the company as it reached the market and comply with the commercial achievement(s) targeted when applying for and implementing the SME Instrument Phase 2 support.
C: Current absence of targetted commercial success	Companies that do not show commercial results yet, but do not show any confirmed sign of failure either.
D: Commercial failure	Mid-way project termination due to unsolved technological problems, bankruptcies.

Source: Padilla P. et al.

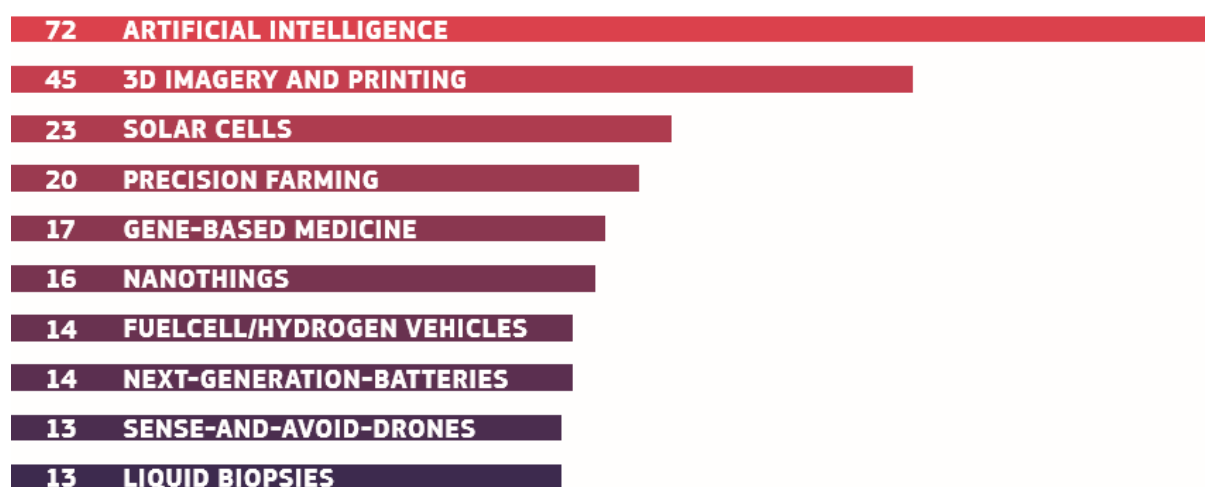
Another way of identifying **breakthrough technologies** is through an authoritative list of breakthrough technologies like the "10 Breakthrough Technologies" list published by MIT Technology Review³⁹, and the list of 10

The SME Instrument supports projects in 31 out of the 37 most ground-breaking innovation areas mapped by the MIT and World Economic Forum.

³⁹ <https://www.technologyreview.com/lists/technologies/2017/>

emerging technologies put together by World Economic Forum (WEF) and Scientific American⁴⁰. Both lists select technologies according to their potential to improve lives, transform economies and industries, safeguard the planet, and influence our culture. The list of WEF focuses more on technologies at a tipping point in their deployment ("some have been known for a number of years, but are only now reaching a level of maturity where their impact can be meaningfully felt"), while the MIT list mixes both technologies currently unfolding and those that will take a decade or more to develop. An internal EASME analysis showed that the SME Instrument supports 31 out of 37 areas of innovation identified by the MIT and the WEF lists published between 2012 and 2014⁴¹ through 380 projects.

Figure 39 number of SME Instrument supported companies in innovation areas mapped by the MIT and World Economic Forum 9Top 10)



Source: EASME

Moreover, many of SME Instrument funded companies regularly receive prominent innovation awards such as the Star of Innovation Prize for Immunovia (see section 5.3), Best Innovation Award at CES 2018 for Ultrahaptics (see section 5.3), Frost & Sullivan Visionary Innovation Leadership for Ada Health (see section 3.2) and Edison Award for Hiperbaric. These and other innovations coming out of the SME Instrument has potential to change the way we live and work.

4.2. Risk taking approach

The concept of breakthrough, market-creating innovation is coupled with a risk-taking approach. Novelty brings uncertainty and high opportunities goes together with high technological and financial risk. Failure rates play an important role in tracking whether the programme takes risk at the intended level in order to reach the intended high potential. The relation between high risk and high return comes from the investors' world, and is a widely accepted concept to construct an investment portfolio of technology-oriented companies. Usual Venture Capital funds assume a return on investment rate of 2 successful ventures out of 10.

⁴⁰ <https://amp-weforum-org.cdn.ampproject.org/c/amp.weforum.org/agenda/2017/06/these-are-the-top-10-emerging-technologies-of-2017>

⁴¹ These dates were taken into consideration as first SME Instrument projects were selected in Mid-2014.

The high technological and financial risk is mitigated in three ways in the SME Instrument, similarly to other accelerator programmes:

- Very selective application process before entry (success rate of 4% and 8%),
- Compulsory business coaching for companies accepted to the portfolio during funding,
- Business acceleration services to connect companies with the right business partners.

As many acceleration schemes, the SME Instrument also uses a combination of a high-quality filter approach to ensure that the very best minds, teams, and ideas get into the SME Instrument, and a broad portfolio approach to statistically discover breakaway companies across a wide range of industries and a high number of companies. These two approaches are implemented across the three areas described above.

Highly risky
20% of funded SMEs are pre-revenue companies

Already at the evaluation stage, the risk-taking approach is visible through the high percentage of pre-revenue companies that pass the selection process. A pre-revenue company is defined as a company with less than €1,000 turnover at the time of its SME Instrument application. The share of these companies even increased overtime, passing from 15% at the end of 2016 to 20% at the end of 2017.

Moreover, at the project implementation stage and later on, EASME measures the failure rate, which is defined as the sum of cases of failure divided by number of companies in the portfolio.

Failure Cases (FC) are companies in the portfolio with any of the following characteristics:

- Termination of projects due to insufficient technological performance,
- Bankruptcy during the project or until three years after the end of the project,
- Lack of growth within 3 years of the end of the project, no increase in revenues and no new investments.

Today, this indicator can just partly be measured, as first Phase 2 projects ended only in 2017. However, the aforementioned expert study (Padilla et al.) demonstrated a 8.5% failure rate among 70 initial Phase 2 projects that were finalized (see chapter 4.1).

This is similar to failure rates among other acceleration programmes. Techstars has funded 556 companies since its founding in 2006. It states that so far 11.1% have failed.⁴² 500 Start-ups has graduated over 250 companies from nine cohorts, and 50, or 20% of these companies have failed⁴³. Research by CB Insights shows that tech companies typically shutter within 20 months of their last

⁴² <http://www.techstars.com/companies/stats/>, retrieved 29-11-2017

⁴³ <http://vator.tv/news/2014-04-26-how-successful-are-the-top-accelerators#kXjvHU1Ht4kXfC5k.99>, retrieved 29-11-2017

financing rounds, with 70% dying before raising \$5 million. The majority of new tech start-ups, 55%, die before raising \$1 million⁴⁴.

4.3. IP portfolio analysis: IP quality and IP valuation

An innovative, new or improved product that meets customer expectations, and offers a business a new market territory that remains without competition for as long as the company retains its innovative advantage. Intellectual Property Rights (IPR) play a significant role in helping a business to gain and retain its innovation-based advantage. The objective is less about giving a business the right to use an invention than it

is about preventing others from using it for a predefined period. Therefore, patents are used as a proxy input for innovation. More specifically, the number of patents owned

52% of Phase 2 companies protect their innovations with 4627 patents that estimated value is between €292 million and €519 million

by an enterprise has often been used as one of the main indicators for determining the innovation intensity of that enterprise. Moreover, IPR can play a significant role in the enterprise business strategy (e.g. licencing based companies) and can be an important asset for a company, increasing its overall valuation.

Due to the high cost of patenting, some SMEs are more inclined to use trade secrets rather than patents as a form of protecting their inventions to stay competitive⁴⁵. However, this also means that, because of high costs, when an SME decides to patent its innovation, it has usually made a thorough market study and is convinced about the success of its invention. Therefore patenting can be an indicator of the quality of innovation. Moreover, IPR-related costs could be eligible for reimbursement under the Phase 2 project.

The aforementioned Orbis database⁴⁶ includes information about IPRs detained by the companies as well as indicators⁴⁷ estimating quality and monetarised value of the Intellectual Property (IP) portfolio per company thanks to methodology developed by IP-BI B.V.

The total quality of the IP portfolio of a company is a composite indicator taking into account the following key figures:

⁴⁴ <https://www.cbinsights.com/blog/startup-death-data/>, retrieved: 29-11-2017

⁴⁵ Mark Rogers, 1998, The Definition and Measurement of Innovation

⁴⁶ Orbis data coming from DG RTD: <https://orbiseurope.bvdinfo.com>

⁴⁷ Using a complex data mining and indicator based valuation methodology, IP-BI measures the intellectual property (IP) value qualitatively and quantitatively (monetarily), focusing on patents and utility models. 25 different IP and company-specific value indicators (like the forward-backward citations, family sizes, covered countries, patent age or legal status etc.) are used and referred to reference data of traded patents in the past. IPBI has built up an own reference database for traded patents. This is based on several M&A transactions where patents had been manually valued, different patent valuation projects as well as several patent auctions. The valuation was done for all patent families of each company in the database and aggregated to a set of company specific IP-related key figures. This IP portfolio value is a unique business information on the Orbis platform.

- **Market Attractiveness:** shows from an IP point of view the number of active competitors as well as the number of innovations made in the different technical fields of the company
- **Market Coverage:** shows the size of the market that is covered with the IP and in how many countries the IP guarantees protection.
- **Technical Quality:** shows the degree of innovation that can be derived from a company's IP
- **Assignee Score:** takes the R&D behaviour of the company itself into account that result into IP
- **Legal Score:** shows the legal strength of IP in terms of its degree of protecting effect.

The key figures are always related to their certain branch, e.g. Technical Quality key figure is related to all other companies with patents in the same branch. Therefore, the indicators are comparable to the direct competitive environment. The competitive environment is also calculated for each year. That means that if a Technical Quality figure improves from one year to the other, this may mean that the Technical Quality has improved; however, it may also mean that the competition has become worse in the same period. It is always related to the competition.

All the key figures lead to a monetary value of each patent family and finally to a total **IP portfolio value**.

The following analysis concentrates on **Total IP Quality and IP portfolio value** for Phase 2 companies.

Out of 605 Phase 2 companies, 319 (52%) detain 4627 awarded patents. The indicator for a median quality of the IP portfolio is of 49 (on a scale from 0 to 100) while the one of peer group⁴⁸ is of 45.

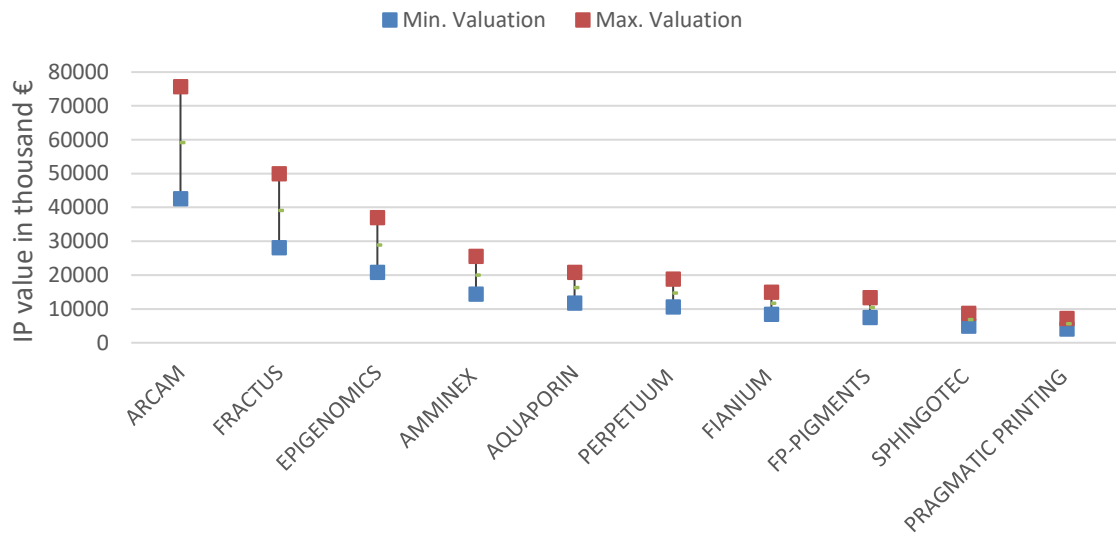
High quality patents: 60% of Phase 2 companies protecting their IP have higher IP quality than the peer group

60% of SME Instrument funded companies protecting their IP, had the Total IP quality indicator higher than the peer group.

The combined value of these patents is between €292 million and €519 million. The average IP portfolio value per company is between €0,9 million and €1,6 million. The company with the highest IP portfolio value (min. €42 million – max. €75 million) is ARCAM AB, which also has the highest valuation so far (see chapter 3.8). Other companies on the list of Top 10 IP valuations (**see Figure 40 below**), like Amminex, Fianium or Fractus had already achieved a major commercial success.

⁴⁸ The peer group is defined by an analysis of the patents that are owned by the company. Companies with similar dominant technologies in their patent portfolios are competitors by a technical point of view. The similarity algorithm for finding competitors/peers includes the value distribution of the patent portfolio and the patent classification (IPC). The classifications/technical categories that lead to the highest values is supposed to be the dominant technical field of a company because high valuable patents often lead to high revenues or margins .

Figure 40. Companies with top IP valuation



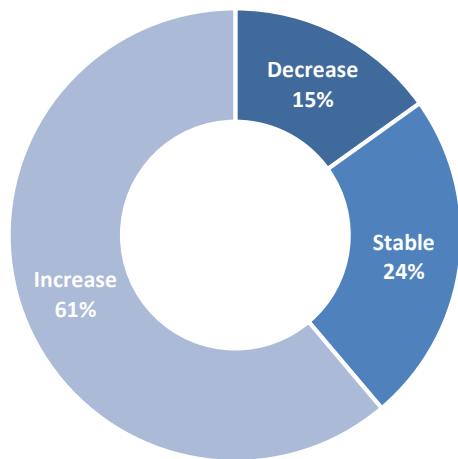
Source: European Commission, Orbis Database

Moreover, the IP portfolio valuation of the SME Instrument funded companies has an increasing trend. 61% of the registered companies increased their IP valuation compared to the year before, while 24% remained stable (see Figure 41).

High quality Patenting activity:

- 50% of Phase 2 companies with awarded patents
- 60% of which with higher quality of patents than the peer group
- 85% with increasing or stable IP value

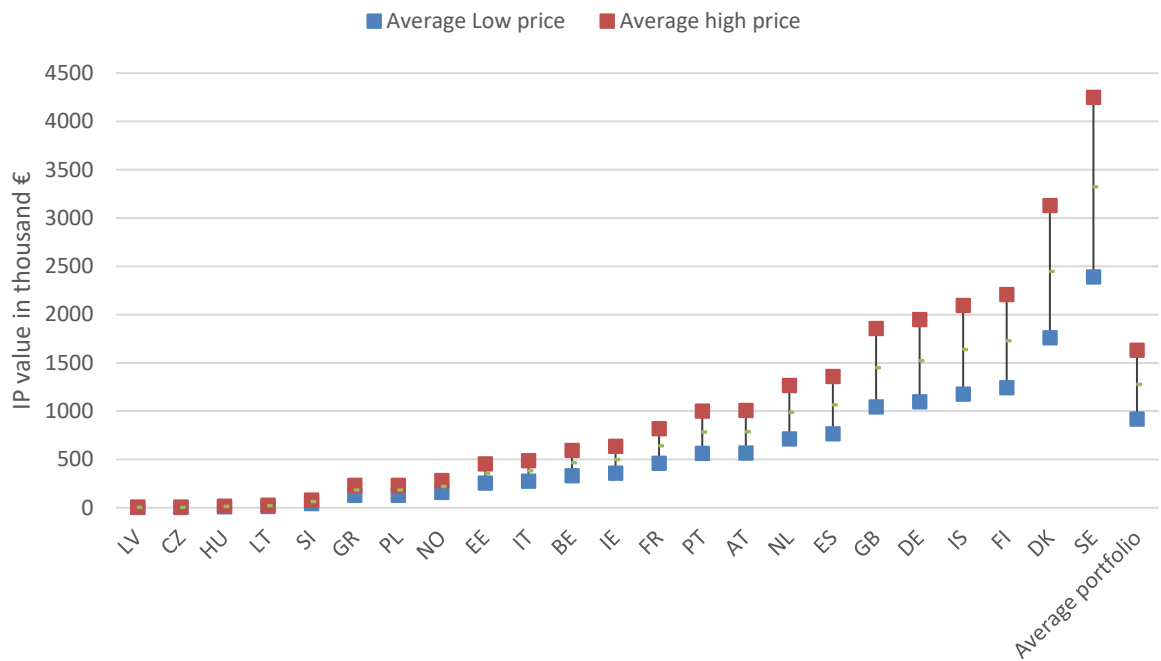
Figure 41 IP value change compared with the year before



Source: European Commission, Orbis Database

From the country perspective, companies from Sweden, Denmark, Finland and Iceland are the ones with highest IP portfolio valuation (See Figure 42)

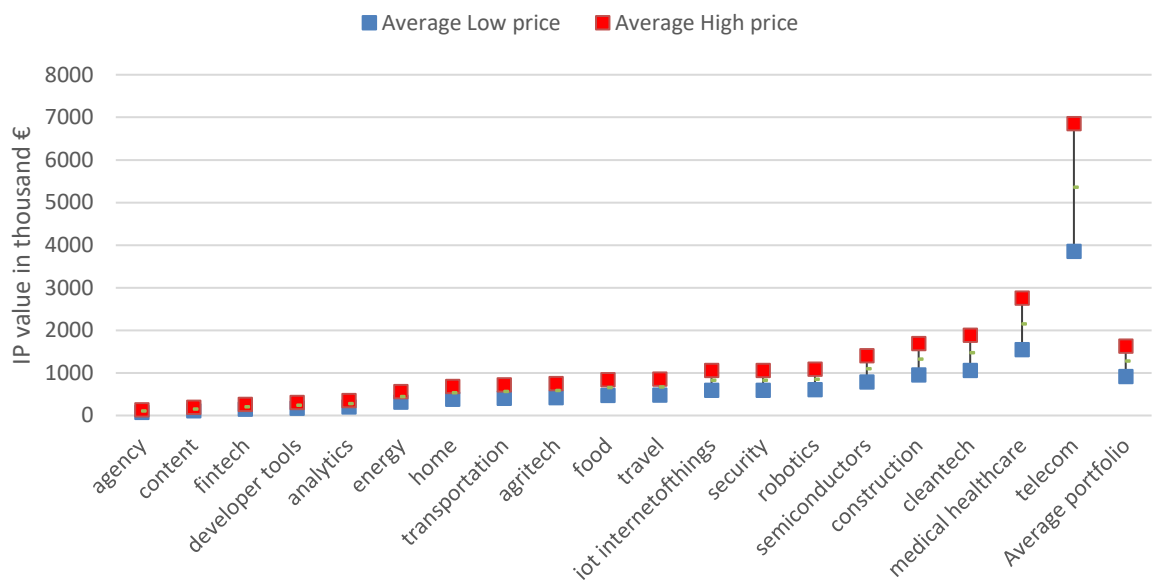
Figure 42 Average IP portfolio value (min and maximum value) per country



Source: European Commission, Orbis Database

A sector with a significantly higher average of IP valuation is telecom, mainly due to Fractus, a high IP value company in this sector. It is followed by health and cleantech.

Figure 43 Average IP portfolio value (min and maximum value) per sector

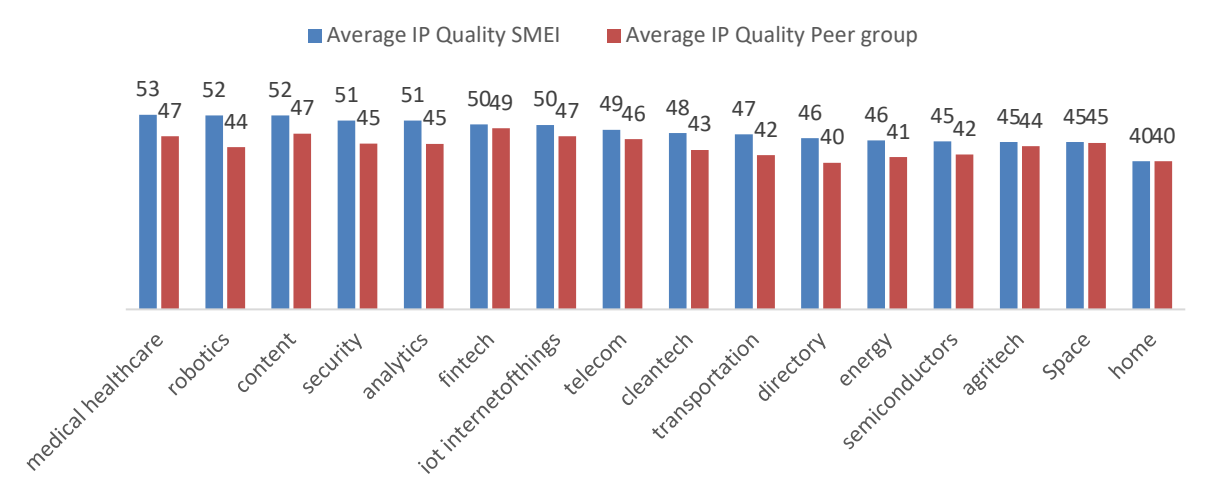


Source: European Commission, Orbis Database

The comparison between the average IP quality of SME Instrument funded companies and average IP quality of a peer group companies in different sectors gives an indication of the sectors in which we

can find the most innovative companies among the SME Instrument portfolio. These companies are mainly in the health, robotics, content and security sectors.

Figure 44 Industry sectors where SME Instrument-funded companies have better IP quality than the peer group



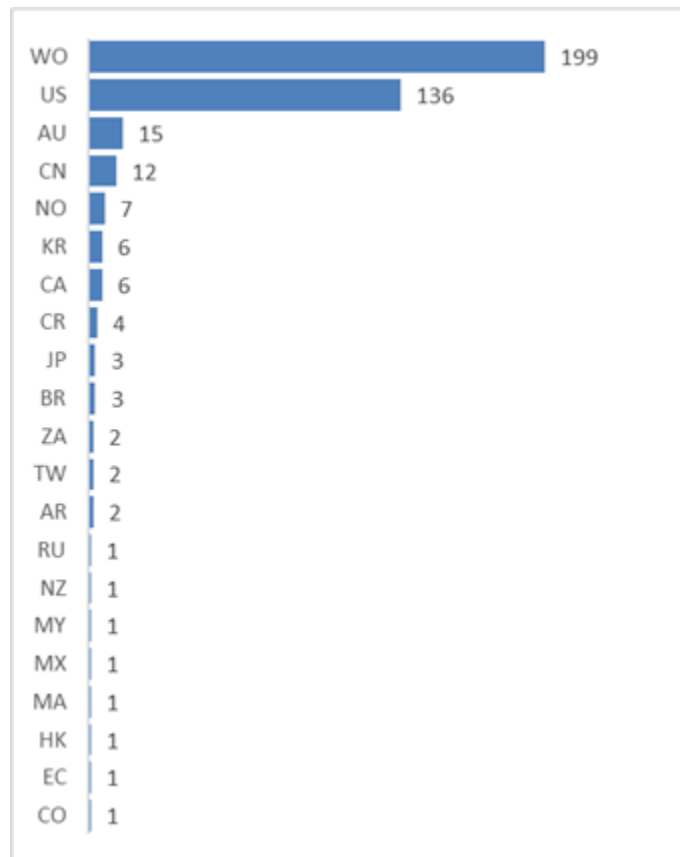
Source: European Commission, Orbis Database

The information from the IP portfolio of funded companies can also tell us about the markets in which they deploy the innovation. Through the assessment of the patents published and their geographical covering, we can assess the international projection of the innovation, in particular concerning extra-EU jurisdictions.

Highly innovative sectors: Health, robotics and content are the most innovative industry sectors in SME Instrument portfolio

More than 80% of Phase 2 companies detaining patents (52% of the Phase 2 portfolio) have published patents covering their industrial property outside of the EU jurisdiction. This includes 199 beneficiaries that have international (PCT) patent publications, and 136 with US patent publications.

Figure 45 Geographical distribution of patent protection of SME Instrument funded companies outside the EU jurisdiction



Source: European Commission, Orbis Database

4.4. Enhancing companies' innovation capacity

The aim of the feasibility study carried out under Phase 1 of the SME Instrument is not limited to supporting the SMEs in bringing their innovation project forward. It also aims to create a permanent learning effect that helps them build their innovation capacity. This is reinforced by the business coaching attached to the grant.

At the end of Phase 1, companies fill in a final report including a questionnaire on the structural effects that the feasibility study and coaching had on their company.

Phase 1 and coaching have structural impacts on the functioning of the SMEs, especially in terms of a "better understanding of clients' needs"

The SMEs are asked to rate a number of these potential structural effects on a scale of 1 to 10 (1=no progress; 10 = most progresses). The overall results are very encouraging; all included areas were rated between 7 and 8 points (median), which means that the SMEs have made important progress in all these areas. It can therefore be assumed that the funding and coaching have an overall positive effect on SMEs in the pursuit of their project and on their development as innovative companies. The top rated replies are "Better understanding of clients' needs", "Better understanding of technical issues", "Increased reputation/visibility of the company", "More strategic approach for identifying risks and risk management", "Better knowledge about marketing methods" and "Better knowledge about competitors", all with a median score of 8 (see Figure 46).

Figure 46 Improvements after Phase 1 funding and coaching (median scores)



Source: EASME

5. Why an Accelerator at the European level? Rationale for and the European Added Value of the SME Instrument

A rationale for public intervention lies in existence of a market failure, a situation where the market alone cannot fulfil the function, and leads to a social or economic loss. For public intervention at the European level, an additional element of complementarity with what is achievable at national level is needed. This chapter aims to analyse whether the initial rationale for creation of the SME Instrument still exists today, concentrating on evidence from SME Instrument beneficiaries, including their financial needs as well as expert evaluation of the reasons why companies are drawn to the SME Instrument.

5.1. Rationale for the SME Instrument – is it still there?

The SME instrument was created to help companies cross the so-called "valley of death" that emerges between invention and go-to-market. This problem has to do with the market's difficult relationship with uncertainty and estimating the potential value of new technologies, new products, new resources, new firms or new entrepreneurial capabilities. It is the time in the lifecycle of a company when an entrepreneur has to find additional funding to give his innovative design the boost it needs to develop a prototype or an activity that is mature enough to be picked up by private investors, and ultimately the market.

The size of this funding gap has been estimated to be in the range of €1 to €3 million, sometimes even €5 million.

Major increase in VC funding could be observed in all rounds, except for <\$2 million, which even decreased in 2017

This short analysis looks into the situation of the private financial

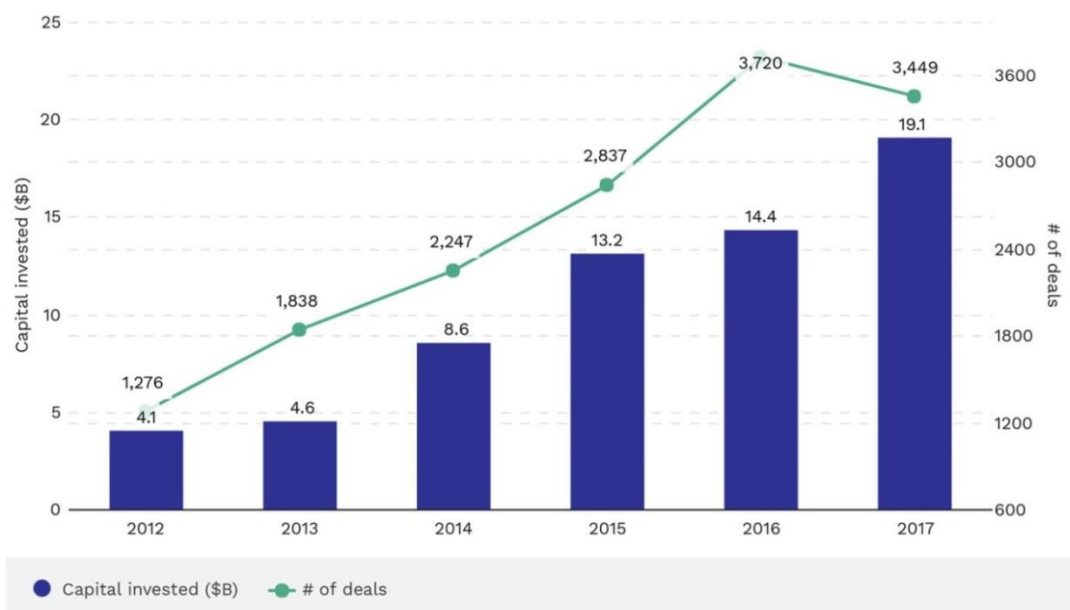
market today compared with 2013-2014 when the SME Instrument was conceived. It also looks into the financial needs of companies exiting the SME Instrument Phase 2 grant and verifies indirectly whether the estimated financial gap underpinning the SME Instrument was set at the right level, and is still current.

5.1.1. Financial market situation and financial needs of Phase 2 companies

Total private capital invested into European tech has increased by a factor of 5 over the past 5 years. The market is on a clear growth trajectory. However, this increase could be felt for all round sizes, except for <\$2 million rounds, which even declined in 2017⁴⁹. VCs go for larger, less risky rounds and the valley of death at the level of the first 1-2 million remains difficult to cross.

⁴⁹ State of European tech 2017. <https://2017.stateofeuropeantech.com/chapter/capital-flows/article/another-record-year-european-tech-investment/>

Figure 47: Capital invested (\$B) and number of deals, annual data from 2012 to 2017



Source: <https://2017.stateofeuropeantech.com/chapter/capital-flows/article/another-record-year-european-tech-investment/>

At the same time, companies exiting Phase 2 indicate that they are looking for another 1-5M€ round. According to the survey⁵⁰ run among Phase 2 companies that were approaching the end of their grant period or had completed it, 93% of them are looking for further investment. The most popular investment size is 1-€3 million sought by 30% of respondents, followed by €3-5 million sought by 24%. Only 15% of companies are looking for an investment of €10 million and higher.

54% of SME Instrument Phase 2 companies ending the grant look for a follow-up investment of €1-5 million

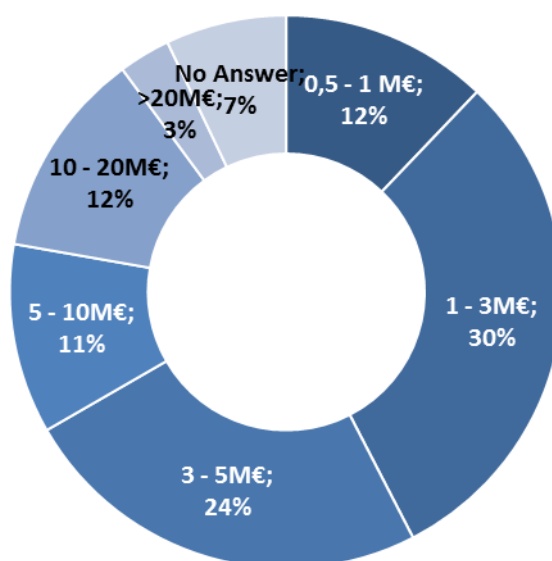


“SME Instrument covers the gap in the market, which is the support for the companies from the RnD phase into the market, before early stage investors come in. From this perspective, it is very interesting for business angels. It helps identifying the future champions of innovation in Europe and it builds a community”

Marie-Elisabeth Rusling, Business Angels Europe

⁵⁰ Survey conducted by EASME in December 2017 among 288 companies approaching the end of their grant period or had completed it. The response rate was of 33%.

Figure 48: "What is the range of investment you are looking for?" Survey among exiting SME Instrument Phase 2 companies



Source: EASME

Moreover, the companies were requested to judge the possibility of getting such investment on a scale from 1-10 (1-No chance; 10-Without a problem). On average the rates for all investment sizes ranged from 5 to 6.7 – all very much in the middle. However, companies aiming for the highest investments (above €20 million) tend to judge their chances higher than companies aiming for smaller amounts do. In fact, companies looking for investment in a range €1-3 million judge their possibilities of getting the funding the lowest (5.1).

Table 11: How do you judge the possibility of acquiring a given amount of funding from private sources? (Scale 1-10: 1-No chance; 10-Without a problem)

Amount	Average rate
0.5 - 1M€	5.5
1 - 3M€	5.1
3 - 5M€	5.8
5 - 10M€	6.3
10 - 20M€	5.7
>20M€	6.7

Source: EASME

This information matches the data collected through company applications to pitch to investors under the SME Instrument Business Acceleration Services that kicked off in September 2017. By the end of 2017, 66 Phase 2 companies applied to attend three events. The results are similar to the aforementioned survey results, as 54% of the participating companies indicated that they look for an investment at the level of €1-5 million. Only 5% was looking for more than €10 million.

5.1.2. First round of investments after the SME Instrument Phase 2

The data on the follow-up investments into SME Instrument Phase 2 companies complement this information. 50% of the companies that obtained investment after the SME Instrument Phase 2 got between €1-5 million in their first follow-up round. Around 28% got above €10 million.

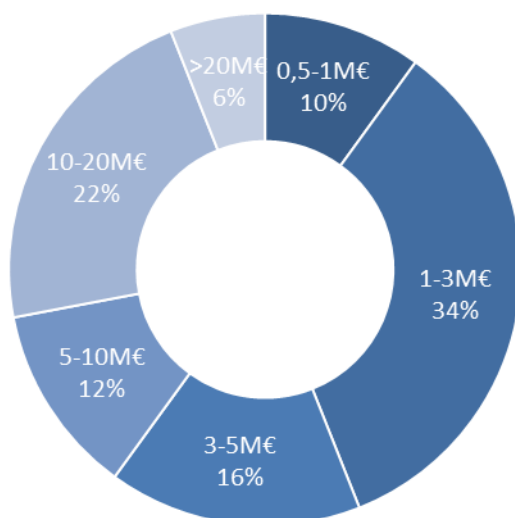
50% of follow-up investments after SME Instrument Ph2 were in a range of €1-5 million

The observation of the post- and pre-SME Instrument private

SMEs combine smaller rounds to accumulate a Series A level of investment (€3-8 million) before they can go for >€10 million rounds

investments shows that companies often combine 2-3 smaller rounds to accumulate a series A level of investment (3-8M€) before they can go for higher rounds of above €10 million. That was the case of all SME Instrument companies that got an investment above €10 million after the SME Instrument.

Figure 49: First investment rounds gathered by companies after the SME Instrument Phase 2



Source: EASME after Dealroom

To conclude, the market gap at the level of €1-5 million persists in Europe. Although the total amount of venture capital available for tech companies has significantly increased since 2012, the capital available for rounds lower than €2 million has dropped. The VCs prefer larger and safer rounds. The analysis of the financial needs of companies that obtained Phase 2 grants demonstrate that the majority of them are looking for an investment at the level of €1-5 million. The SME Instrument Phase 2 grant (on average €1.7 million) covers partly this need. These companies had either previous funding of a similar scale to Phase 2 grant or they look for another €1-5 million

follow-up investment. Companies can go for a scale-up investment of above €10 million only after securing such an investment amount.

Currently there are almost no national funding schemes combining amounts and co-financing rates similar to the SME Instrument with access to international networks of coaches, investors and corporates with a Pan-European branding effect⁵¹. This is one of the reasons behind the great popularity of the SME Instrument scheme, which has attracted 47,000 proposals so far. **Without a funding scheme offering innovative companies the €1-5 million to finalise the prototyping and testing phase, a much smaller number of breakthrough innovations would reach the scale-up phase.** At this stage, intervention from the European Union has added value.

5.2. Why do Companies come to the SME Instrument? Evidence from Experts' Review

For all actions at the European level, the European Commission does not only need to demonstrate that there is a market gap for its intervention but also that this intervention would be complementary to what can be achieved at the national level. The same applies to the SME Instrument. The recently performed expert evaluation⁵² looked into this issue, trying to identify the unique features of the programme that attracted the companies, and to what extent they went beyond what can be offered at the national level. This qualitative information was gathered through cases studies and in-depth interviews with company representatives.

The study demonstrated that the SME Instrument **Phase 2 support offered:**

1/ unique combination of features that are key to close-to-market innovation:

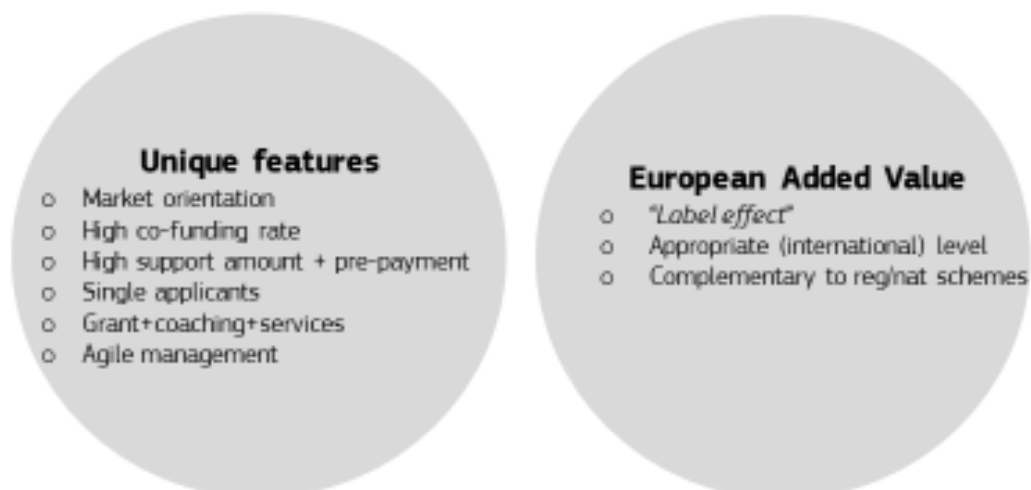
- a. **Market orientation.** The market-oriented design of the Phase 2 support was critical to the supported SMEs, which mainly aimed for demonstration activities of different kinds and required a support scheme that would go beyond direct funding for technological development.
- b. **High co-funding rate (70%), high support amount and possibility of pre-payment.** These were key differentiating factors compared to other regional and national funding streams, which are often based on lower amounts or less interesting funding modalities according to most interviewees.
- c. **Possibility for single applicants.** The possibility for SMEs to apply as single applicants added value compared to other collaborative RTDI schemes usually found at the national and regional levels; but also other European funding streams addressing higher technology readiness levels (TRL).
- d. **Appropriate instrumental mix.** Under Phase 2, the SME Instrument support is made of a mix of instruments (direct co-funding, business acceleration services, etc.) that was deemed appropriate to technology deployment and more specifically demonstration-related challenges.

⁵¹ According to a case study analysis among finalised Phase 2 projects, the most attractive features of the Phase 2 support that distinguish it from other available public funding sources are: Scope – integration of (technological) innovation (high TRL) and market-oriented features into one support scheme; Funding – amount and co-funding rate; Business Acceleration Services and International coaching as well as fast and flexible programme management (see below for more).

⁵² Padilla P et al.

- e. **Agile programme management.** From the case studies, it is clear that the management of the programme is effective and offers the flexibility required in a close-to-market context (when user specifications change technical priorities for instance). The company representatives unanimously perceived it in a positive way. A very illustrative example came from Kiosked, who explained that light and flexible management from EASME allowed for a better use of resources and capabilities in the company.

Figure 50 SME Instrument unique selling point



Source: Padilla et al.

Apart from this unique combination of close-to-market features, the SME Instrument's European Added Value is based on:

2/ The SME Instrument branding had a "label effect" that offers a unique credibility stamp. Companies benefitted from the reputational value of the SME Instrument. The "European stamp" was of particular value for the SMEs on European but also worldwide markets.

3/ The support was offered at an appropriate (international) level. The scope and ambition of the SME instrument is international in nature. In that sense, the SME Instrument offered a particular value compared to regional, national and other EU SME innovation measures. It combined hybrid support tools with a unique internationalization footprint. It offered an access to a wider market of competences and expertise, as well as easier links to international markets in and outside Europe.

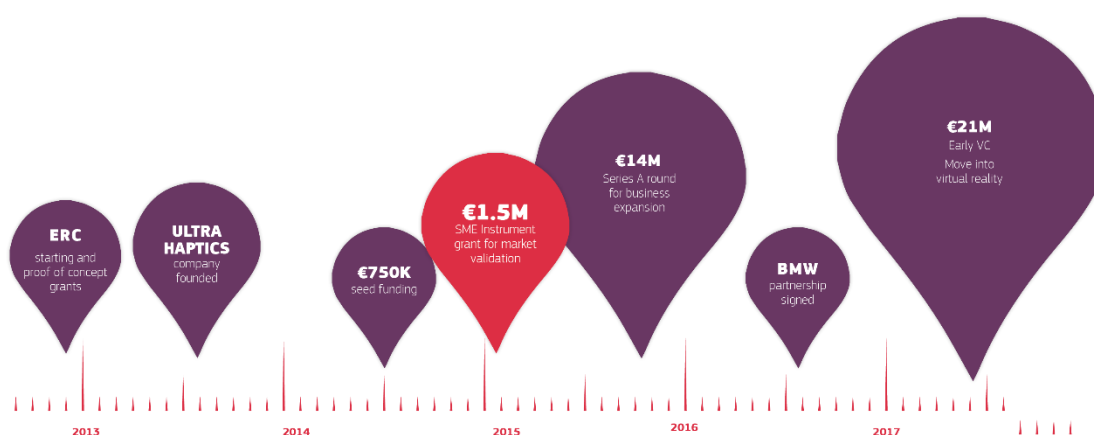
4/ The SME Instrument was perceived as complementary to other European, national and regional schemes. Several studied companies experienced public support schemes in the past, prior to their SME Instrument experience, or in combination with it. In most cases, this support was mainly mobilized for earlier developments conducted at lower TRLs. The SME Instrument plays a complementary role in that respect as it addresses different innovation stages and needs that are not only technology-related, but also market-driven.

5.3. Right funding at the right moment

The stories from SME Instrument funded companies confirm that the SME Instrument funding came at the right moment – it supplied the “first million” the companies needed to finalise their testing activities and validate the product on the market. It had a de-risking effect on the investors that came afterwards.

This was the case of UK based Ultrahaptics that developed a **touchless ultrasound haptic technology**. This breakthrough innovation allows users to receive tactile feedback without needing to wear or touch anything. The technology uses ultrasound technology to project sensations through the air and directly onto the hand. It was developed through an ERC starting and proof-of-concept grant. The company was created in 2013 and in 2014, they received a seed funding of €750,000. However, the €1.5 million funding from the SME Instrument Phase 2 really allowed them to perform market validation studies for the technology and accelerated the company’s growth. After the grant, Ultrahaptics raised €30 million in private investment and grew from 1 to 80 employees. It is now set to conquer the market of virtual reality

Figure 51. Investment and development timeline of Ultrahaptics



Source: EASME, Ultrahaptics

ultrahaptics 

Sector
Phase 2
United Kingdom

Virtual Reality
1,492,194 €

Raised €30 million for its touchless ultrasound haptic technology



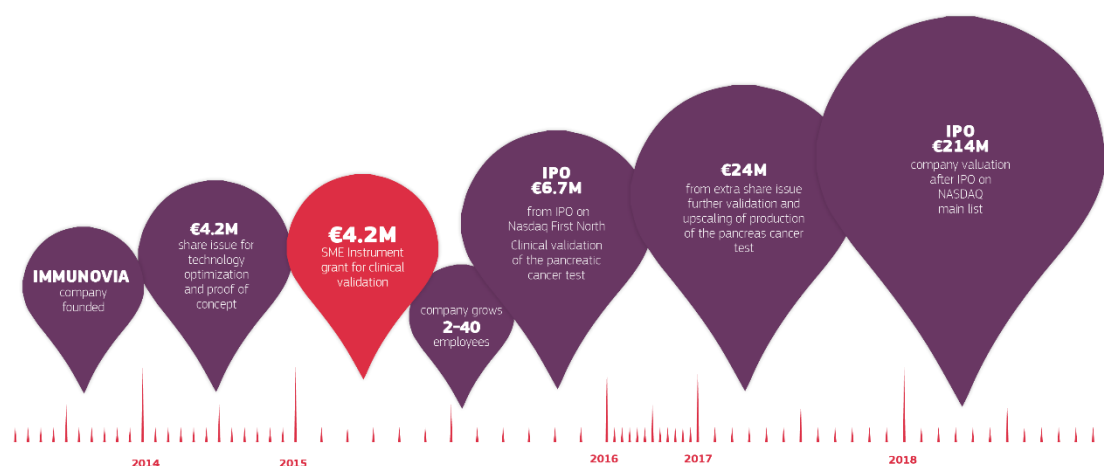
**STEVE CLIFFE & TOM CARTER,
FOUNDERS of ULTRAHAPTICS**

"Ultrahaptics is a company that is now four years old. We produce feeling and sensations in mid-air, using focused ultrasonics, which allows us to create buttons, sliders, switches and so on that allows us to create machines and creating objects in virtual and augmented reality. The company received a Horizon 2020 SME Instrument grant 3 years ago which was instrumental in transforming the company from a small technology university spin-out into a commercial business that now employs 80 people".

<http://www.ultrahaptics.com>

The other example is Swedish Immunovia, founded by scientists from the Lund University who developed a world first blood test to detect and diagnose pancreatic cancer. In 2014, Immunovia received a €4.2 million of SME Instrument Phase 2 grant for the clinical validation of their test- an important step without which they would not be able to make their initial IPO on NASDAQ FirstNorth in Dec. 2015. In April 2018, Immunovia was moved to the main list of NASDAQ with a company value of € 214 million and over 40 employees. The SME Instrument gave a strong EU label to the Swedish company who became fully credible in the USA. Thanks to SME Instrument coaching, Immunovia could work with an international coach – a specialist in Spanish healthcare reimbursement market. They accessed advice that will allow them to speed up their entry into this market.

Figure 52. Investment and development timeline of Immunovia



Source: EASME, Immunovia



Sector
Phase 2
Sweden

Health
4.244.969 €

Admitted for trading on Nasdaq main list with their early diagnosis test for cancer



MATS GRAHN, CEO IMMUNOVIA

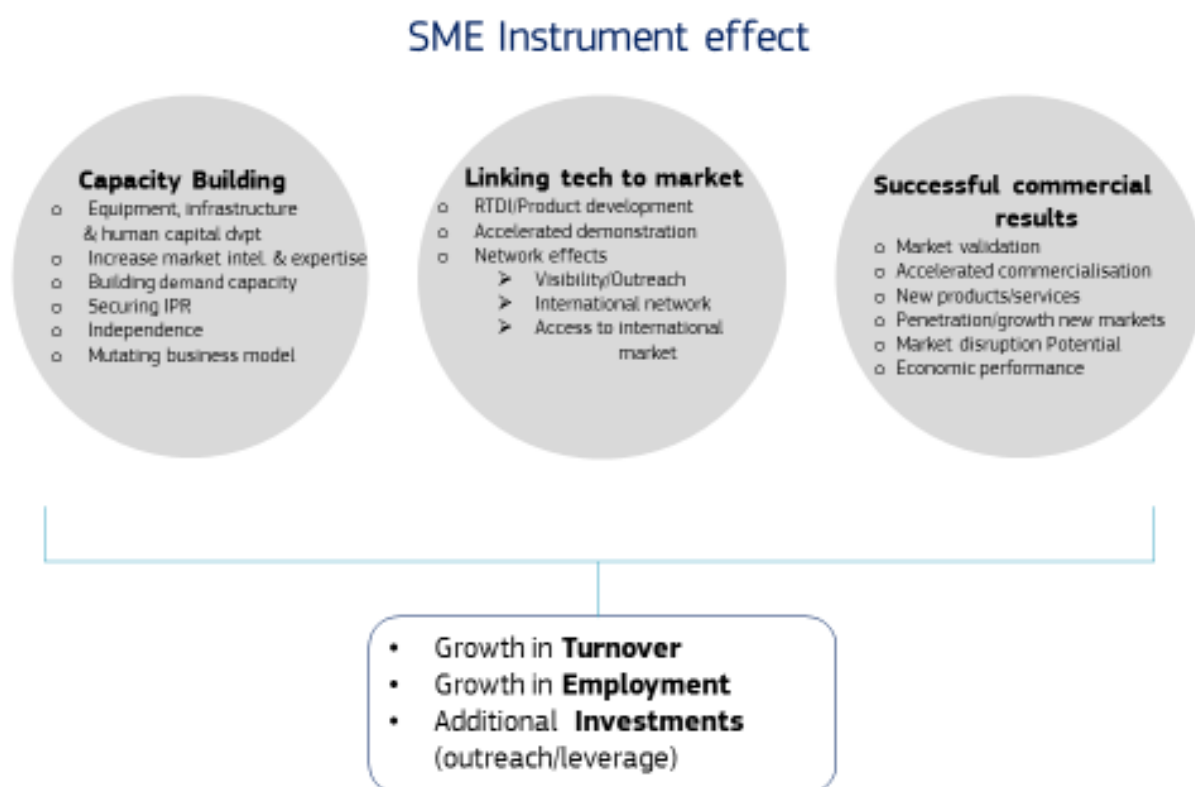
"SME Instrument was very beneficial for Immunovia. It accelerated the development of our first diagnostic test for pancreatic cancer, it created investor confidence and thereby supported the financing of the company after the grant. It also created confidence among clinical collaborators (leading cancer centers) and supported our agreement efforts in this area. All of this was necessary to be able to be listed on Nasdaq."

<http://www.immunovia.se>

CONCLUSIONS – The effects of the SME Instrument

There are many ways in which SME Instrument can contribute to the success of the supported companies. As many as there are trajectories followed by the SMEs themselves. The analytical work performed by independent experts evaluating first finalised Phase 2 companies⁵³ led to a clustering of the effects of the SME Instrument in terms of their position in the overall logic of action (**see Figure 53**) : 1/ capacity building; 2/ linking technological progress to market opportunities; 3/ successful commercial success leading to 4/ better economic performance.

Figure 53 SME Instrument effect



Source: Padilla et al.

1/ The SME Instrument helps companies build the appropriate capacity to deploy their innovations in the market, including:

- a) **Equipment, infrastructure and Human Capital development.** Every SME under the scope developed critical internal capabilities, especially concerning human resources. Thanks to the funding of human-related expenses, SMEs could redirect some financial lines toward equipment and infrastructure-related priorities.
- b) **Increase in market intelligence and expertise.** Some of the awardees gained in market knowledge and expertise (market-oriented but also technical). The development of proper market intelligence was particularly emphasized by the Business Coaching. This allowed them to

⁵³ Padilla P. et al.

further improve their strategies and better succeed in their target markets. Some even went beyond, building upon project results to develop a new line of expertise and provide new services on that very basis.

- c) **Building demand capacity.** A link was operated to the demand side through the Phase 2 activities undertaken by some of the applicants, leading to the possibility of building a demand capacity on the user side.
- d) **Securing Intellectual Property Rights.** IPR portfolios were either developed or strengthened during the Phase 2 support process, often as a result of the support of the Business Coaching.
- e) **Remaining independence.** The possibility for SMEs to receive public funding guaranteed their independence. This appeared to be key to the company representatives who were not eager to run the risk of a possible dilution of the company shares due to an overwhelming level of exposure to external private investment.
- f) **Mutating business model.** Some of the technological and market developments pursued by the participating companies implied fundamental changes. These could be organisational or production-related. For some of the companies, the Phase 2 grant supported key adjustments in the company business model. It led to a structural modification of the initial company revenue generation model as well as to other relevant changes in the building blocks of the company. The role of the Business Coaching proved to be crucial in that context.

2/ SME Instrument support proved instrumental in linking technological progress to market opportunities:

- a) **Research, Technological and Product Development.** The support helped all studied companies develop knowledge, expertise and overcome the technological challenge(s) faced, for instance when bringing a prototype to a full production scale as well as when trying to improve existing solutions.
- b) **Accelerated Demonstration.** Demonstration activities are usually associated to high costs and market-related activities for which funding is difficult to find and capabilities hard to acquire. The Phase 2 support allowed SMEs to go through the demonstration phase faster, bridging the valley of death toward market deployment in a more efficient way.
- c) **Visibility and outreach.** The Business Acceleration Services offered by the SME Instrument proved key to their recipients. The participation of companies to fairs and events brought by the SME Instrument support led them to be more visible and reach out to new players in Europe and beyond:
 - **International Network.** Network development was critical to the SMEs. It was supported in particular by the Business Acceleration Services and facilitated by the use of the European “stamp” by the awardees promoting their activities.
 - **Access to international markets.** The SME Instrument facilitated access to international markets not only in Europe but also in Asia. It was important in view of reaching out to a broader set of possible clients and partners.

3/ The increase in capacity and connection to cross-national networks resulted in several forms of commercial success:

- a) **Market Validation.** Market validation was obtained as a key result of the Phase 2 support. Companies could establish links with the user side in order to receive consumer feedback on their product(s)/service(s).
- b) **Accelerated commercialisation.** The SME Instrument Phase 2 funding accelerated the innovation and commercialization process. The support received helped SMEs catch market opportunities (and therefore market shares) faster in their respective competitive market(s), leading to a competitive “first-mover” advantage, for instance by providing an opportunity to reach demonstration results and/or access lead-users or distributors faster.

- c) **New products and services.** All SMEs reached the commercialization stage for a new or renewed solution. New products and services came out of the SME Instrument Phase 2 activities undertaken by almost all supported SMEs.
- d) **Penetration of and growth on new markets.** Some of the SMEs could enter and grow on new markets thanks to the Phase 2 support.

4/ Such commercial success leads to an increase in economic performance, which can be observed in different ways:

- a) **Growth in turnover.** The companies benefitted from an increase in turnover as a result of their SME Instrument experience. Some of them even consider that their current sales and commercial success are 100% based on their SME Instrument award.
- b) **Growth in employment.** All SMEs increased their human capacity in the first place. Additionally, the SME Instrument led to an increase in employment in all SMEs under analysis and for different skills categories.
- c) **Additional investment: investors' outreach and de-risking effect.** The Phase 2 support played a de-risking role toward potential investors as it provided the companies with additional financial capacity and more credibility. These are elements that are positively perceived by potential investors. They could then build upon the success developed by the company under the Phase 2 project or even acquire/merge with the SME. The Business Acceleration Services were important in supporting the SMEs' investors outreach efforts.

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The SME Instrument supports market-creating innovation in small and medium-sized businesses (SMEs) with significant growth potential and global ambitions. As part of Horizon 2020 – the EU's €80 billion research and innovation funding programme – it will invest €3 billion in 7 500 companies until 2020. With more than 47 000 applications received and over 3 200 small companies funded, in only four years the SME Instrument has emerged as an essential player on the European innovation scene.

In 2017, acceleration supported by the SME Instrument took off with more leverage on private investment and more exits than ever before. SME Instrument-funded companies accounted for 10% of all tech IPOs in Europe and the follow up equity investments into companies funded by the SME Instrument doubled that year – reaching a total of €966 million since 2014.

In 2018 the SME Instrument will become a central pillar of the European Innovation Council pilot that brings together EU innovation funding support with a stronger focus on breakthrough innovation. In order to meet the needs of innovators, the SME Instrument has come forward with a new evaluation process that involves a Jury of investment experts who select the most innovative small businesses looking to overcome the financial market gap for risk investment.

The SME Instrument impact report aims to provide first hand insights into the growth trends and profiles of the funded SMEs. Results and impacts observed in only four years are just a glimpse of the companies' future potential. This report presents cumulative data from 2014 to end of 2017.